FINAL
Preliminary Assessment Report
Camp Dodge, Johnston, Iowa

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

June 2019

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Acronyms and Abbreviations

°F	degrees Fahrenheit
AECOM	AECOM Technical Services, Inc.
AFFF	aqueous film forming foam
amsl	above mean sea level
AOI	area of interest
AR	alcohol resistant
ARNG	Army National Guard
bgs	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CSM	conceptual site model
FTA	fire training area
IAARNG	Iowa Army National Guard
IED	Installations and Environment Division
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
PA	Preliminary Assessment
PFAS	per- and poly-fluoroalkyl substances
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
SI	Site inspection
US	United States
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
VSI	visual site inspection
WWTP	waste water treatment plant

Executive Summary

The United States 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*. The ARNG is assessing potential effects on human health related to processes at facilities that used per- and poly-fluoroalkyl substances (PFAS) (a suite of related chemicals), primarily in the form of aqueous film forming foam (AFFF) released during firefighting activities or training, although other PFAS sources are possible.

AECOM completed a PA for PFAS at Camp Dodge in Johnston, Iowa, to assess potential PFAS release areas and exposure pathways to receptors. The property at Camp Dodge is a mixture of state-owned land, state-owned land under a federal reversionary clause, and federally-owned land licensed to the State of Iowa for training and support of the Iowa National Guard. The lands under the federal reversionary clause are state-owned while in use by the Iowa National Guard but revert to federal control if they are no longer used by the Iowa National Guard (IAARNG, 2013).

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 21 and 24 August 2018
- Interviewed current and retired Camp Dodge personnel during the site visit including Iowa Army National Guard (IAARNG) environmental managers, the Fire Brigade Training Specialist, and other operations staff
- Completed visual site inspections at known or suspected PFAS release locations and documented with photographs
- Developed a conceptual site model (CSM) to outline the potential release and pathway of PFAS for the Areas of Interest (AOIs) and the facility

Eleven AOIs related to potential PFAS releases were identified at Camp Dodge during the PA. The AOIs are shown on **Figure ES-1** through **Figure ES-4** and described below:

Area of Interest	Name	Used by	Potential Release Dates
AOI 1	Conex FTA	IAARNG	2006 to 2012
AOI 2	Rail Load FTA	IAARNG	2012 to 2018
AOI 3	Fuel Point FTA	IAARNG	2007 to 2009
AOI 4	Gravel FTA	IAARNG	2006 to 2012
AOI 5	Chapel FTA	IAARNG	2009
AOI 6	Structure Fire	IAARNG and municipal fire departments	2011
AOI 7	Camp Dodge Fire Station	IAARNG	2006 to 2018
AOI 8	Trash Dumpster Fire	IAARNG	2007 to 2012
AOI 9	Car Fire Training Area	IAARNG	2007

Area of Interest	Name	Used by	Potential Release Dates
AOI 10	Aggregate Collection Point FTA	IAARNG	2012 to 2018
AOI 11	Live-Fire Shoot House Fire	IAARNG	2012

Based on documented potential PFAS releases at these AOIs, there is potential for exposure to PFAS contamination in surface soil and intermittent surface water and sediments to site workers, construction workers, residents, and trespassers/recreational users via ingestion and inhalation; subsurface soil to site workers and construction workers via ingestion and inhalation; and groundwater to all receptors via ingestion. The CSM for Camp Dodge is shown on **Figure ES-5**.

CLIENT	ARNG			
NOTES	Preliminary Assessment for PFAS at Camp Dodge, IA			
REVISED	6/20/2019	GIS BY	MS	6/20/2019
SCALE	1:3,600	CHK BY	JZ	6/20/2019
Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	6/20/2019

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Western Cantonment Summary of Findings

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure ES-1

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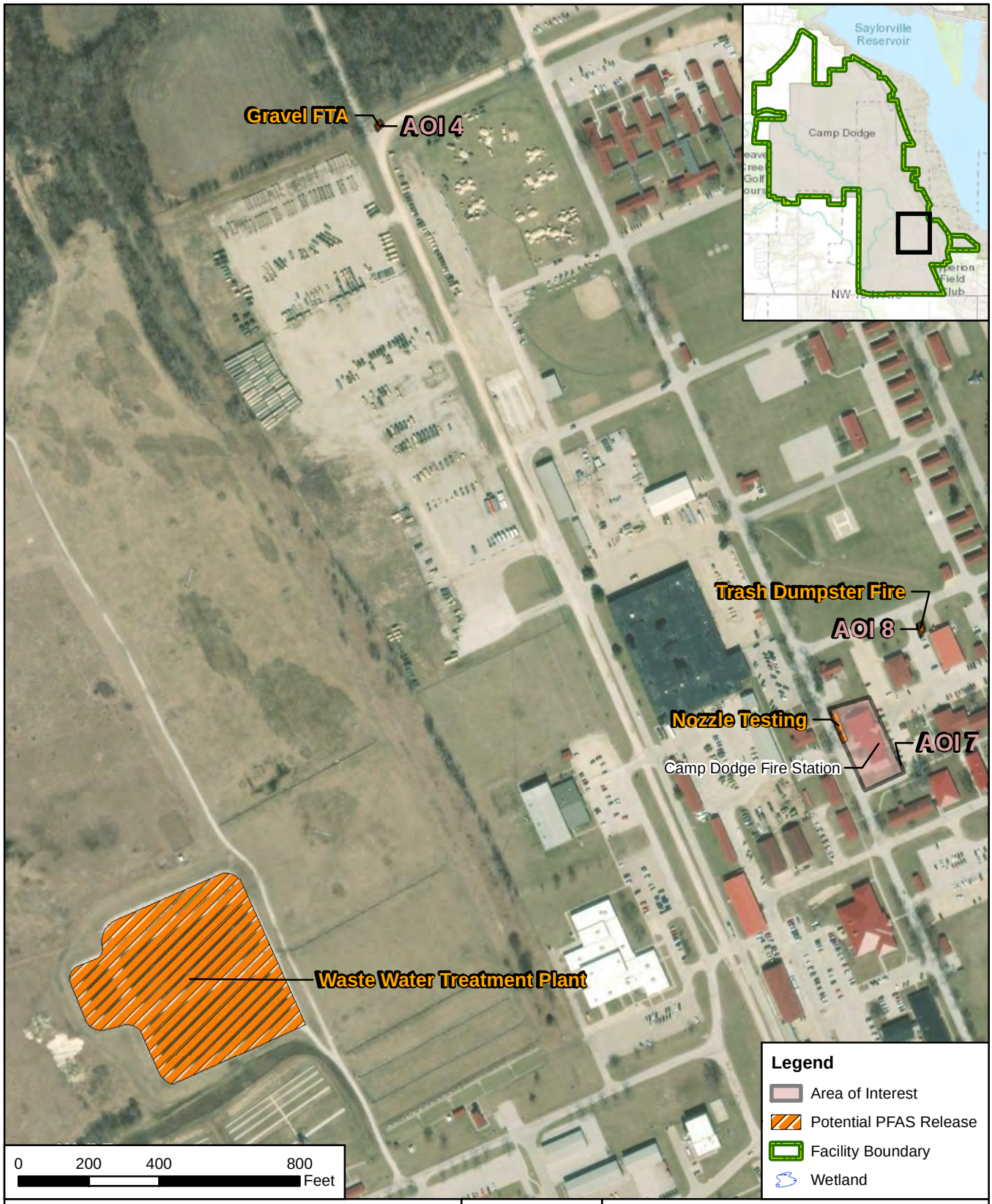

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Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	6/20/2019

Central Cantonment Summary of Findings

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Figure ES-2

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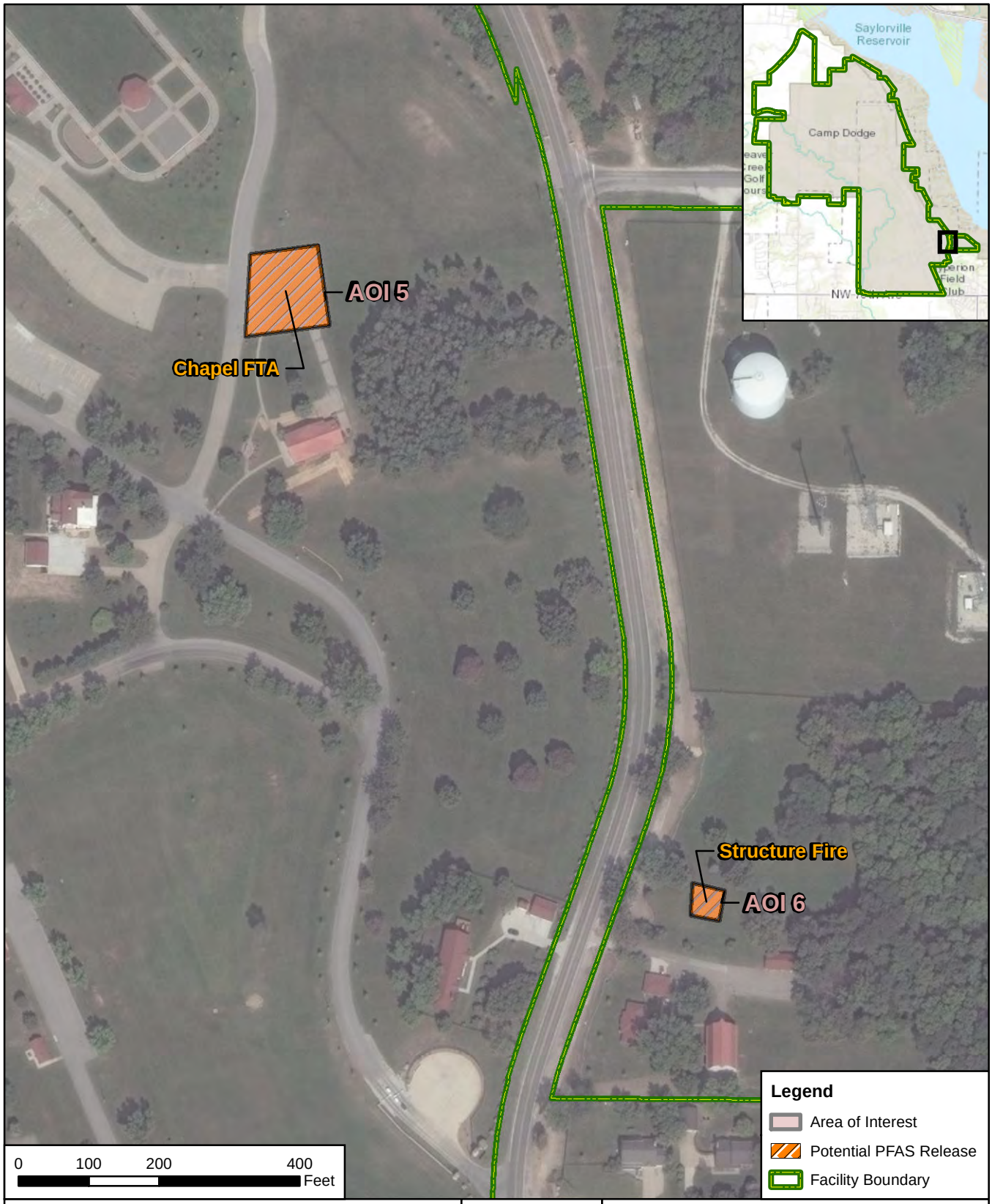

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Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	6/20/2019

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Eastern Cantonment Summary of Findings

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Figure ES-3

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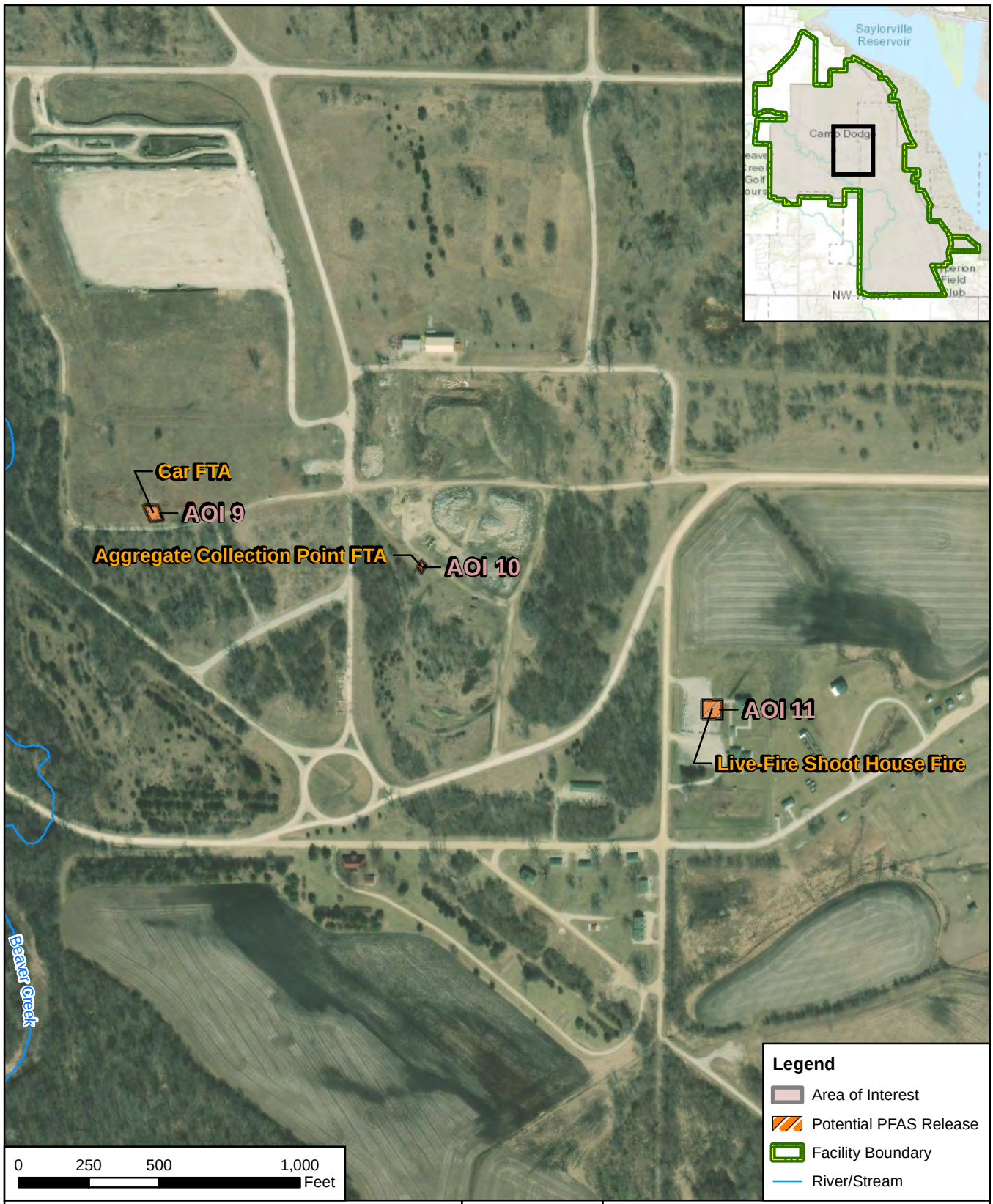

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Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	6/20/2019

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Range Summary of Findings

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Figure ES-4

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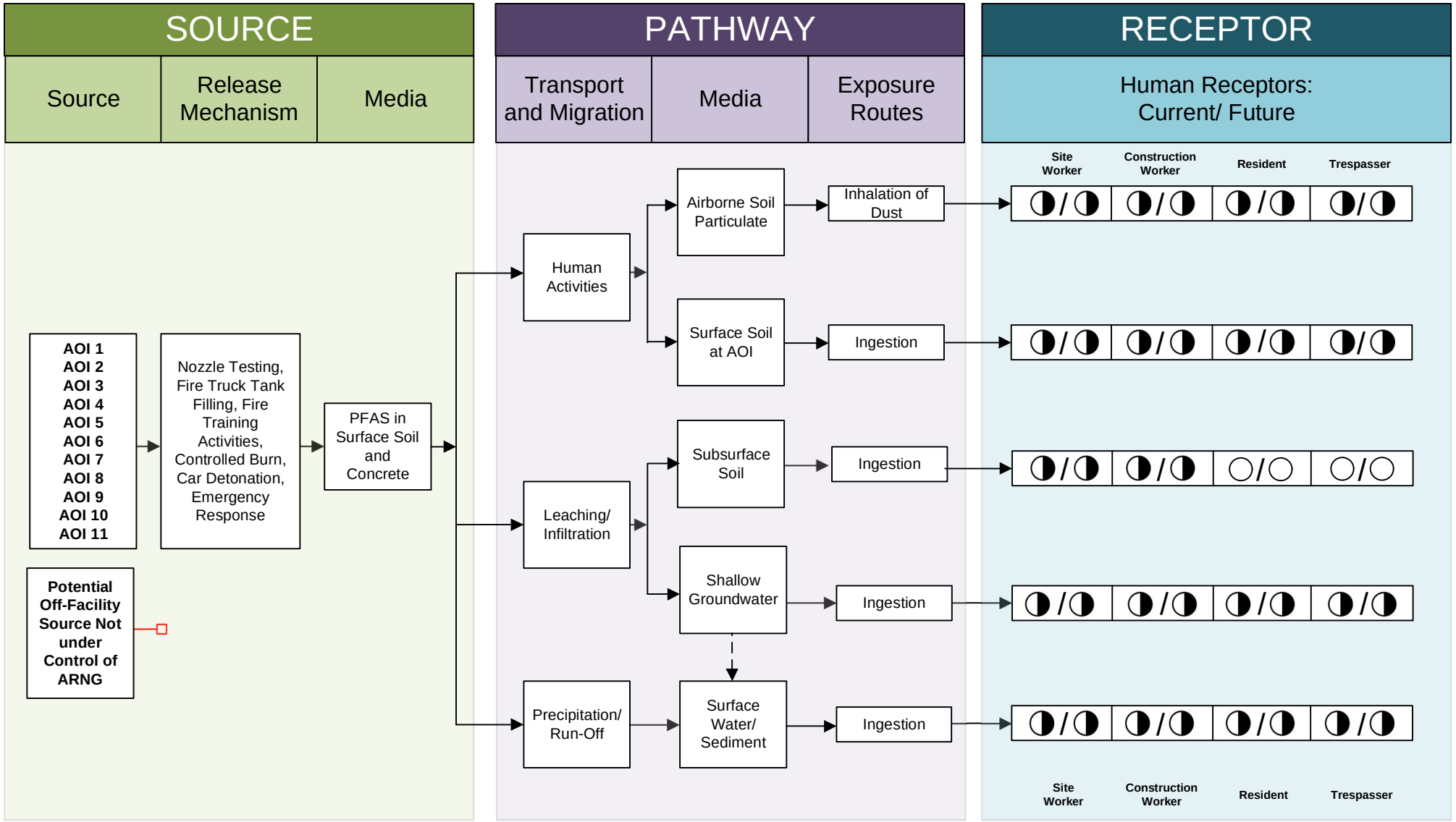


LEGEND

- Flow-Chart Stops
- Flow-Chart Continues
- Partial / Possible Flow
- Incomplete Pathway
- Potentially Complete Pathway
- Complete Pathway

Figure ES-5
Conceptual Site Model
Camp Dodge

1. Introduction

1.1 Authority and Purpose

The United States 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. The ARNG is assessing potential effects on human health related to processes at their facilities that used per- and poly-fluoroalkyl substances (PFAS), primarily releases of aqueous film forming foam (AFFF) although other sources of PFAS 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 these PFAS compounds in the environment will vary. 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 State of Iowa standards for PFOS and PFOA are 0.070 micrograms per liter (µg/L) for a protected groundwater source, and 1 µg/L for a non-protected groundwater source (PFOS only, no standard for PFOA). PFOS and PFOA soil standards are 1.8 milligrams per kilogram (mg/kg) and 1.2 mg/kg, respectively (Iowa Department of Natural Resources, 2018).

This report presents findings of a PA for PFAS at Camp Dodge in Johnston, Iowa, 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 the known fire training areas (FTAs) as well as additional locations where PFAS may have been released into the environment at Camp Dodge. 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 21 and 24 August 2018
- Interviewed current and retired Camp Dodge personnel during the site visit including Iowa Army National Guard (IAARNG) environmental managers, the Fire Brigade Training Specialist, and other operations staff
- Completed visual site inspections (VSI) at known or suspected PFAS release locations and documented with photographs

- Developed a conceptual site model (CSM) to outline the potential release and pathway of PFAS for the Areas of Interest (AOIs) and the facility

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 FTAs at the facility identified during the site visit.
- **Section 3** – **Non-Fire Training Areas:** describes other locations of potential PFAS releases at the facility identified during the site visit.
- **Section 4** – **Emergency Response Areas:** describes areas of potential PFAS release at the facility, specifically in response to emergency situations.
- **Section 5** – **Adjacent Sources:** describes sources of potential 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 at each AOI.
- **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

Camp Dodge is in Polk County in central Iowa (**Figure 1-1**). Portions of the post lie within Johnston's city limits. The City of Des Moines lies approximately five miles to the south (URS, 2013). The facility is the Major Training Area for the IAARNG and also serves as a training area for the Army National Guard, Air National Guard, Army Reserve, Marine Corps Reserve, Reserve Officer's Training Corps, and state law enforcement agencies.

Between 1909 and 1917, the State of Iowa purchased land to supplement an existing federal rifle range, formally establishing Camp Dodge (IAARNG, 2013). The area was expanded during World War I and World War II by the Federal government, and federal land acquired during this time was conveyed to the State of Iowa in 1954. The State of Iowa recently purchased additional land on the northern boundary of Camp Dodge to provide additional military maneuver training area. At present, Camp Dodge has a total land area of approximately 4,830 acres. Of the 4,830 acres, 2,000 acres are federally-owned and licensed to the State of Iowa for Iowa National Guard for training. The remaining acreage is owned by the State of Iowa with portions under a federal reversionary clause (IAARNG, 2013).

1.5 Facility Environmental Setting

Camp Dodge is within the Cary drift region of the Des Moines lobe. Elevations on Camp Dodge range from 820 to 950 feet above mean sea level (amsl). The western and central portions of the facility are level at an elevation of approximately 850 feet amsl. The upland ridge along the eastern boundary of Camp Dodge is approximately 1,000 feet amsl. This ridge acts as a drainage divide for both surface water and groundwater flow; water east of the ridge flows toward Saylorville Lake and the Des Moines River, water west of the ridge flows west towards Beaver Creek. The area surrounding Camp Dodge is primarily terrace plain and used for agricultural purposes. Beaver Creek ranges in elevation from about 820 to 850 feet amsl and runs north to south through the western and middle areas of the Camp Dodge. Approximately 3 miles southeast of the Camp Dodge, Beaver Creek converges with the Des Moines River.

1.5.1 Geology

The northern portion of Polk County, including Camp Dodge, is characterized by Quaternary glacial and alluvial stratigraphy ranging from approximately 100 to 150 feet (URS, 2013). The facility is underlain by variable thicknesses of alluvial sand and silt associated with the modern Beaver Creek channel and overbank sedimentation. Approximately 15 feet of supraglacial sand, silt and clay from the Morgan Member of the Dows Formation lies below the surficial alluvial sediments throughout the Beaver Creek Valley floodplain. The Morgan Member can also be found at the surface in upland regions. Below the Morgan Member is the subglacial Alden Member of the Dows Formation, composed of dense and relatively impermeable loam diamicton of variable thickness. The glacial sediments lie upon pre-glacial Quaternary alluvium that was deposited in a buried bedrock channel known as Beaver Channel (URS, 2013).

Underlying the Quaternary unconsolidated deposits are approximately 200 to 250 feet of Pennsylvanian-age bedrock, approximately 100 to 150 feet below ground surface (bgs). The Pennsylvanian Cherokee Group underlies the site and is comprised of shales, siltstones, and sandstones. The Cherokee Group directly overlies Mississippian bedrock found at depths from approximately 300 to 400 feet bgs. Within the Des Moines area, Mississippian-aged bedrock is about 350 feet thick and is primarily comprised of limestones and dolomites (URS, 2013). The surficial geology of the leased area that lies north of the main installation area in Boone County is mainly comprised of Des Moines River Valley low, intermediate, and high terrace alluvial sediments from the Hudson Episode. These loam-rich units range in thickness from 3 to 21 feet and overlie approximately 15 feet of glacial outwash, which in turn rest on the Pennsylvanian bedrock.

1.5.2 Hydrogeology

Underlying Polk County and Camp Dodge are two primary aquifer systems: an unconsolidated aquifer system and a bedrock aquifer. The unconsolidated aquifer system is composed of three aquifer groups. These include an uppermost aquifer found in the surficial alluvial deposits of the Beaver Creek Valley floodplain, a glacial drift aquifer found in the deposits of the Dows Formations, and a lower aquifer found in the buried bedrock channel deposits of Beaver Channel.

The alluvial aquifer is located within the stream valley areas of Camp Dodge. Depth to water in this aquifer is approximately five feet bgs. The alluvial aquifer consists of highly permeable sand and gravel. Groundwater flow generally mimics surface topography, discharging to Beaver Creek (**Figure 1-2**). However, groundwater flow direction may be seasonally impacted by watering of the Hyperion Field Club golf course adjacent to Camp Dodge. The glacial drift aquifer (the Morgan Member of the Dows Formation) is found at the surface in upland areas and below the alluvial aquifer in the stream valley. Water within this aquifer is contained within

localized lenses of sand and gravel, which are surrounded by low permeability till. The lenses are discontinuous and have the potential to be easily-impacted, making them an unsuitable potable water source. Recharge for both the surficial alluvial and the glacial drift aquifers occurs through infiltration.

The Alden Member of the Dows Formation acts as a semi-confining layer between the alluvial and glacial drift aquifers and the underlying Beaver Channel aquifer. The dense, clay-rich till of the Alden Member limits the hydraulic interaction between the upper aquifers and the Beaver Channel aquifer (URS, 2013).

Drinking water for Camp Dodge is drawn in alternation from two wells on-Post, Well 7, constructed in 1965, and Well 8, constructed in 1971, with the exception of four buildings in the northeastern portion of the facility that are on city water. The Beaver Channel aquifer, located within the buried bedrock channel, is the primary source of the drinking water for Well 7 and Well 8 (**Figure 1-2**). Based on information from the facility Wellhead Protection Plan, the aquifer is described as being covered by approximately 30 feet of confining materials. However, other references suggest this confining unit is leaky or discontinuous (IAARNG, 2013). Recharge to the Beaver Channel Aquifer is from up-gradient infiltration and possible percolation from the overlying aquifers (IAARNG, 2013). Water movement within the Beaver Channel aquifer is predominantly horizontal, to the south, southeast, as the channel sits on low permeability Pennsylvanian bedrock. The Beaver Channel Aquifer discharges into the Des Moines River approximately 3 miles south-southeast of Camp Dodge (URS, 2013).

The shales of the Pennsylvanian Cherokee Group beneath Camp Dodge are considered a regional confining unit, hydraulically separating the unconsolidated aquifers from the deeper bedrock aquifers (IAARNG, 2008). The Mississippian Aquifer directly underlies the Cherokee Group and is most heavily utilized by rural residents. It is comprised of limestones and dolomites, and supplies a moderate amount of water. Groundwater flow in the Mississippian aquifer is to the south where it eventually discharges into the Des Moines River (URS, 2013).

1.5.3 Hydrology

Camp Dodge lies within the Beaver Creek watershed (**Figure 1-3**). The primary surface water features found on Camp Dodge include Beaver Creek and Little Beaver Creek, multiple ponds and intermittent streams, and wetlands. Hillside wetlands exist within the slopes of the upland area on the eastern border and in the southern portion of the facility with smaller wetlands in the northeast corner of the facility. Wetlands also border Camp Dodge on the west and south sides. Camp Dodge is situated within a 100-year floodplain along Beaver Creek and its tributaries, covering approximately 750 acres (IAARNG, 2013).

Beaver Creek enters the facility on the northwest corner and flows southeast, turns west again and exits the facility on the southwest corner. While on Camp Dodge, Beaver Creek flows through the western and middle areas of the facility (**Figure 1-3**). Beaver Creek is 13 miles long and converges with the Des Moines River about 3 miles south of Camp Dodge. Shallow groundwater flows towards the southwest and discharges into Beaver Creek. Little Beaver Creek also enters the facility on the southwestern boundary and joins Beaver Creek. The intermittent water features on the facility flow into an unnamed pond in the northwest cantonment area, then to both the Beaver Creek and Little Beaver Creek.

The largest, regional surface water feature is found east of Camp Dodge at Saylorville Lake (**Figure 1-3**). Saylorville Lake was created when the Des Moines River was dammed for flood control by the USACE in the 1960s and 1970s. The Des Moines River flows south through the northern 30 miles of a leased training area before it reaches Saylorville Lake. Within this 30 miles, many small tributaries flow into the Des Moines River. The Des Moines River then exits

the dammed area and continues to flow south. The upland ridge on the eastern boundary of Camp Dodge creates a surface water divide, and no surface water flows from Camp Dodge to the leased land. Surface water on the west side of the upland ridge flows through Camp Dodge to Beaver Creek. Surface water on the east side of the leased land flows southwest into Big Creek. Big Creek converges with the Des Moines River within Saylorville Lake. The Des Moines public water supply intake is approximately 10 miles downstream from the facility's southern boundary on the Des Moines River. Water is supplied from both surface water and groundwater sources.

1.5.4 Climate

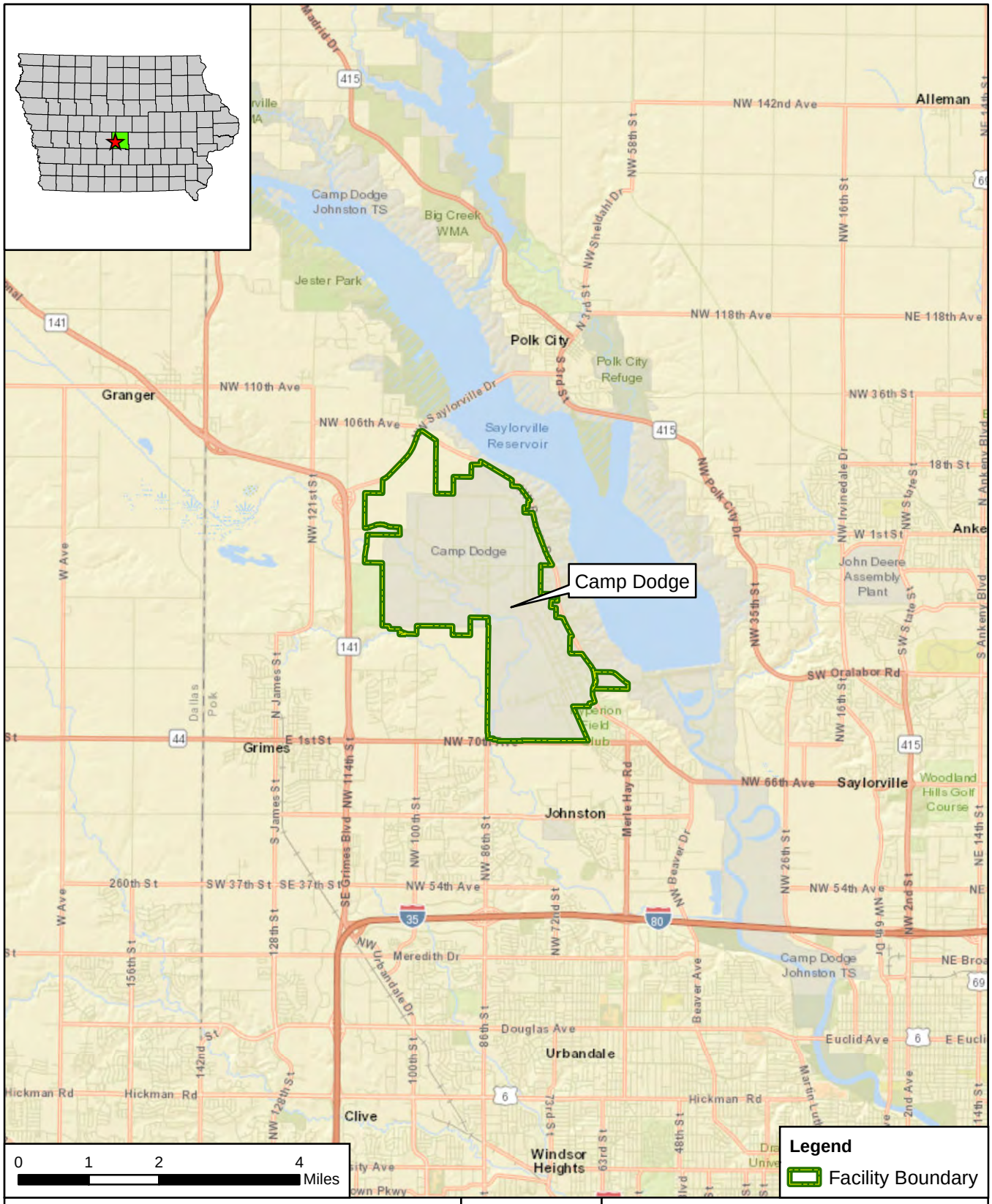
Camp Dodge has a continental climate with hot, humid summers and extremely cold winters including possible heavy snowfall. Average monthly temperatures range from 14 to 86 degrees Fahrenheit (˚F) with a mean annual temperature of 50.85 ˚F (US Climate Data, 2018). January is usually the coldest month and thereafter temperatures gradually increase, peaking in July. December, January, and February have mean monthly temperatures below freezing. The growing period occurs approximately when temperatures rise above 50 ˚F from April to September (IAARNG, 2013).

The mean annual precipitation is 36.01 inches with the largest amounts of rainfall occur in May through June. Average snowfall is 35 inches.

1.5.5 Current and Future Land Use

At present, Camp Dodge has a total land area of approximately 4,830 acres. The cantonment area which is approximately 400 acres contains the majority of the buildings and support facilities. The weapons firing ranges occupy approximately 500 acres, and portions of the range surface danger zone are leased for corn and bean production. Another 200 acres are restricted lands and include archeological or historical sites, wetlands, native prairie, and areas under special management (IAARNG, 2013). The remaining land is used for training and maneuver exercises. Access to the facility is controlled, and within the facility boundaries, access to the ranges is controlled. Land use surrounding the facility is a mixture of residential and agricultural.

Portions of Camp Dodge are located within the City of Johnston, Iowa. According to the 2016 Johnston special census, the estimated population of Johnston is 20,460 (United States Census Bureau, 2016). Johnston has experienced significant population growth over the last decade, and agricultural lands have been converted to residential subdivisions to accommodate the growth. The IAARNG continues to acquire lands to the north of Camp Dodge for additional military maneuver training area. Land use is not expected to change.



CLIENT	ARNG			
NOTES	Preliminary Assessment for PFAS at Camp Dodge, IA			
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SCALE	1:126,720	CHK BY	JZ	6/20/2019
Base Map: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI,		PM	RG	6/20/2019

Facility Location

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 1-1

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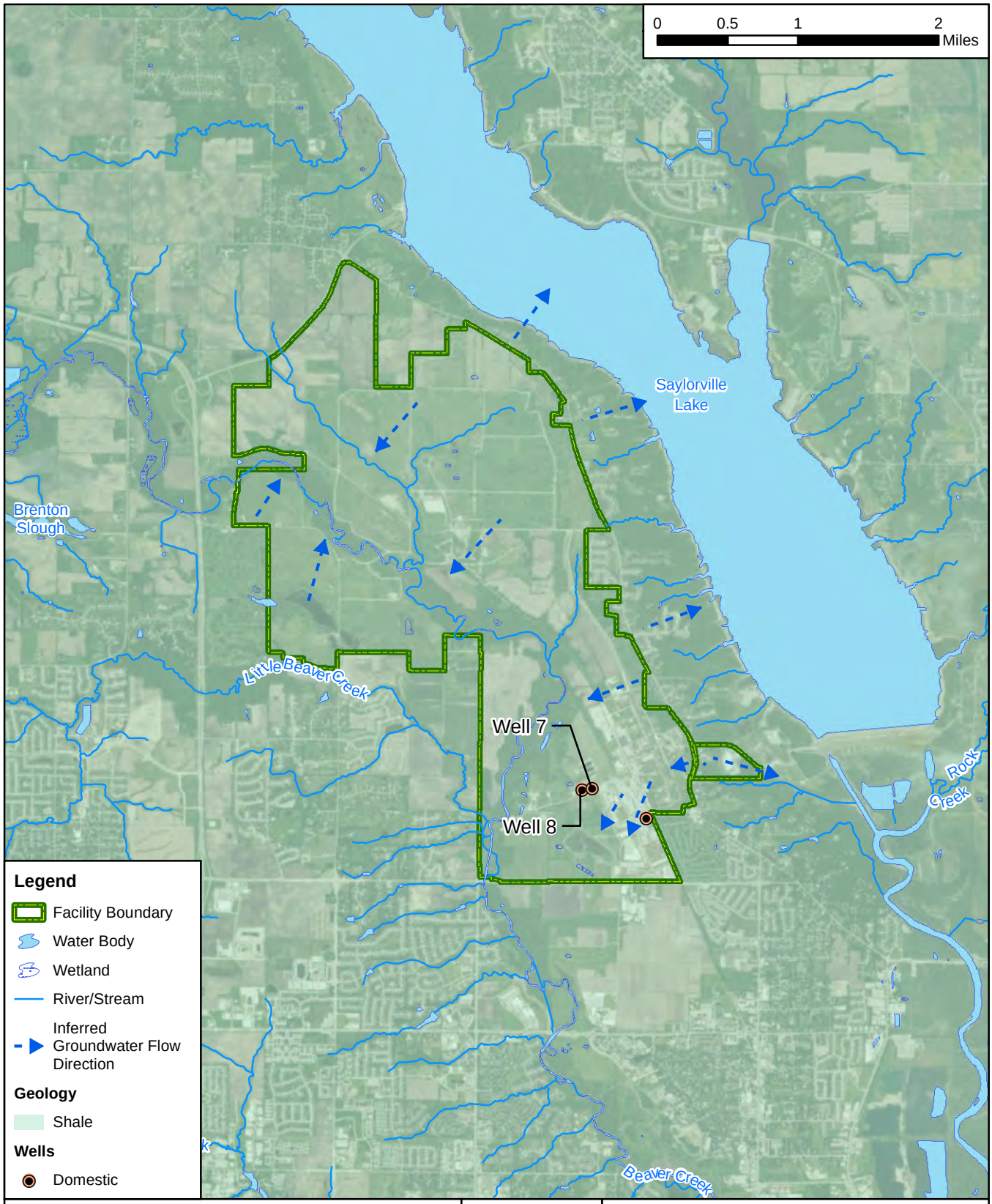

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NOTES	Preliminary Assessment for PFAS at Camp Dodge, IA			
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SCALE	1:63,360	CHK BY	JZ	6/20/2019
Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	6/20/2019

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Groundwater Features

AECOM
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Figure 1-2

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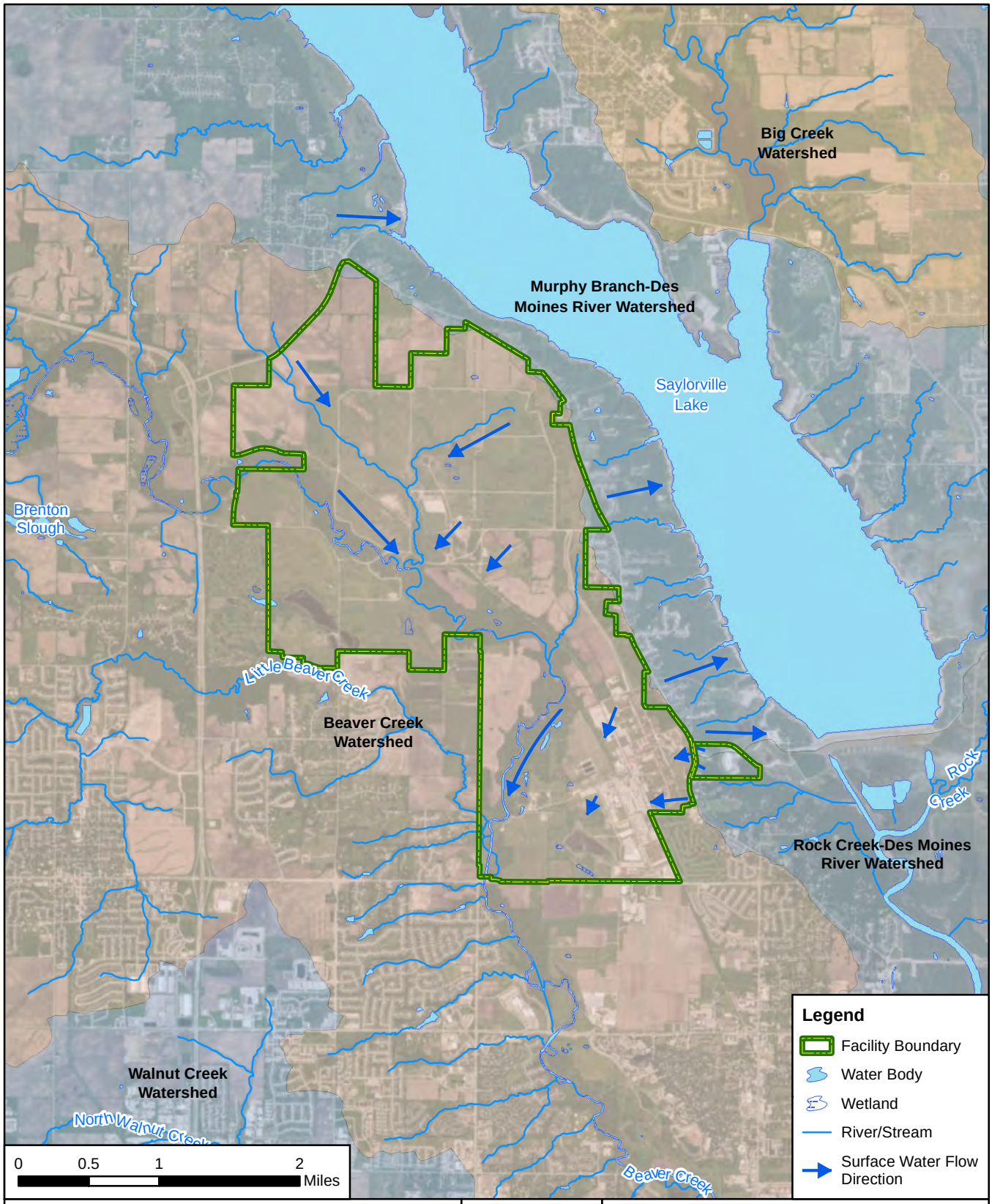

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SCALE	1:63,360	CHK BY	JZ	6/20/2019
Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	6/20/2019

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Surface Water Features

AECOM
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Figure 1-3

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2. Fire Training Areas

Eight FTAs where PFAS was potentially released were identified during the PA. A description of each FTA is presented below, and the FTAs are shown on **Figure 2-1** through **Figure 2-4**. Interview records appear in **Appendix B**. Photographs appear in **Appendix C**.

2.1 Conex FTA

The Conex FTA is immediately southeast of Well 7 (**Figure 2-1**). The geographic coordinates are 41°41'53.1"N and 93°43'13.8"W. The Conex FTA consists of a series of Conex containers set up for urban warfare training facility drills. According to the former Camp Dodge Fire Brigade Training Specialist, AFFF training was conducted at the Conex FTA during drills three or four times total from 2006 until 2012. Approximately five to ten gallons of AFFF concentrate were dispensed at the Conex containers over the course of all training events from 2006 to 2012. The AFFF was then allowed to dissipate in the grass. No information was available on the type or concentration of AFFF used during the training events; however, Camp Dodge had 3 percent, 6 percent, and 3/6 percent (polar/nonpolar) AFFF available at the time. No remediation activities have occurred at this location.

2.2 Rail Load FTA

The Rail Load FTA is a mock rail line used for sling load training west of Maintenance Drive between Range Road and Division Road. The geographic coordinates are 41°41'46.6"N and 93°43'09.4"W (**Figure 2-1**). Since 2012, the Camp Dodge Fire Brigade has used the Rail Load FTA at least once annually for training using AFFF and, after 2016, alcohol resistant (AR)-AFFF. Approximately 5 gallons of 3 percent AFFF or AR-AFFF concentrate are dispensed per training event. Following training, the fire truck is washed at the Rail Load FTA. Low-lying wetlands exist to the south and southwest of the Rail Load FTA. No remediation activities have occurred at this location.

2.3 Fuel Point FTA

The Fuel Point FTA is on the ramp at the Camp Dodge Fuel Point. The geographic coordinates are 41°41'39.2"N and 93°42'59.0"W (**Figure 2-1**). According to the former Camp Dodge Fire Brigade Training Specialist, annual training with AFFF was conducted at the Fuel Point FTA from 2007 to 2009. In total, approximately 25 gallons of AFFF concentrate were sprayed on the ramp over the course of the two years for training. No information was available on the type or concentration of AFFF used during the training events; however, Camp Dodge had 3 percent, 6 percent, and 3/6 percent (polar/nonpolar) AFFF available at the time. The AFFF used at the Fuel Point FTA flowed into a drain with an oil-water separator. To the best of the former Camp Dodge Fire Brigade Training Specialist's knowledge, the AFFF was then allowed to flow to the sanitary sewer, which discharges to the wastewater treatment plant at the facility. No remediation activities have occurred at this location.

One AFFF fire extinguisher was noted during the VSI at the fuel point. According to the staff at the fuel point, this AFFF fire extinguisher has never been dispensed; therefore, a potential PFAS release to the environment from the fire extinguisher at the fuel point is not suspected. Camp Dodge also has several fire extinguishers throughout the facility that do not contain PFAS.

2.4 Gravel FTA

The Gravel FTA is at the northern end of Truck Entrance Road where the road curves into an unnamed road (**Figure 2-2**). The geographic coordinates are 41°42'25.0"N and 93°43'11.0"W. According to the former Camp Dodge Fire Brigade Training Specialist, AFFF training was conducted at the Gravel FTA three or four times from 2006 to 2012. Approximately five to ten gallons of AFFF concentrate were dispensed at the Gravel FTA over the course of all training events from 2006 to 2012. No information was available on the type or concentration of AFFF used during the training events; however, Camp Dodge had 3 percent, 6 percent, and 3/6 percent (polar/nonpolar) AFFF available at the time. No remediation activities have occurred at this location.

2.5 Chapel FTA

The Chapel at Camp Dodge is at the northeast corner of the intersection of Commander Drive and 7th Street. In 2009, the Camp Dodge Fire Brigade conducted a one-time training event with AFFF in the parking lot of the Chapel. The geographic coordinates are 41°42'08.5"N and 93°42'30.8"W (**Figure 2-3**). A former volunteer with the Camp Dodge Fire Brigade estimated that five to ten gallons of AFFF concentrate were used during the training event. No information was available on type or concentration of AFFF used. Stormwater sewers in this area discharge to the waterbody identified as “General’s Pond” west of the cantonment area with final discharge to Beaver Creek. No remediation activities have occurred at this location.

2.6 Structure Fire

In 2011, an abandoned two-story residence on the east side of NW Beaver Drive was burned as a planned, controlled burn and used for fire training for the IAARNG and municipal fire departments from the surrounding area. The geographic coordinates are 41°42'00.2"N and 93°42'22.7"W (**Figure 2-3**). During the controlled burn, AFFF was used in various training evolutions and to extinguish the basement of the structure. In total, approximately 5 gallons of AFFF concentrate were used during the burn. No information was available on the type or concentration of AFFF used during the training events; however, Camp Dodge had 3 percent, 6 percent, and 3/6 percent (polar/nonpolar) AFFF available at the time. The Structure Fire occurred north of the Hyperion Field Club golf course. No remediation activities have occurred at this location.

2.7 Car Fire Training Area

On 19 September 2007, the Federal Bureau of Alcohol, Tobacco, Firearms and Explosives sponsored a demonstration at Camp Dodge. The demonstration involved the incineration and open burning of a car on the maneuver training ranges at Camp Dodge east of Northwest 93rd Street and north of Northwest 90th Avenue. The geographic coordinates are 41°43'27.7"N and 93°44'34.8"W (**Figure 2-4**). The fire was extinguished with an unknown amount of AR-AFFF. No information was available on the concentration of AFFF used. No remediation activities have occurred at this location, and access to the area is controlled.

2.8 Aggregate Collection Point FTA

The Aggregate Collection Point FTA is west of Northwest 86th street and south of Northwest 90th Avenue. The geographic coordinates are 41°43'25.6"N and 93°44'22.3"W (**Figure 2-4**). The area is a stockpile area for various construction materials including concrete and wood. Access to the area is controlled. Since 2012, the Camp Dodge Fire Brigade has used the Aggregate

Collection Point FTA for training using AFFF and, after 2016, AR-AFFF. Approximately 5 gallons of 3 percent AFFF or AR-AFFF concentrate are dispensed towards a non-functional military tank in the area per training event. Following training, the fire truck is washed at the Aggregate Collection Point FTA. No remediation activities have occurred at this location.

2.9 Prescribed Burns

The Camp Dodge Integrated Natural Resources Management Plan (IAARNG, 2013) calls for the vigorous and frequent use of fire for the management of prairie, savanna, and wetlands. IAARNG fire management techniques include burning no more than 30 percent (310 acres) of the grassland in any one year. Typically, Class A foam and water are used for fire suppression by the Camp Dodge Fire Brigade during prescribed burns from February to mid-May and 15 October to the end of November. However, interviewees indicated that AFFF may be used in the event of a wildland fire if the AFFF concentrate is loaded on the fire truck at the time of fire response. In addition, the former Camp Dodge Fire Brigade Training Specialist indicated that, historically, AFFF may have been used at concentrations of one percent or less to manage large sections of rangeland fires. The former Camp Dodge Fire Brigade Training Specialist estimated in total, 20 to 30 gallons of AFFF concentrate may have been used over the entire range from 2006 to 2012. Designated range lands are farmed with beans and corn.

CLIENT	ARNG			
NOTES	Preliminary Assessment for PFAS at Camp Dodge, IA			
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SCALE	1:3,000	CHK BY	JZ	6/20/2019
Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	6/20/2019

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Western Cantonment Fire Training Areas

AECOM
12420 Milestone Center Drive
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Figure 2-1

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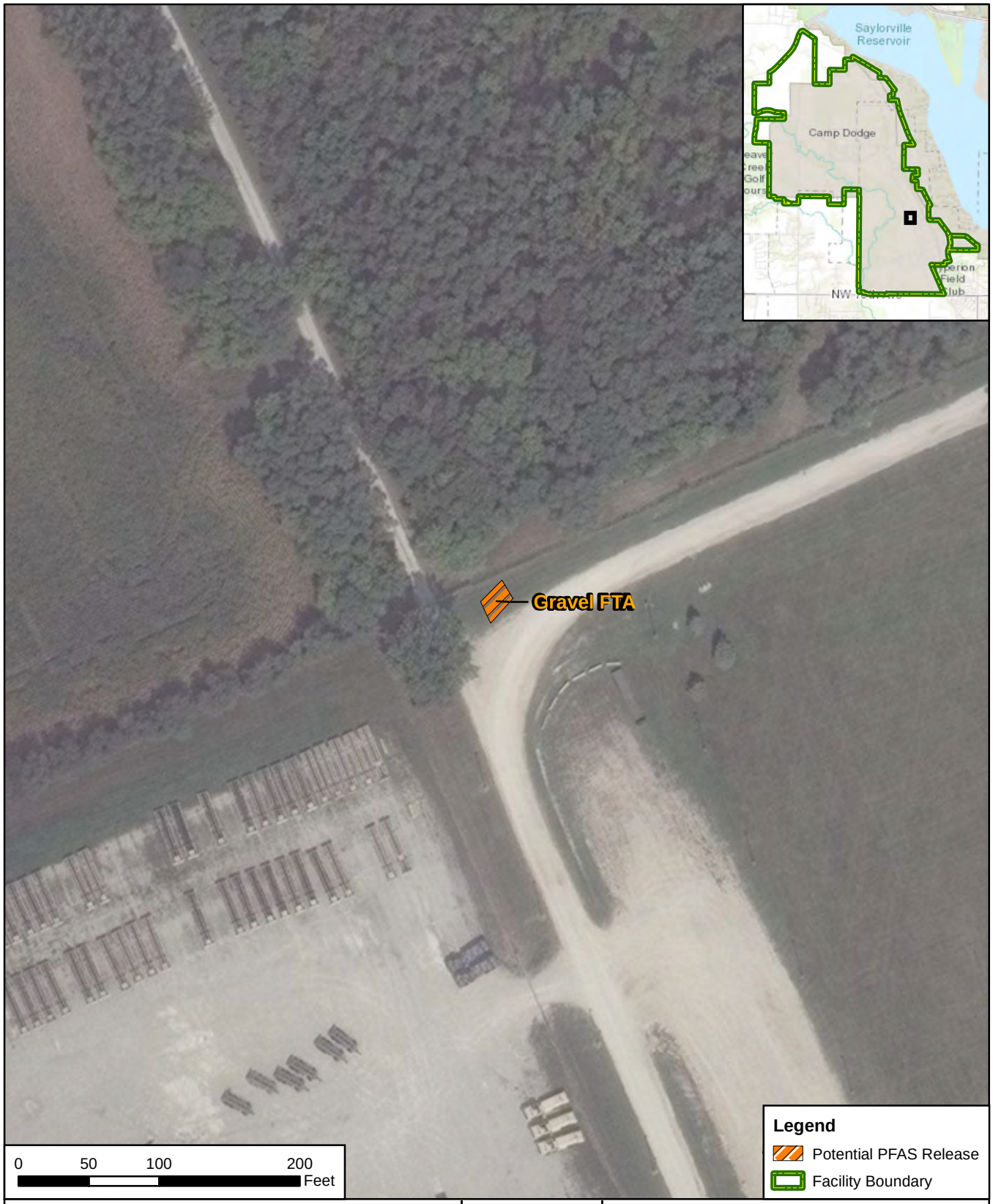

CLIENT	ARNG			
NOTES	Preliminary Assessment for PFAS at Camp Dodge, IA			
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Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	6/20/2019

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Central Cantonment Fire Training Areas

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Figure 2-2

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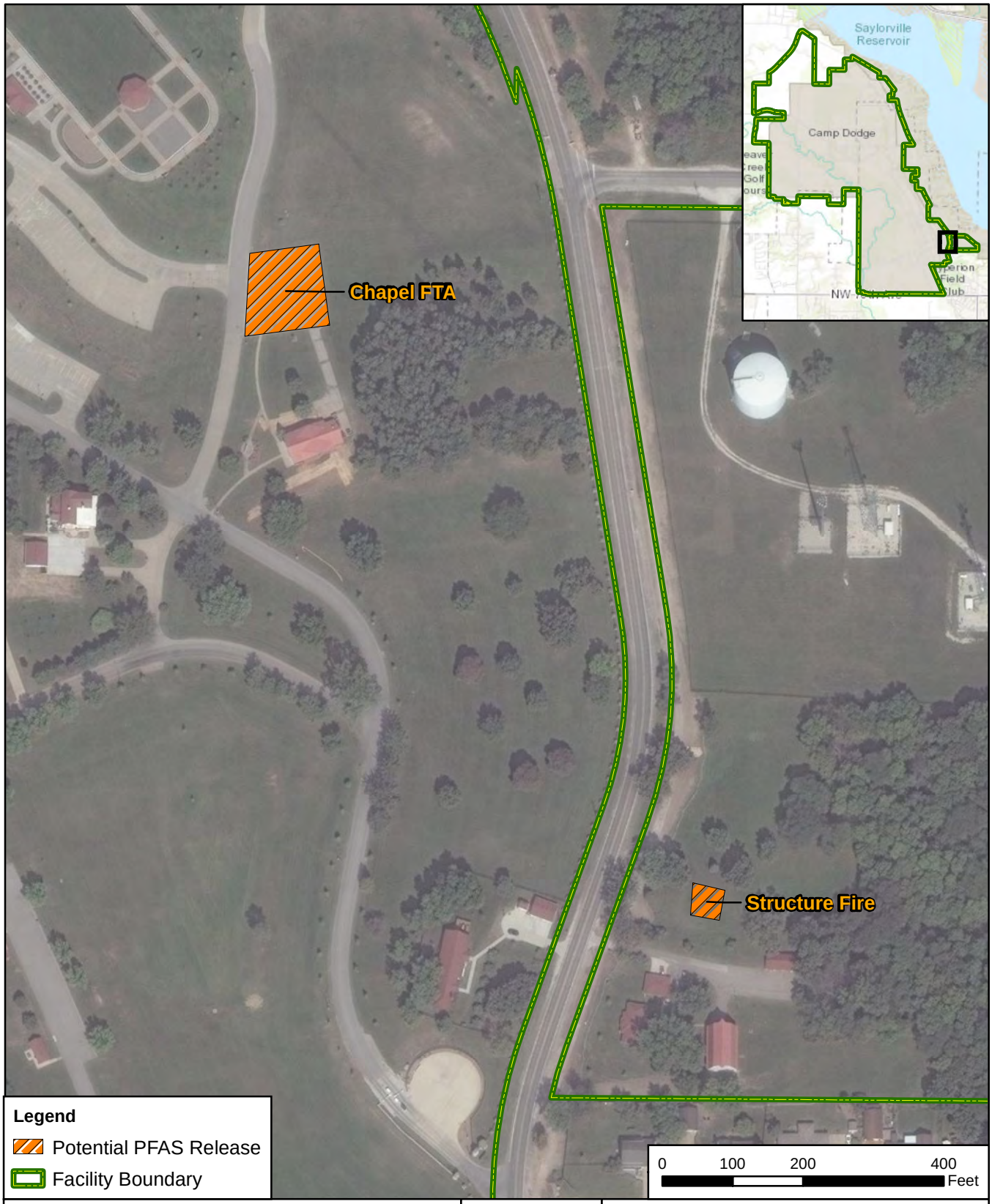

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Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	6/20/2019

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Eastern Cantonment Fire Training Areas

AECOM
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Germantown, MD 20876

Figure 2-3

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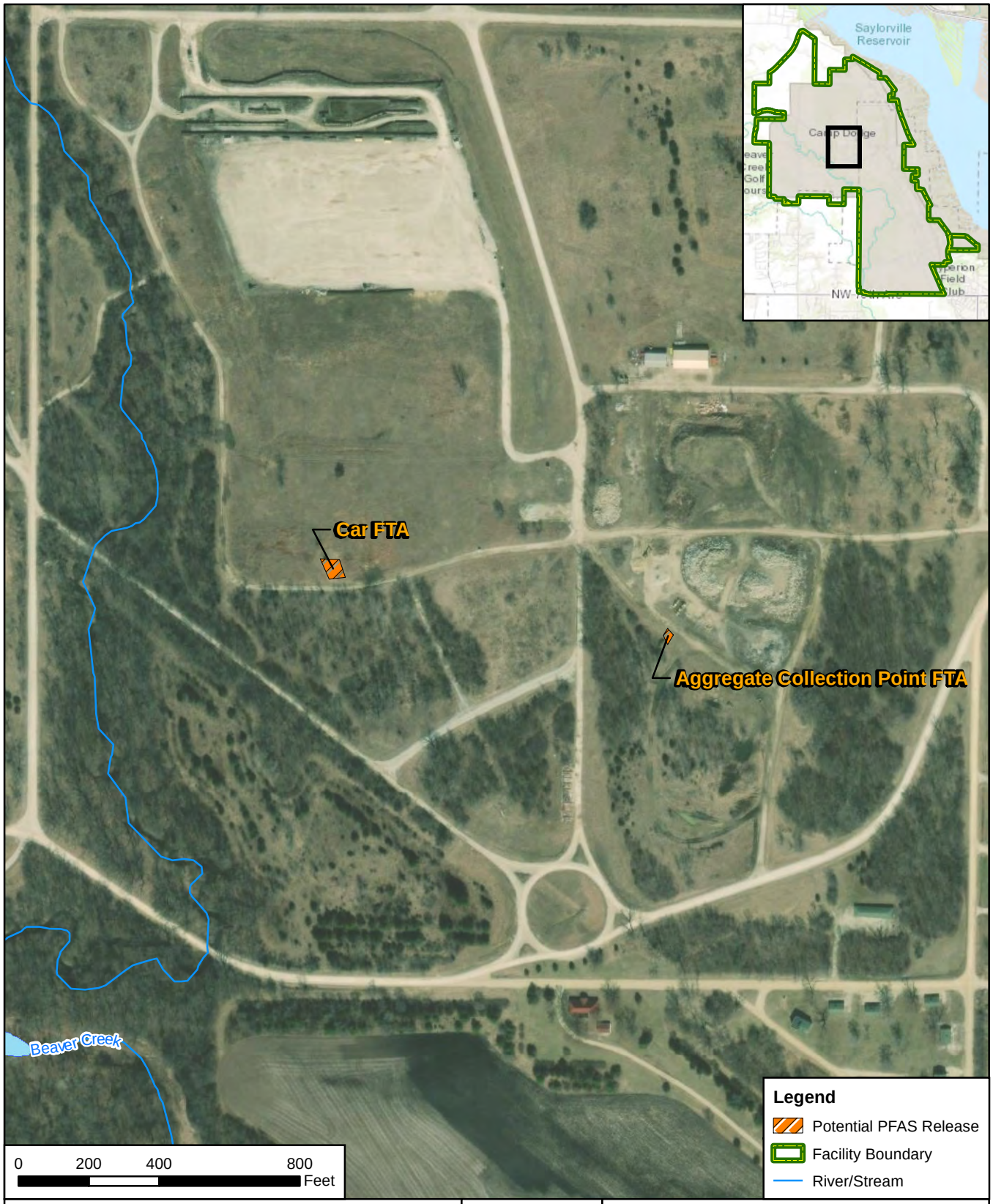

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Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	6/20/2019

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Range Fire Training Areas

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 2-4

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3. Non-Fire Training Areas

Non-FTAs where PFAS was potentially released were also identified during the PA. A description of each non-FTA is presented below, and the non-FTAs are shown on **Figure 3-1** and **Figure 3-2**. Interview records appear in **Appendix B**. Photographs appear in **Appendix C**.

3.1 Camp Dodge Fire Station

The Camp Dodge Fire Station (Building B-59) is at the northeast corner of the intersection of Main Avenue and 8th Street. The geographic coordinates are 41°42'07.9"N and 93°42'52.1"W (**Figure 3-1**). The Camp Dodge Fire Station was constructed in the 1980s as a two bay, stand-alone fire station and was expanded in the early 2000s. The current staff makeup consists of one full time Training Specialist and six volunteers.

AFFF at Camp Dodge is stored at the Fire Station. Prior to 2006, the facility was operated by the 767th Engineer Fire Team. No information was available on this fire unit's usage of AFFF; however, the majority of AFFF acquired by the Fire Station in 2006 came from this fire unit. During the VSI, 24 5-gallon containers of 3 percent Ansulite® AR-AFFF were noted in the fire house along with approximately 20 5-gallon containers of Phos-Chek® Class A foam. The Fire Station has one fire truck with a capacity of 20 gallons of AFFF concentrate. Concentrated AFFF is manually poured into the tank on the fire truck outside of the bay doors of the Fire Station. According to the current Camp Dodge Fire Brigade Training Specialist, occasionally, some of the AFFF spills onto the concrete during filling of the tank. A north-south stormwater drainage ditch runs along Main Avenue in front of the Camp Dodge Fire Station, including the area where the tanks are filled. The stormwater drainage ditch discharges to the waterbody identified as "General's Pond" located west of the cantonment area with final discharge to Beaver Creek. Prior to 2016, the Fire Station ordered six percent AFFF. After 2016, the Fire Station began ordering AR-AFFF due to the presence of ethanol fuel at the post's primary fuel point. No leaking of AFFF from the fire truck or corrosion from AFFF on the fire truck was noted by the current Camp Dodge Fire Brigade Training Specialist.

Historically, nozzle testing was conducted outside the Fire Station into the north-south stormwater drainage ditch (**Figure 3-1**). The amount of AFFF used during the nozzle testing is unknown; however, one interviewee recalled that during a testing event in 2011, the entire contents of the AFFF tank were discharged due to problems adjusting the nozzles and the foam persisted in the drainage ditch for approximately one day. The storm sewer lines in this drainage ditch were repaired in 2015 to alleviate water backup in low lying buildings at Camp Dodge. The soil was returned to the drainage ditch following repair of the sewer lines.

Currently, the Johnston Fire Department provides fire emergency services for Camp Dodge. The Johnston Fire Department Fire Chief and the current Camp Dodge Fire Brigade Training Specialist were not aware of any emergency responses with AFFF at Camp Dodge. The former Camp Dodge Fire Brigade Training Specialist recalled one emergency event requiring the use of AFFF at the Live-Fire Shoot House. This event is discussed further in **Section 4**. Currently, nozzles are tested annually by Emergency Apparatus Maintenance. No information was available regarding the location where the current nozzle testing occurs.

3.2 Waste Water Treatment Plant

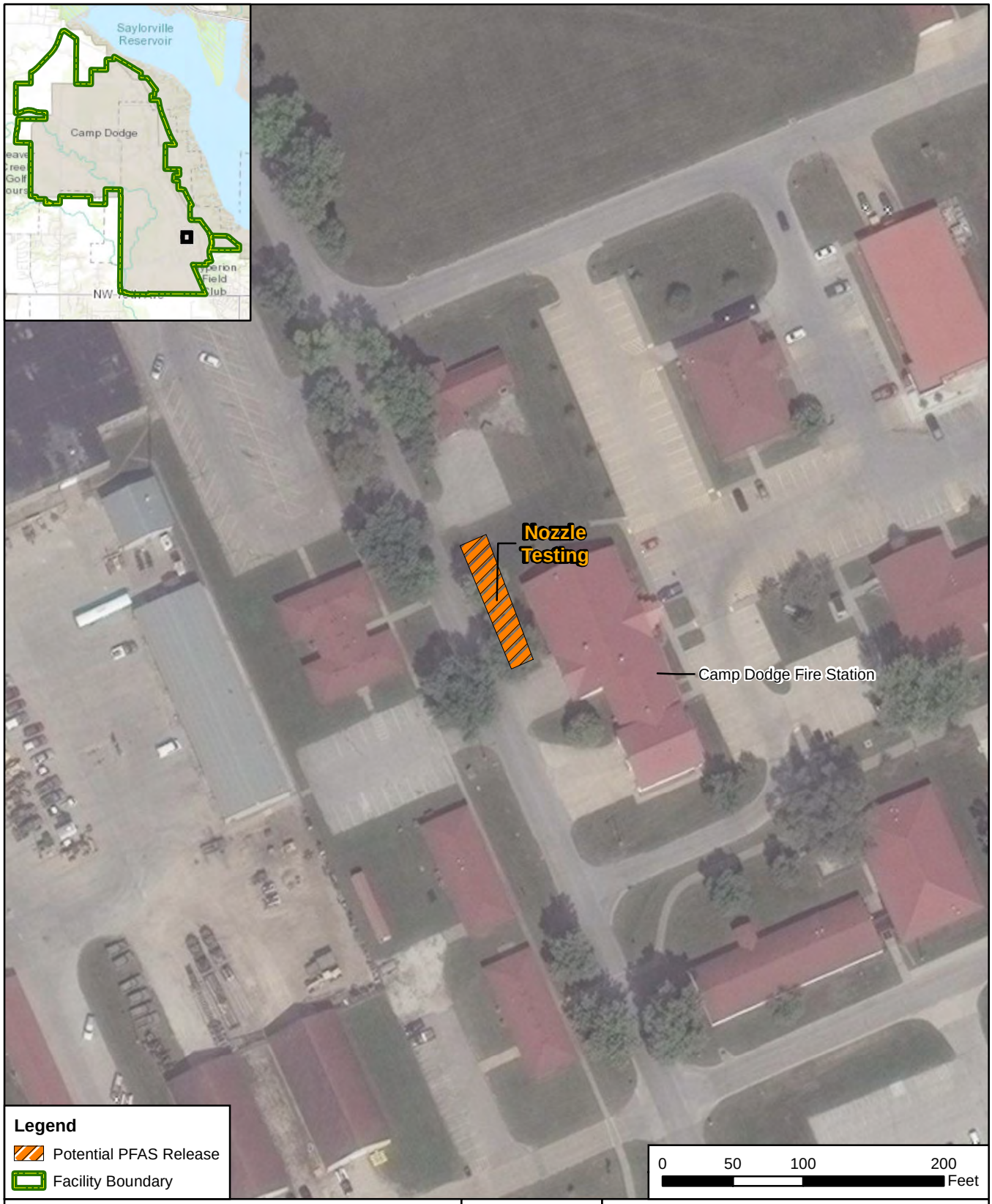
The post's current waste water lagoon system is located north of Range Road in the weapons firing range surface danger zone (**Figure 3-2**). The geographic coordinates are 41°41'56.9"N and 93°42'58.2". Two bentonite-lined, aerated lagoons and a finishing cell were constructed adjacent to one of the firing ranges in 1989. The geographic coordinates are 41°42'00.9"N and

93°43'17.8"W (**Figure 3-2**). The sludge in the aerated lagoons has never been disposed of on or off of the facility. In 2003, two lime drying beds for waste water from the drinking water plant were added to the north of the lagoons (**Figure 3-2**). Sludge from the lime drying beds is stockpiled and spread on-Post in agricultural areas. Potential PFAS releases at Camp Dodge have occurred in areas that flow to the WWTP; therefore, PFAS-laden sludge may exist in the aerated lagoons. Treated water is discharged to the waterbody identified as “General’s Pond” west of the cantonment area with final discharge to Beaver Creek; therefore, it is possible PFAS has been released to the environment from the WWTP. According to the Environmental Program Manager, the post's wastewater was treated by a mechanical treatment plant that was located in the footprint of the Saylorville Reservoir until 1968. A replacement mechanical plant was constructed on the south end of Camp Dodge and was in use from 1968 to 1989.

3.3 Landfills

There are seven known landfill areas at Camp Dodge: 1) Cemetery Landfill, 2) Scrap Iron Landfill, 3) Range Dump, 4) LAW Range Landfill, 5) Gravel Pit Dump, 6) Kitchen Landfill, and 7) Pond Landfill (**Figure 3-2**). Information collected during a previous PA (Montgomery Watson, 1999), indicates the landfills were in operation from the 1950s until approximately 1985 and interred all types of solid wastes from Camp Dodge. The last landfill at Camp Dodge was closed in 1985, and all solid waste is currently taken off of the facility for disposal.

Landfills are not usually a primary release area of PFAS, but materials disposed of in landfills may create a secondary source of contamination. Such materials, to name a few, may include used AFFF storage containers or products associated with waterproofing uniforms or boots. At Camp Dodge, no information obtained indicates PFAS-related materials were disposed of in the landfills.



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Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	6/20/2019

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Central Cantonment Non-Fire Training Areas

AECOM
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Figure 3-1

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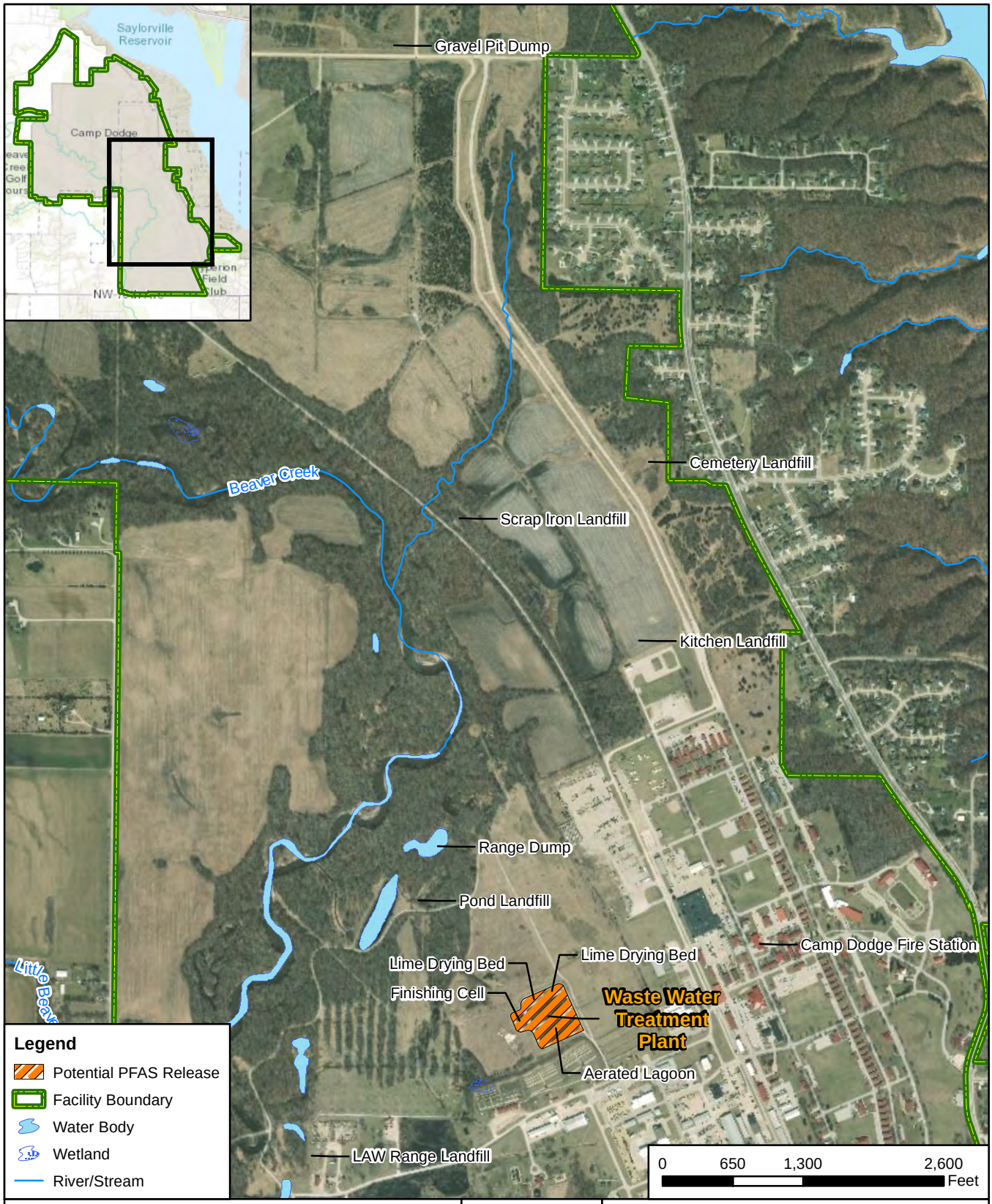

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Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	6/20/2019

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Other Non-Fire Training Areas

AECOM
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Germantown, MD 20876

Figure 3-2

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4. Emergency Response Areas

Camp Dodge personnel identified two emergency response areas during the PA. The emergency response areas are shown on **Figure 4-1**. Interview records appear in **Appendix B**.

4.1 Live-Fire Shoot House Fire

The Live-Fire Shoot House is located in the former town of Herrold, Iowa, that now lies within the current Camp Dodge boundary (**Figure 4-1**). The geographic coordinates are 41°43'21.6"N and 93°44'02.6"W. Access to the area is controlled. During construction of the Live-Fire Shoot House in 2012, some of the materials including ballistic rubber and recycled tires caught fire. According to the former Camp Dodge Fire Brigade Training Specialist, approximately 20 to 30 gallons of AFFF concentrate were used to extinguish the fire. No information was available on the concentration of foam used. No remediation activities have occurred at this location.

4.2 Trash Dumpster Fire

A Trash Dumpster Fire occurred near the Fire Station sometime between 2007 and 2012. The geographic coordinates are 41°42'11.4"N and 93°42'50.3"W (**Figure 4-1**). One interviewee recalled that foam was used to extinguish the fire to manage flying debris; however, it is unknown whether the foam was Class A foam or AFFF. No information was available on the amount of foam used. No remediation activities have occurred at this location.

CLIENT	ARNG			
NOTES	Preliminary Assessment for PFAS at Camp Dodge, IA			
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Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	6/20/2019

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Emergency Response Areas

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 4-1

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5. Adjacent Sources

No off-facility PFAS sources adjacent to Camp Dodge were identified during the PA through interviews or the Environmental Data Resource Report.

6. Conceptual Site Model

Based on the PA findings, 11 AOIs were identified at Camp Dodge: AOI 1 Conex FTA, AOI 2 Rail Load FTA, AOI 3 Fuel Point FTA, AOI 4 Gravel FTA, AOI 5 Chapel FTA, AOI 6 Structure Fire, AOI 7 Camp Dodge Fire Station, AOI 8 Trash Dumpster Fire, AOI 9 Car Fire Training Area, AOI 10 Aggregate Collection Point FTA, and AOI 11 Live-Fire Shoot House Fire. The AOI locations are shown on **Figure 6-1** through **Figure 6-4**. The following sections describe the CSM components and the specific CSMs developed for each AOI. The CSM identifies the three components necessary for a potentially complete exposure pathway: (1) source, (2) pathway, (3) receptor. If any of these elements are missing, the pathway is considered incomplete.

In general, the potential PFAS exposure pathways are ingestion and inhalation. Dermal contact is not considered to be a potential exposure pathway as studies have shown very limited absorption of PFAS through the skin (National Ground Water Association, 2018). Receptors for Camp Dodge include site workers, construction workers, residents, recreational users, and trespassers. The CSMs for each AOI indicate which specific receptors could potentially be exposed to PFAS.

6.1 AOI 1 Conex FTA

AOI 1 is the Conex FTA. Potential PFAS releases to soil by the IAARNG occurred three or four times total from 2006 until 2012 during fire training activities. AOI 1 is approximately 100 feet southeast of Well 7 and 400 feet east of Well 8. No remediation activities have occurred at AOI 1.

PFAS are water soluble and can migrate readily from soil and concrete to groundwater, which is estimated to be at 5 to 10 feet bgs. Because potential PFAS releases to surface soil at AOI 1 have occurred, PFAS may migrate from the surface soil to the groundwater via leaching. Drinking water for Camp Dodge is drawn in alternation from two wells on-Post, Well 7 and Well 8, with the exception of two Camp Dodge residences located east of the cantonment area adjacent to NW Beaver Drive that are provided city water. Drinking water samples from Well 7 and Well 8 were analyzed for PFAS in 2017. All results for PFAS were nondetect.

Ground-disturbing activities to soil at AOI 1 may result in site worker, construction worker, resident, and trespasser exposure to potential PFAS contamination. Ground-disturbing activities to subsurface soil could result in site worker and construction worker exposure. Therefore, the exposure pathways for inhalation of soil particles and ingestion of soil are potentially complete for these receptors. Based on the south-southwestern groundwater flow direction at Camp Dodge, AOI 1 is downgradient or sidegradient of the facility drinking water supply wells. Because the drinking water supply wells may be impacted by potential PFAS releases at AOI 1, the exposure pathway for groundwater to all receptors is potentially complete. No surface water features flow through this AOI; therefore, surface water and sediment exposure pathways are incomplete. The CSM for AOI 1 is shown on **Figure 6-5**.

6.2 AOI 2 Rail Load FTA

AOI 2 is the Rail Load FTA. Potential PFAS releases to soil by the IAARNG occurred at least once annually from 2012 to 2018 during fire training activities. No remediation activities have occurred at AOI 2.

Because potential PFAS releases to surface soil at AOI 2 have occurred, PFAS may migrate from surface soil to groundwater via leaching. In addition, low-lying wetlands exist downgradient of AOI 2. These wetland areas may have been impacted by surface water run-off from AOI 2.

Ground-disturbing activities to surface soil at AOI 2 and the low-lying wetland areas (surface water and sediment) downgradient of AOI 2 could result in site worker, construction worker, resident, and trespasser exposure to potential PFAS contamination. Ground-disturbing activities to subsurface soil could result in site worker and construction worker exposure. Therefore, the exposure pathways for inhalation of soil particles and ingestion of soil are potentially complete for these receptors. Based on the south-southwestern groundwater flow direction at Camp Dodge, the facility drinking water supply wells are upgradient of AOI 2, and the exposure pathway for groundwater to all receptors is incomplete. AOI 2 is less than one-half mile from Beaver Creek and adjacent to a wetland area. Due to the proximity of the AOI to this surface water body and the wetland, it is possible that shallow groundwater from AOI 2 interacts with the surface water and sediment at Beaver Creek and the wetland. Therefore, the surface water and sediment exposure pathways for site workers, construction workers, trespassers, and residents via ingestion are potentially complete. The CSM for AOI 2 is shown on **Figure 6-6**.

6.3 AOI 3 Fuel Point FTA

AOI 3 is the Fuel Point FTA. Potential PFAS releases to concrete by the IAARNG occurred annually from 2007 to 2009 during fire training activities. According to interviewees, potential PFAS releases at AOI 3 were allowed to flow to the sanitary sewer and then to the WWTP; therefore, PFAS-laden sludge may exist in the aerated lagoons for the WWTP. Treated water from the WWTP is discharged to the waterbody identified as “General’s Pond” west of the cantonment area with final discharge to Beaver Creek; therefore, it is possible PFAS has been released to the environment from the WWTP. No remediation activities have occurred at AOI 3.

Because potential PFAS releases to concrete at AOI 3 have occurred, PFAS may migrate from the concrete to the groundwater via leaching. Ground-disturbing activities to concrete at AOI 3 may result in site worker, construction worker, and trespasser exposure to potential PFAS contamination. Ground-disturbing activities to subsurface soil could result in site worker and construction worker exposure. Therefore, the exposure pathways for inhalation of soil particles and ingestion of soil are potentially complete for these receptors. Based on the south-southwestern groundwater flow direction at Camp Dodge, the facility drinking water supply wells are upgradient of AOI 3, and the exposure pathway for groundwater to all receptors is incomplete. Ground-disturbing activities to surface water and sediment at the waterbody identified as “General’s Pond” and Beaver Creek may result in site worker, construction worker, resident, and trespasser exposure to potential PFAS contamination from the WWTP; therefore, the surface water and sediment exposure pathways for these receptors via ingestion are potentially complete. The CSM for AOI 3 is shown on **Figure 6-7**.

6.4 AOI 4 Gravel FTA

AOI 4 is the Gravel FTA. Potential PFAS releases to soil by the IAARNG occurred three or four times total from 2006 until 2012 during fire training activities. No remediation activities have occurred at AOI 4.

Because potential PFAS releases to surface soil at AOI 4 have occurred, PFAS may migrate from the surface soil to the groundwater via leaching. The pathways and receptors for AOI 4 are the same as described in **Section 6.1**. The CSM for AOI 4 is shown on **Figure 6-5**.

6.5 AOI 5 Chapel FTA

AOI 5 is the Chapel FTA. A potential PFAS release to concrete by the IAARNG occurred in 2009 during a one-time training event in the parking lot. Stormwater sewers in this area discharge to

the waterbody identified as the "General's Pond" west of the cantonment area with final discharge to Beaver Creek. No remediation activities have occurred at AOI 5.

Because potential PFAS releases to concrete at AOI 5 have occurred, PFAS may migrate from the concrete to the stormwater drains and surrounding surface soil via run-off and to the groundwater via leaching. The stormwater sewers in this area discharge to the waterbody identified as “General’s Pond” west of the cantonment area with final discharge to Beaver Creek, which converges with the Des Moines River about 3 miles south of Camp Dodge. The Des Moines public water supply intake is on the Des Moines River, approximately 10 miles downstream from the facility’s southern boundary.

Ground-disturbing activities to concrete, surface soil, and intermittent surface water and sediment at AOI 5 and to surface water and sediment at the waterbody identified as “General’s Pond” and at Beaver Creek may result in site worker, construction worker, resident, and trespasser/recreational user exposure to potential PFAS contamination. Ground-disturbing activities to subsurface soil could result in site worker and construction worker exposure. Therefore, the exposure pathways for inhalation of soil particles and ingestion of soil are potentially complete for these receptors. Groundwater flow at Camp Dodge is predominantly to the south-southwest; therefore, the facility drinking water supply wells are downgradient of AOI 5, and the exposure pathway for all receptors via ingestion is potentially complete. The CSM for AOI 5 is shown on **Figure 6-8**.

6.6 AOI 6 Structure Fire

AOI 6 is the Structure Fire. Potential PFAS releases to soil by the IAARNG and municipal fire departments occurred in 2011 during a one-time planned, controlled burn. The Structure Fire occurred north of the Hyperion Field Club golf course. No remediation activities have occurred at AOI 6.

Because potential PFAS releases to surface soil at AOI 6 have occurred, PFAS may migrate from the surface soil to the groundwater via leaching or to tributaries of the Des Moines River via run-off. In addition, the Hyperion Field may use groundwater in the area to water the golf course.

Ground-disturbing activities to surface soil at AOI 6 and the Hyperion Field Club golf course and surface water and sediment at the tributaries to the Des Moines River may result in site worker, construction worker, resident, recreational user, and trespasser exposure to potential PFAS contamination. Ground-disturbing activities to subsurface soil could result in site worker and construction worker exposure. Therefore, the exposure pathways for inhalation of soil particles and ingestion of soil are potentially complete for these receptors. Groundwater flow at AOI 6 is predominantly to the south-southeast; therefore, the facility drinking water supply wells are not impacted by potential PFAS releases at AOI 6. In addition, no domestic wells are downgradient of AOI 6. Therefore, the groundwater exposure pathway for all receptors via ingestion is incomplete. The CSM for AOI 6 is shown on **Figure 6-6**.

6.7 AOI 7 Camp Dodge Fire Station

AOI 7 is the Camp Dodge Fire Station (Building B-59). Potential PFAS releases to soil by the IAARNG occurred from 2006 until 2012 during nozzle testing. In addition, to the present day, potential releases of PFAS to concrete at AOI 7 occurred occasionally during filling of the tank on the fire truck. All of the potential PFAS releases at AOI 7 flow to a north-south stormwater drainage ditch along Main Avenue in front of the Camp Dodge Fire Station. The stormwater drainage ditch discharges to the waterbody identified as “General’s Pond” west of the cantonment area with final discharge to Beaver Creek. The storm sewer lines in the drainage

ditch were repaired in 2015 to alleviate water backup in low lying buildings. The soil was returned to the drainage ditch following repair of the sewer lines.

Because potential PFAS releases to surface soil and concrete have occurred at AOI 7, it is possible that PFAS migrated from the surface soil and/or concrete to intermittent surface water in the stormwater drainage ditch. In addition, precipitation infiltrating AOI 7 may cause the migration of PFAS from surface soil and concrete to groundwater.

Ground-disturbing activities to surface soil and intermittent surface water and sediment at AOI 7 and to surface water and sediment at the waterbody identified as “General’s Pond” and at Beaver Creek may result in site worker, construction worker, resident, and trespasser/recreational user exposure to potential PFAS contamination. Ground-disturbing activities to subsurface soil could result in site worker and construction worker exposure. Therefore, the exposure pathways for inhalation of soil particles and ingestion of soil are potentially complete for these receptors. Groundwater flow at Camp Dodge is predominantly to the south-southwest; therefore, the facility drinking water supply wells are downgradient of AOI 7, and the exposure pathway for all receptors via ingestion is potentially complete. The CSM for AOI 7 is shown on **Figure 6-8**.

6.8 AOI 8 Trash Dumpster Fire

AOI 8 is the Trash Dumpster Fire. A potential PFAS release to surface soil by the IAARNG occurred sometime between 2007 and 2012 in response to a Trash Dumpster Fire. One interviewee recalled that foam was used to extinguish the fire to manage flying debris; however, it is unknown whether the foam was Class A foam or AFFF. No remediation activities have occurred at AOI 8.

Because potential PFAS releases to surface soil at AOI 8 have occurred, PFAS may migrate from the surface soil to the groundwater via leaching. The pathways and receptors for AOI 8 are the same as described in **Section 6.1**. The CSM for AOI 8 is shown on **Figure 6-5**.

6.9 AOI 9 Car Fire Training Area

AOI 9 is the Car Fire Training Area. Potential PFAS releases to soil by the IAARNG occurred in 2007 during a demonstration involving the incineration and open burning of a car by the Federal Bureau of Alcohol, Tobacco, Firearms and Explosives. No remediation activities have occurred at AOI 9.

Because potential PFAS releases to surface soil at AOI 9 have occurred, PFAS may migrate from the surface soil to the groundwater via leaching. Ground-disturbing activities to surface soil at AOI 9 may result in site worker, construction worker, and trespasser exposure to potential PFAS contamination. Ground-disturbing activities to subsurface soil could result in site worker and construction worker exposure. Therefore, the exposure pathways for inhalation of soil particles and ingestion of soil are potentially complete for these receptors. AOI 9 is northwest of the facility drinking water supply wells. Based on the location of AOI 9 and the south-southwestern groundwater flow direction at Camp Dodge, the drinking water supply wells are not impacted by potential PFAS releases at AOI 9, and the exposure pathway for groundwater to all receptors is incomplete. AOI 9 is less than one-half mile from Beaver Creek. Due to the proximity of the AOI to this surface water body, it is possible that shallow groundwater from AOI 9 interacts with the surface water and sediment at Beaver Creek. Therefore, the surface water and sediment exposure pathways for site workers, construction workers, and trespassers via ingestion are potentially complete. The CSM for AOI 9 is shown on **Figure 6-9**.

6.10 AOI 10 Aggregate Collection Point FTA

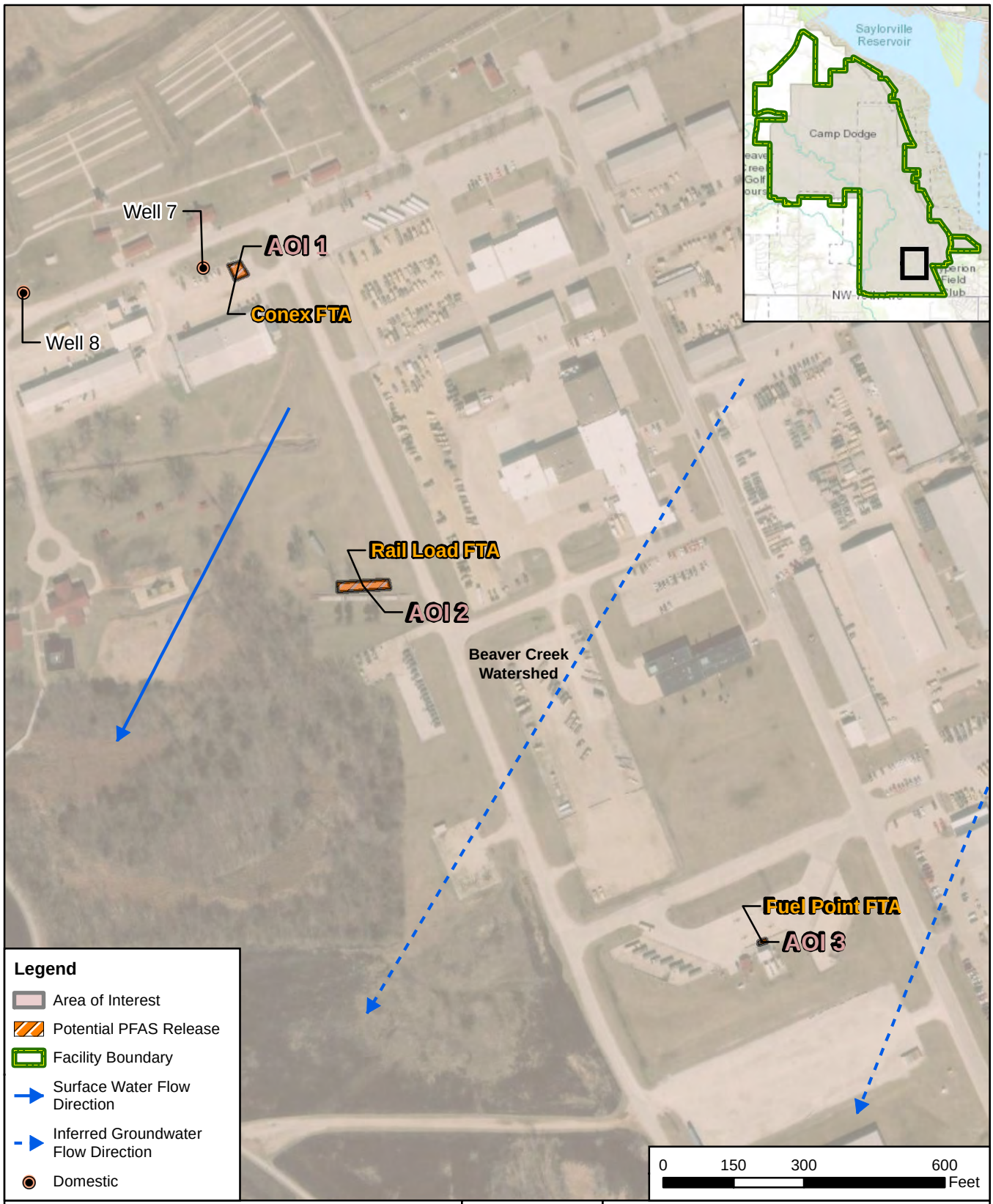
AOI 10 is the Aggregate Collection Point FTA. Potential PFAS releases to soil by the IAARNG occurred at least once annually from 2012 to 2018 during fire training activities. No remediation activities have occurred at AOI 10.

Because potential PFAS releases to surface soil at AOI 10 have occurred, PFAS may migrate from the surface soil to the groundwater via leaching. The pathways and receptors for AOI 10 are the same as described in **Section 6.9**. The CSM for AOI 10 is shown on **Figure 6-9**.

6.11 AOI 11 Live-Fire Shoot House Fire

AOI 11 is the Live-Fire Shoot House Fire. Potential PFAS releases to soil by the IAARNG occurred in 2012 during an emergency response. No remediation activities have occurred at AOI 11.

Because potential PFAS releases to surface soil at AOI 11 have occurred, PFAS may migrate from the surface soil to the groundwater via leaching. The pathways and receptors for AOI 11 are the same as described in **Section 6.9**. The CSM for AOI 11 is shown on **Figure 6-9**.



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Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	6/20/2019

N

Western Cantonment Areas of Interest

AECOM
12420 Milestone Center Drive
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Figure 6-1

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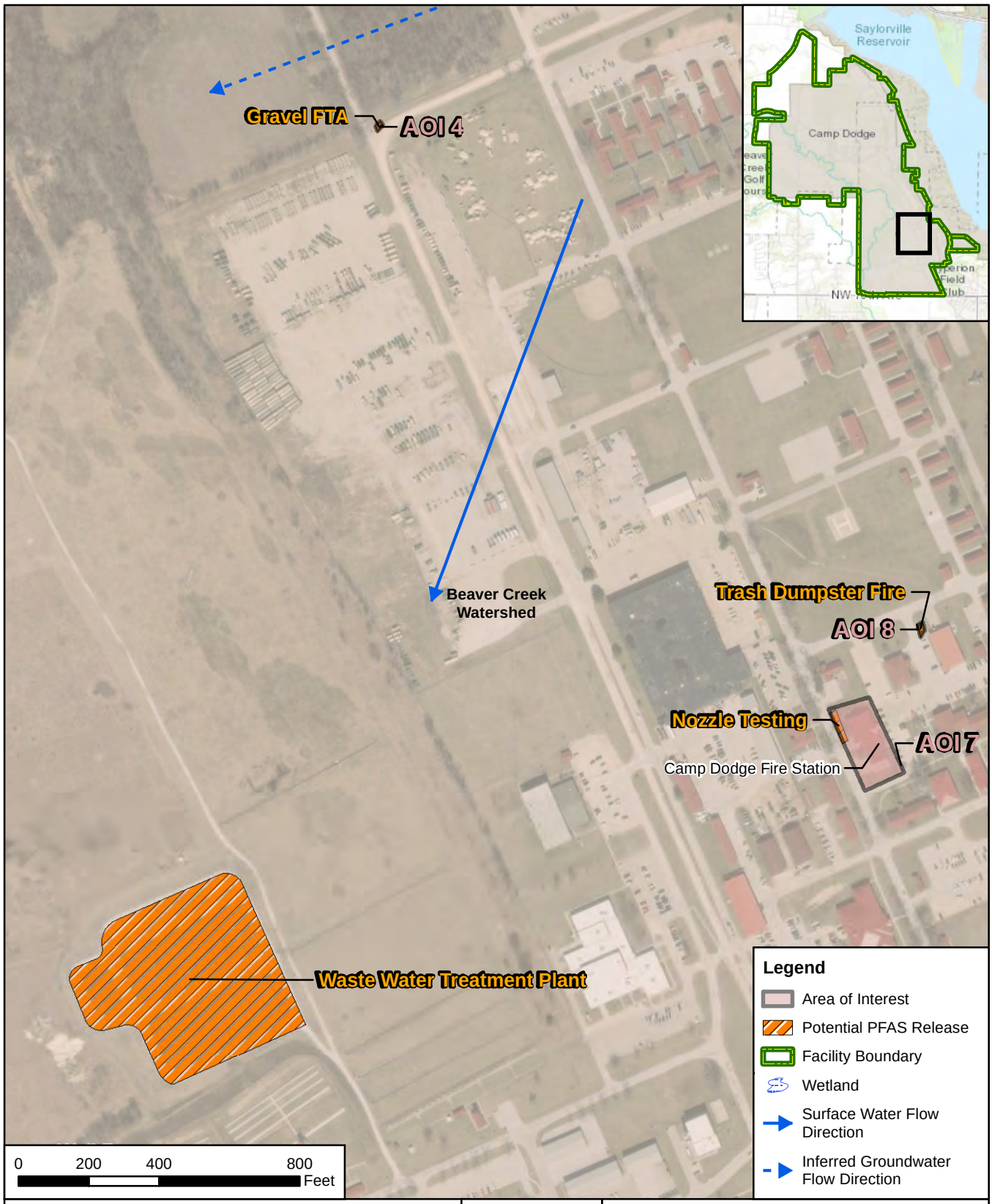

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Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	6/20/2019

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Central Cantonment Areas of Interest

AECOM
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Figure 6-2

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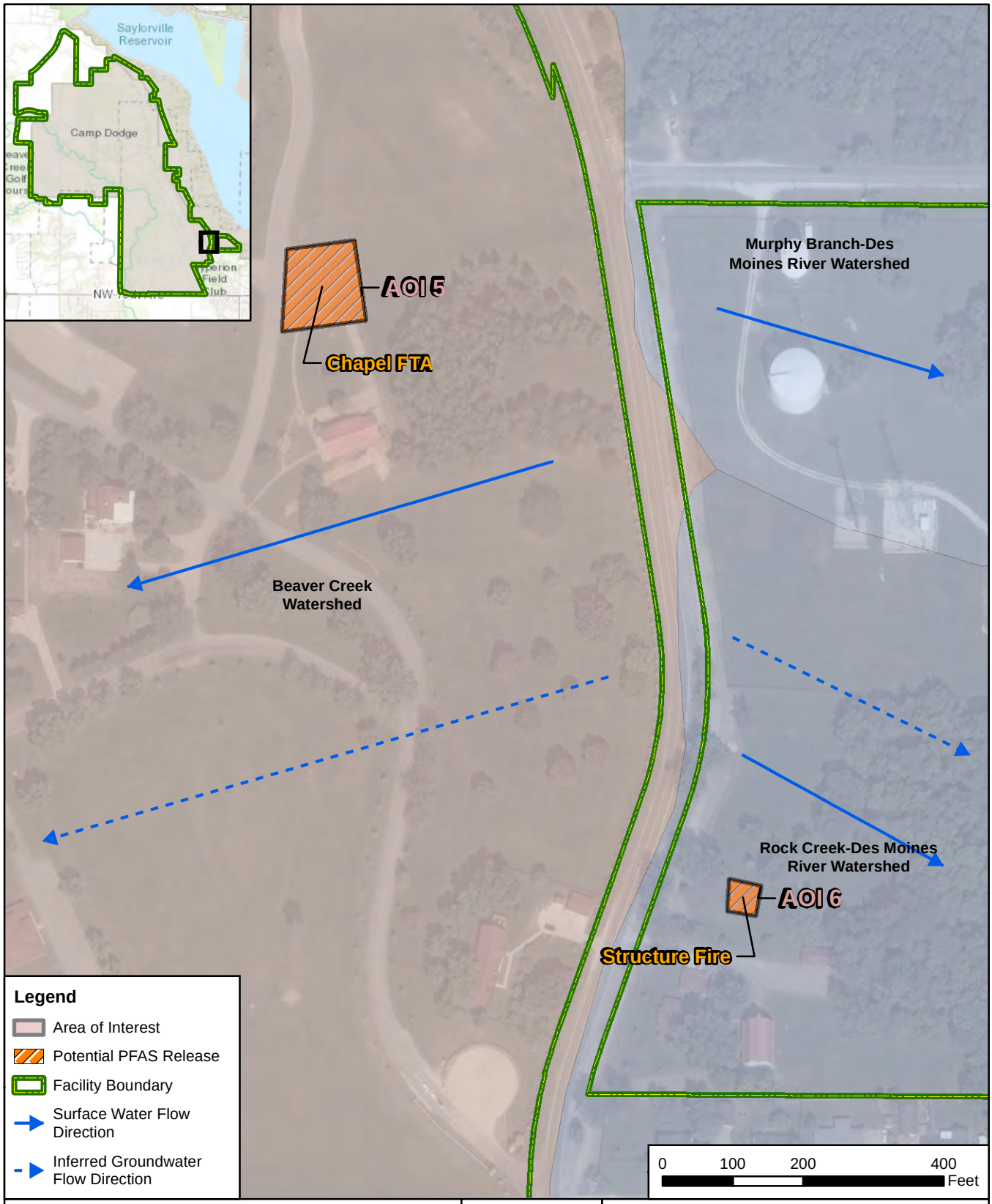

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Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	6/20/2019

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Eastern Cantonment Areas of Interest

AECOM
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Figure 6-3

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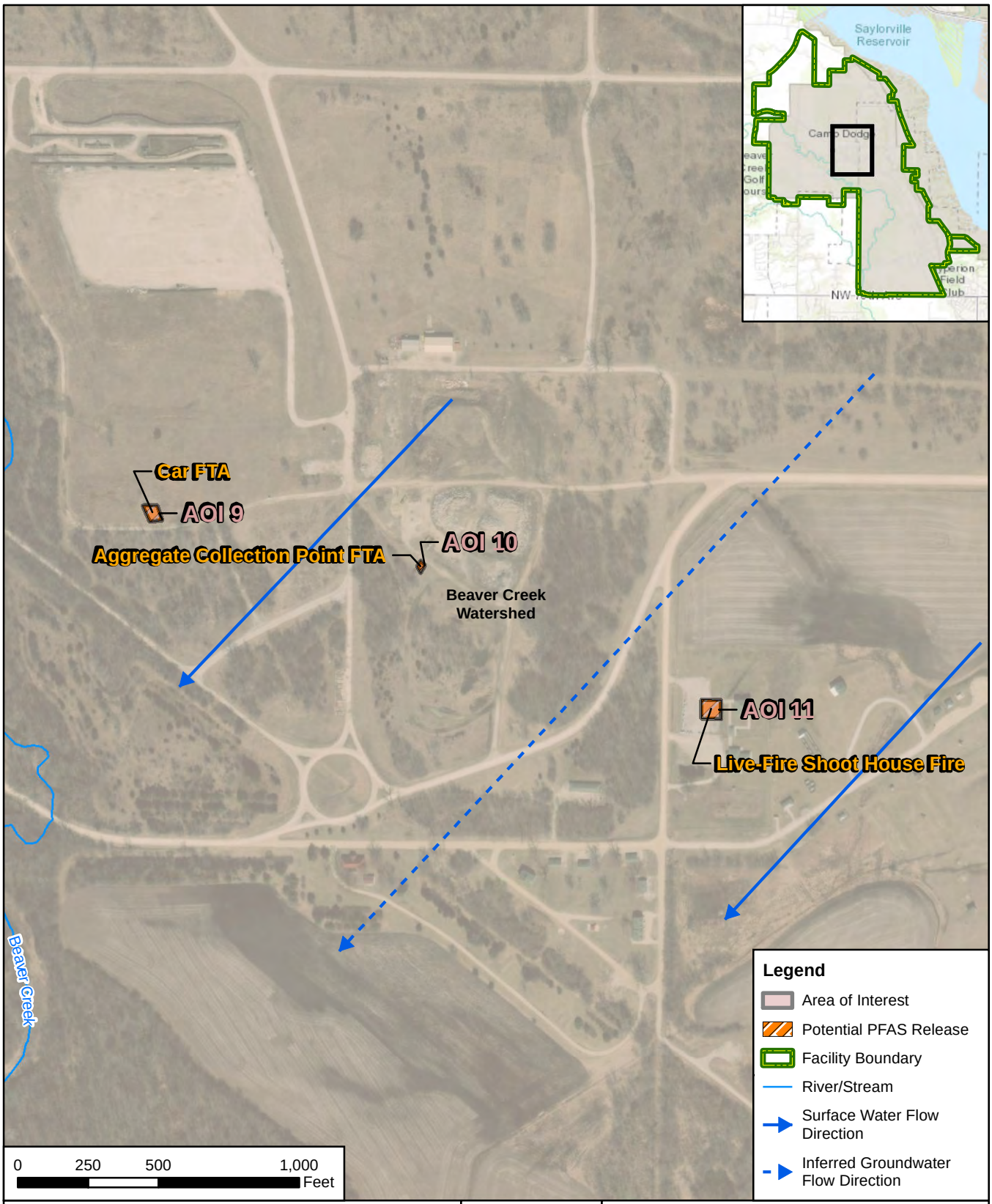

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Range Areas of Interest

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Figure 6-4

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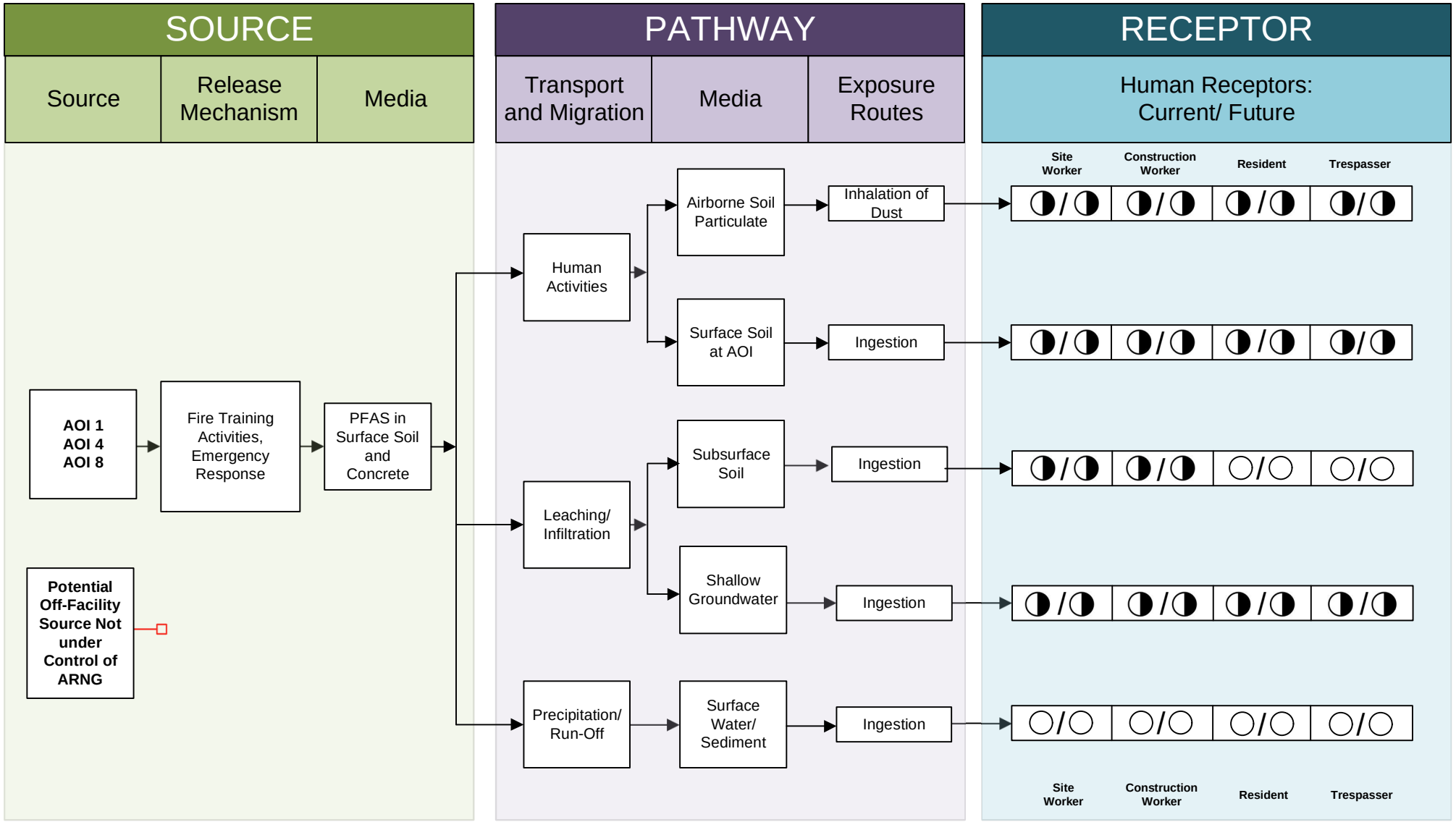
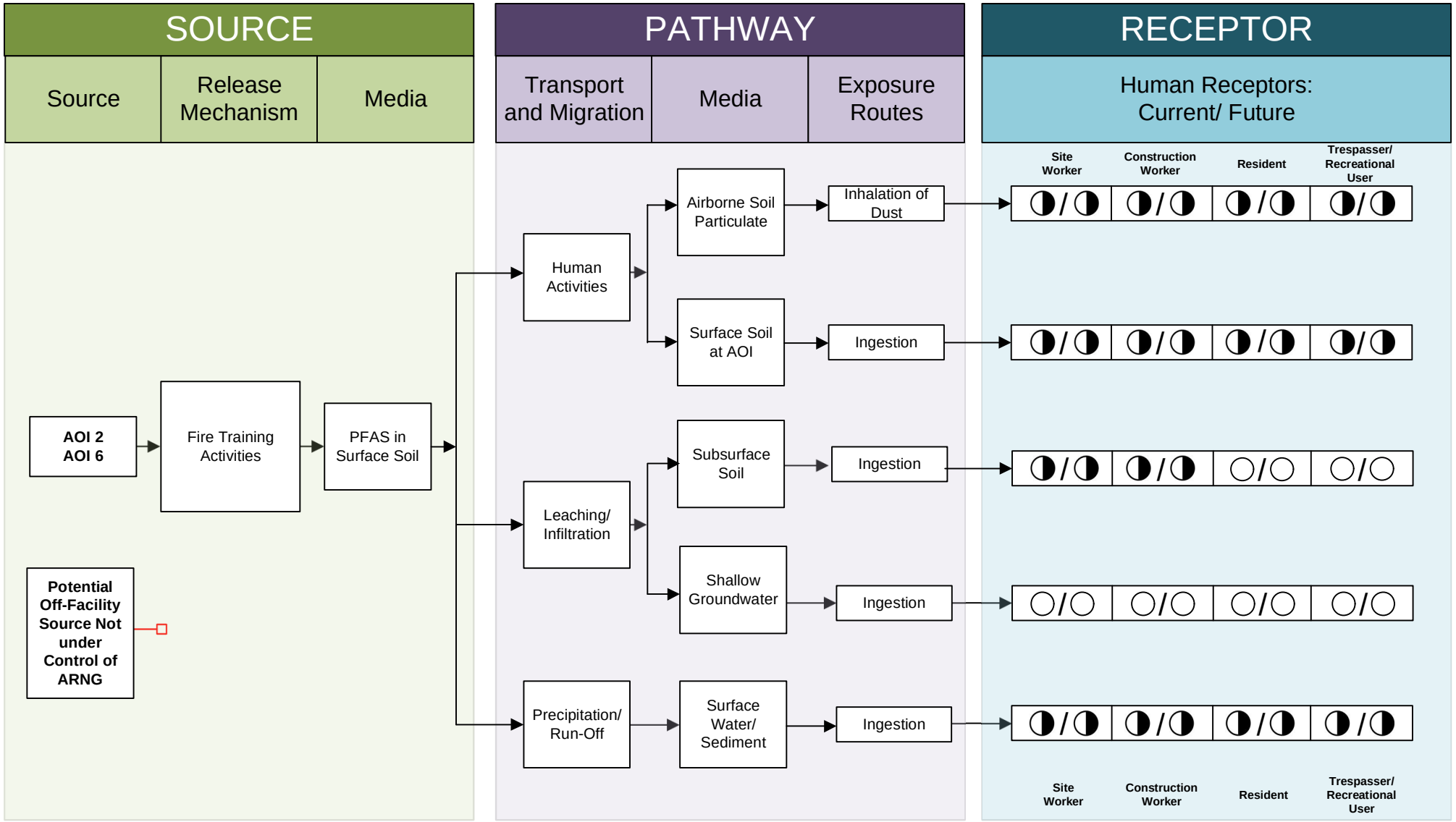


LEGEND

- Flow-Chart Stops
- Flow-Chart Continues
- Partial / Possible Flow
- Incomplete Pathway
- Potentially Complete Pathway
- Complete Pathway

Figure 6-5
Conceptual Site Model
AOI 1 Conex FTA, AOI 4 Gravel FTA, and
AOI 8 Trash Dumpster Fire



LEGEND

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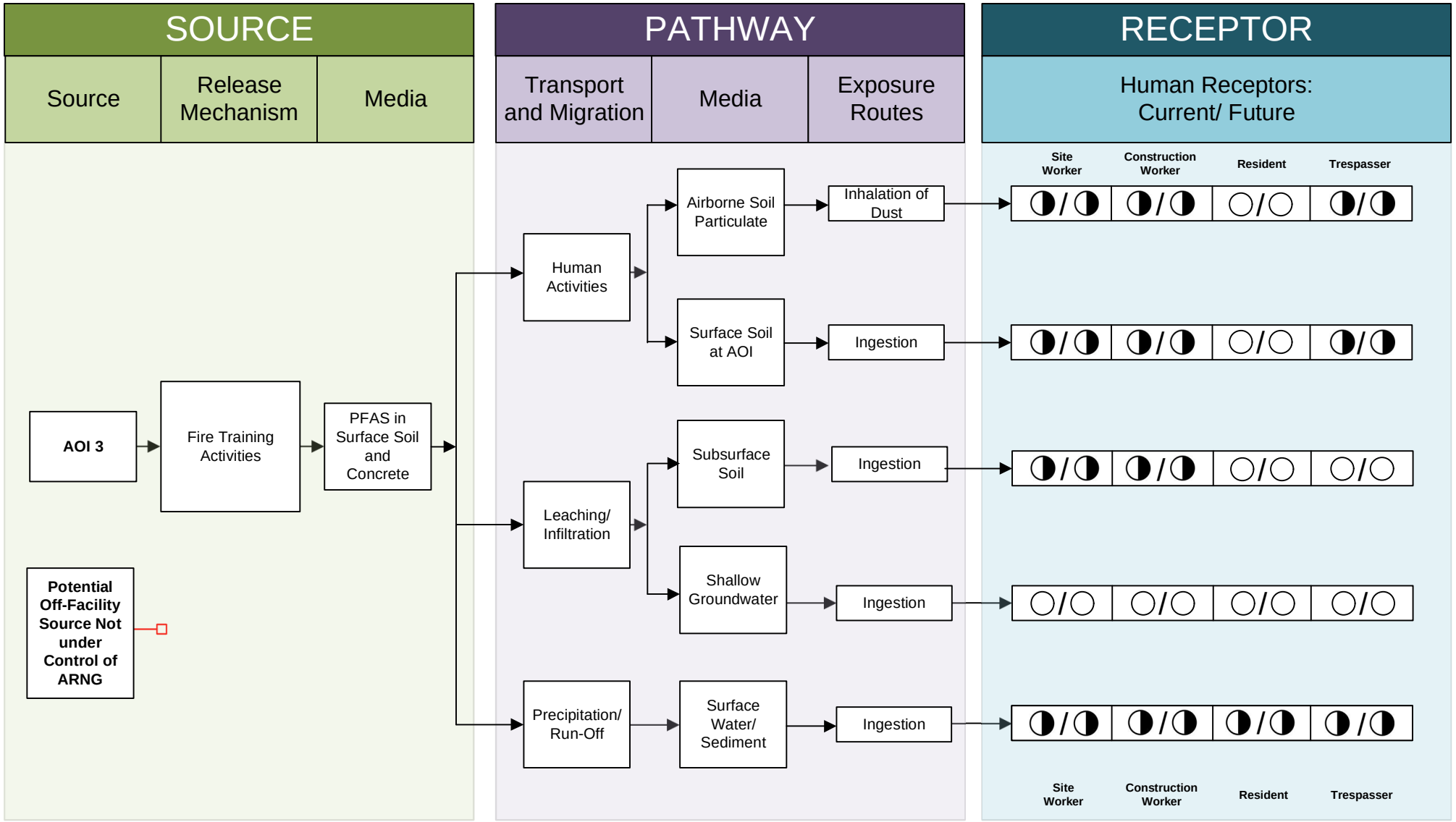
- Incomplete Pathway
- Potentially Complete Pathway
- Complete Pathway

Figure 6-6
Conceptual Site Model
AOI 2 Rail Load FTA and AOI 6 Structure Fire



LEGEND

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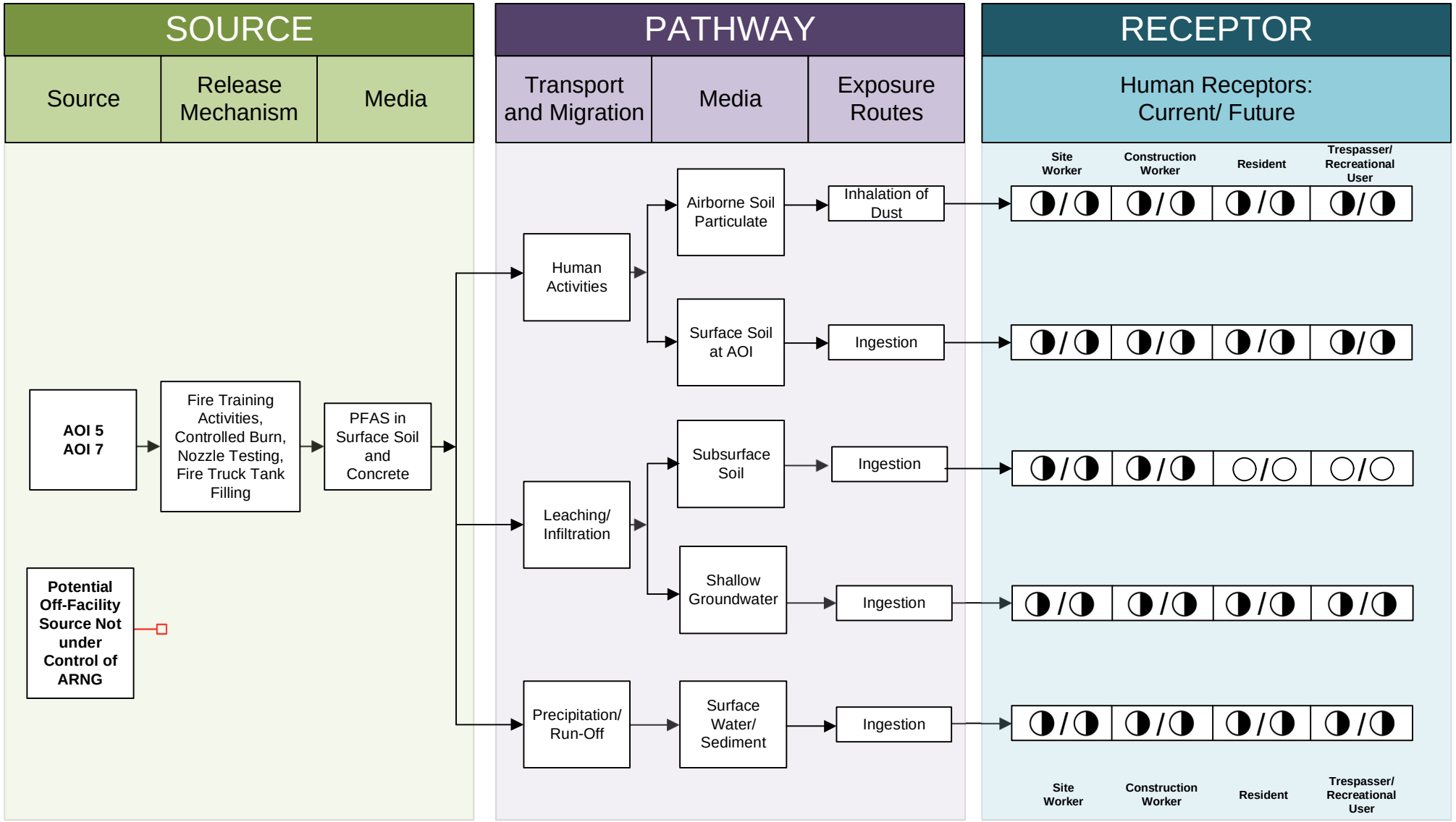
- Potentially Complete Pathway
- Complete Pathway

Figure 6-7
Conceptual Site Model
AOI 3 Fuel Point FTA



LEGEND

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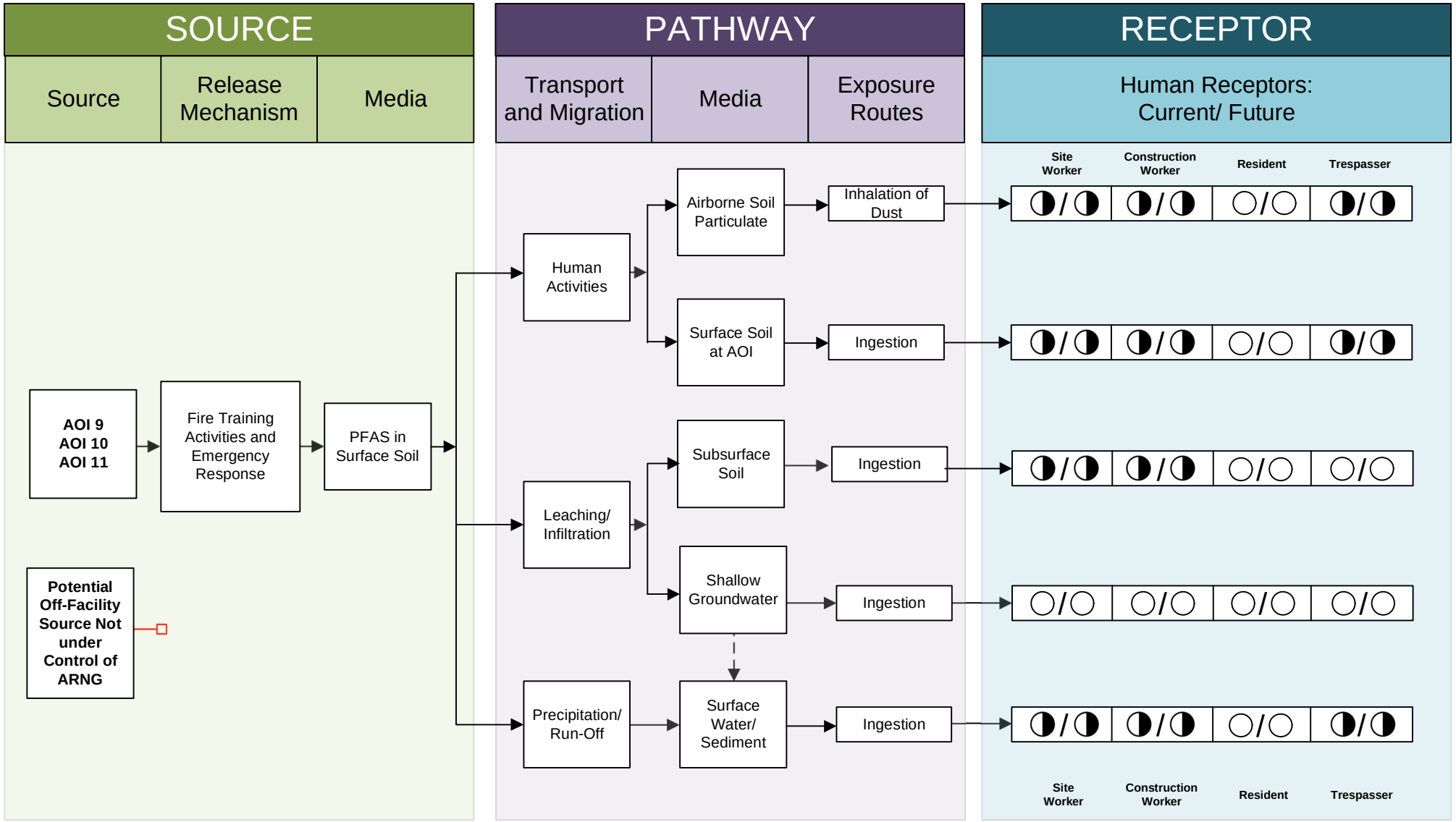
- Complete Pathway

Figure 6-8
Conceptual Site Model
AOI 5 Chapel FTA and AOI 7 Camp Dodge Fire Station



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- Flow-Chart Stops
- Flow-Chart Continues
- Partial / Possible Flow
- Incomplete Pathway
- Potentially Complete Pathway
- Complete Pathway

Figure 6-9
Conceptual Site Model
AOI 9 Car FTA, AOI 10 Aggregate Collection Point FTA, and AOI 11 Live-Fire Shoot House Fire

7. Conclusions

This report presents a summary of available information gathered during the PA on the use and storage of AFFF and other PFAS-related activities at Camp Dodge. The PA findings are based on the information presented in **Appendix A** and **Appendix B**.

7.1 Findings

Eleven AOIs related to potential PFAS release were identified at Camp Dodge during the PA (**Figure 7-1** through **Figure 7-4**).

Area of Interest	Name	Used by	Potential Release Dates
AOI 1	Conex FTA	IAARNG	2006 to 2012
AOI 2	Rail Load FTA	IAARNG	2012 to 2018
AOI 3	Fuel Point FTA	IAARNG	2007 to 2009
AOI 4	Gravel FTA	IAARNG	2006 to 2012
AOI 5	Chapel FTA	IAARNG	2009
AOI 6	Structure Fire	IAARNG and municipal fire departments	2011
AOI 7	Camp Dodge Fire Station	IAARNG	2006 to 2018
AOI 8	Trash Dumpster Fire	IAARNG	2007 to 2012
AOI 9	Car Fire Training Area	IAARNG	2007
AOI 10	Aggregate Collection Point FTA	IAARNG	2012 to 2018
AOI 11	Live-Fire Shoot House Fire	IAARNG	2012

Based on documented potential PFAS releases at these AOIs, there is potential for exposure to PFAS contamination in surface soil and intermittent surface water and sediments to site workers, construction workers, residents, and trespassers/recreational users via ingestion and inhalation; subsurface soil to site and construction workers via ingestion and inhalation; and groundwater to all receptors via ingestion.

The following areas discussed in **Section 2** through **Section 5** were determined to have no suspected release:

No Suspected Release Area	Used by	Rationale for No Suspected Release Determination
Fire Extinguishers	IAARNG	The AFFF fire extinguisher at the fuel point has never been dispensed; therefore, a potential PFAS release to the environment from the fire extinguisher is not suspected.

7.2 Uncertainties

A number of information sources were investigated during this PA to determine the potential for PFAS-containing materials to have been present, 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 use of PFAS in training, firefighting, or other non-traditional activities, or on its disposition.

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, retired and current personnel were interviewed, multiple persons were interviewed for the same potential source area, and potential source areas were visually inspected.

The following table summarizes the uncertainties associated with the PA:

Area of Interest	Source of Uncertainty
All AOIs	No information was available on AFFF usage at Camp Dodge prior to 2006.
All AOIs	No or limited information was available on the type, amount, and concentration of AFFF used at each AOI.
All AOIs	Historically, AFFF may have been used at concentrations of one percent or less to manage large sections of rangeland fires. The former Camp Dodge Fire Brigade Training Specialist estimated in total, 20 to 30 gallons of AFFF concentrate may have been used over the entire range from 2006 to 2012. Designated range lands are farmed with beans and corn.
AOI 1 Conex FTA	Based on the south-southwestern groundwater flow direction at Camp Dodge, AOI 1 is downgradient or sidegradient of the facility drinking water supply wells. It is unknown if the drinking water supply wells are impacted by potential PFAS releases at AOI 1.
AOI 8 Trash Dumpster Fire	One interviewee recalled that foam was used to extinguish the fire to manage flying debris; however, it is unknown whether the foam was Class A foam or AFFF.

7.3 Potential Future Actions

Interviews and records (covering 1970s to present) indicate that current or former ARNG activities may have resulted in potential PFAS releases at the 11 AOIs identified during the PA. Based on the CSMs developed for the AOIs, there is potential for receptors to be exposed to PFAS contamination in soil, groundwater, surface water, and sediment at these AOIs. The following table summarizes the rationale used to determine if the AOIs should be considered for further investigation under the CERCLA process and undergo a Site Inspection (SI).

ARNG evaluates the need for an SI at Camp Dodge based on the potential receptors, the potential migration of PFAS contamination off the facility, and the availability of resources.

Area of Interest	AOI Location	Rationale	Potential Future Action
AOI 1 Conex FTA	41°41'53.1"N and 93°43'13.8"W	Approximately 5 to 10 gallons of AFFF concentrate used three or four times total from 2006 until 2012.	Proceed to an SI, focus on soil and groundwater
AOI 2 Rail Load FTA	41°41'46.6"N and 93°43'09.4"W	Approximately 5 gallons of 3 percent AFFF concentrate used annually from 2012 to the 2018.	Proceed to an SI, focus on soil, surface water, and sediment
AOI 3 Fuel Point FTA	41°41'39.2"N and 93°42'59.0"W	Approximately 25 gallons of AFFF concentrate used annually from 2007 to 2009.	Proceed to an SI, focus on soil, groundwater, surface water, and sediment
AOI 4 Gravel FTA	41°42'25.0"N and 93°43'11.0"W	Approximately 5 to 10 gallons of AFFF concentrate used three or four times total from 2006 until 2012.	Proceed to an SI, focus on soil and groundwater
AOI 5 Chapel FTA	41°42'08.5"N and 93°42'30.8"W	Approximately 5 to 10 gallons of AFFF concentrate used during a 2009 training event.	Proceed to an SI, focus on soil, groundwater, surface water, and sediment
AOI 6 Structure Fire	41°42'00.2"N and 93°42'22.7"W	Approximately 5 gallons of AFFF concentrate used during a 2011 training event.	Proceed to an SI, focus on soil, surface water, and sediment
AOI 7 Camp Dodge Fire Station	41°42'07.9"N and 93°42'52.1"W	Nozzle testing completed at the Fire Station and possible AFFF concentrate spillage during fire truck tank filling.	Proceed to an SI, focus on soil, groundwater, surface water, and sediment
AOI 8 Trash Dumpster Fire	41°42'11.4"N and 93°42'50.3"W	AFFF foam solution was possibly used once to extinguish a fire and manage flying debris sometime between 2007 and 2012.	Proceed to an SI, focus on soil and groundwater
AOI 9 Car Fire Training Area	41°43'27.7"N and 93°44'34.8"W	AFFF concentrate was used once to extinguish the open burning of a car during a demonstration by the Federal Bureau of Alcohol, Tobacco, Firearms and Explosives	Proceed to an SI, focus on soil, surface water, and sediment
AOI 10 Aggregate Collection Point FTA	41°43'25.6"N and 93°44'22.3"W	Approximately 5 gallons of 3 percent AFFF concentrate used annually from 2012 to 2018.	Proceed to an SI, focus on soil, surface water, and sediment
AOI 11 Live-Fire Shoot House Fire	41°43'21.6"N and 93°44'02.6"W	Approximately 20 to 30 gallons of AFFF concentrate used once to extinguish a fire.	Proceed to an SI, focus on soil, surface water, and sediment

CLIENT	ARNG			
NOTES	Preliminary Assessment for PFAS at Camp Dodge, IA			
REVISED	6/20/2019	GIS BY	MS	6/20/2019
SCALE	1:3,600	CHK BY	JZ	6/20/2019
Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	6/20/2019

N

Western Cantonment Summary of Findings

AECOM
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Figure 7-1

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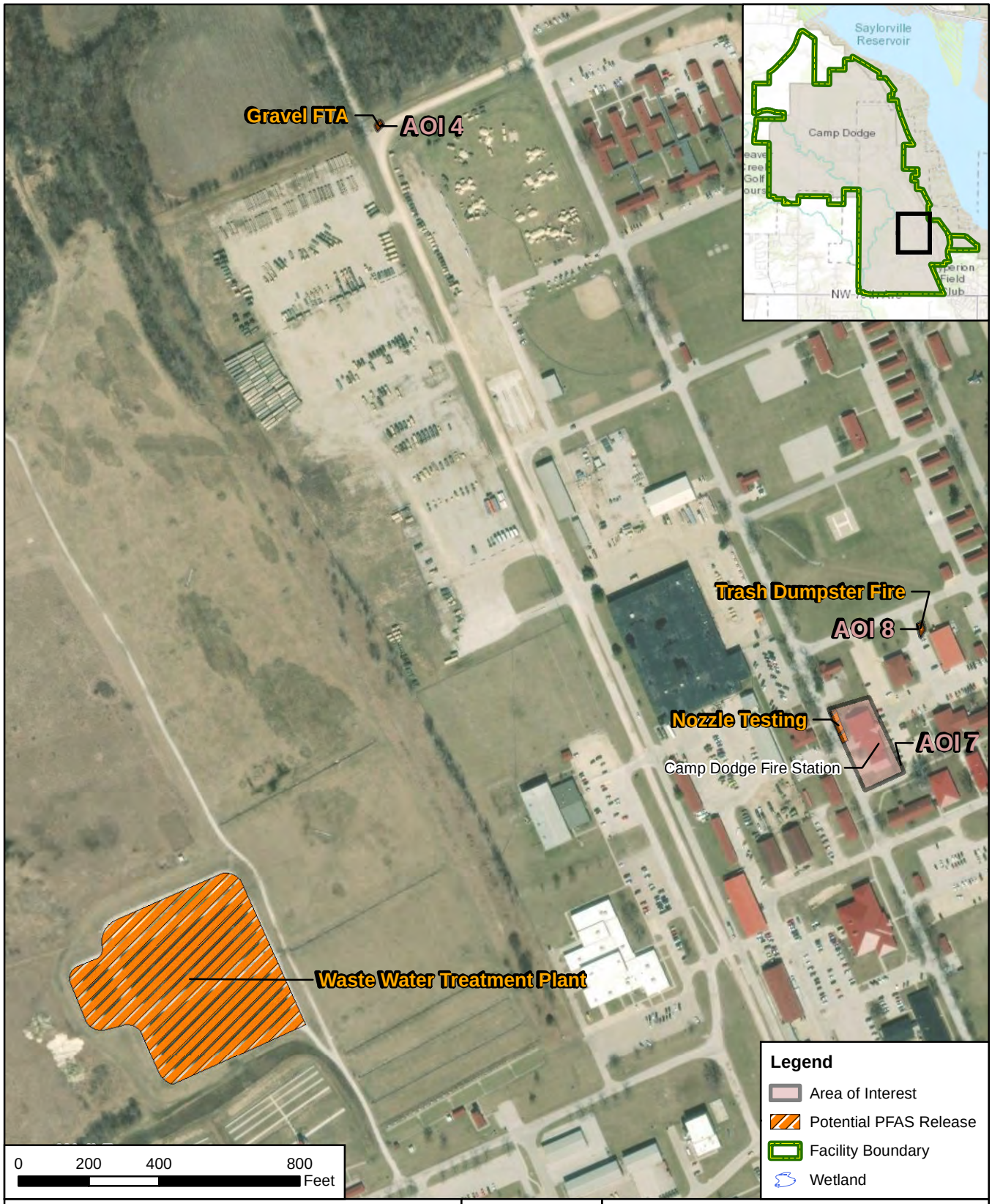

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Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	6/20/2019

Central Cantonment Summary of Findings

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Figure 7-2

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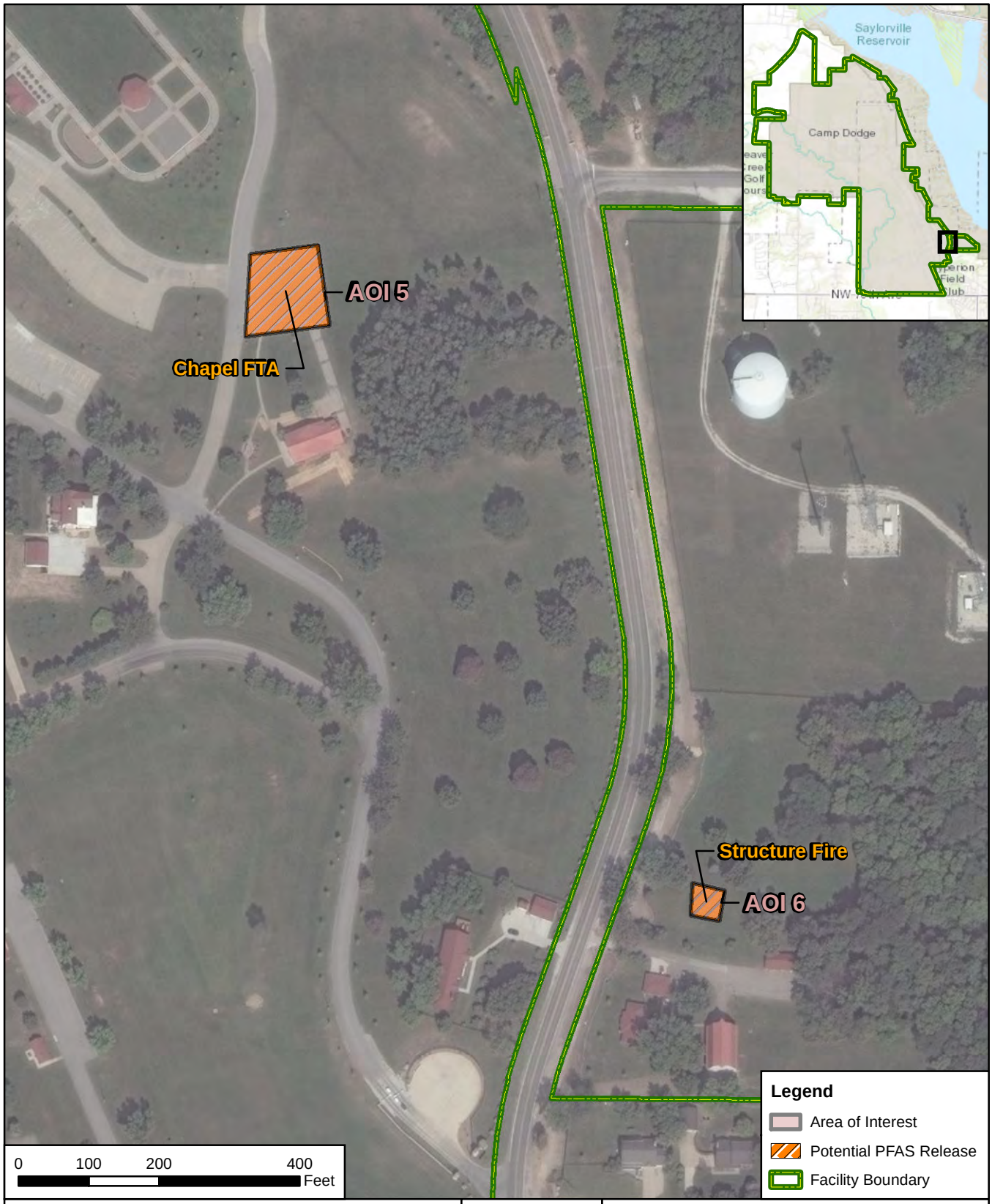

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Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	6/20/2019

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Eastern Cantonment Summary of Findings

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Figure 7-3

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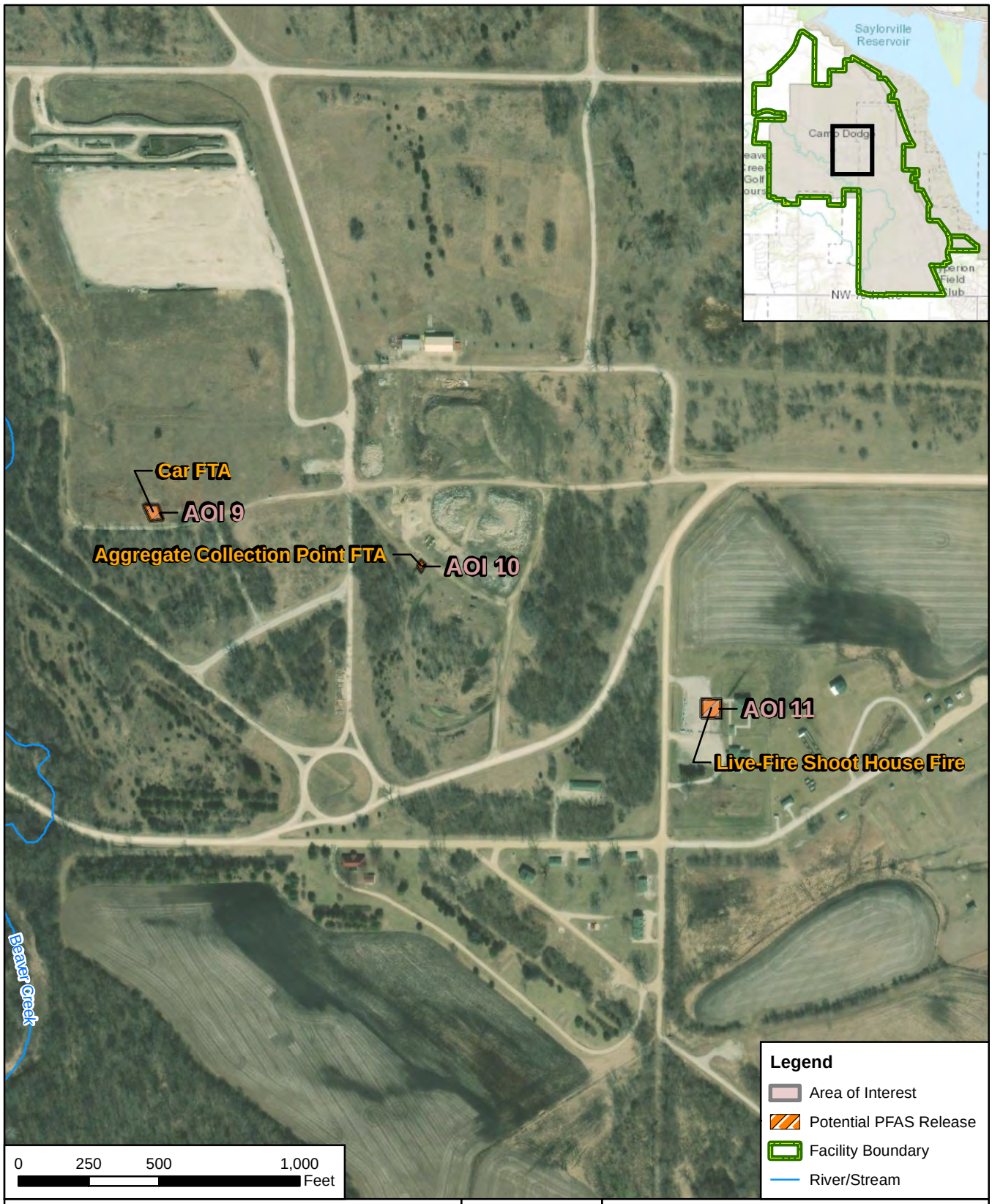

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Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	6/20/2019

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Range Summary of Findings

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Figure 7-4

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8. References

Iowa Army National Guard (IAARNG). 2013. Integrated Natural Resources Management Plan. August.

Iowa Department of Natural Resources. 2018. *Cumulative Risk Calculator, Statewide Standards*. Version 3.0.3604. Available at https://programs.iowadnr.gov/riskcalc/Home/statewidestandards (Accessed 22 October 2018).

Montgomery Watson. 1999. *Preliminary Assessment for Camp Dodge Training Site, Johnston,*

National Ground Water Association (NGWA). 2018. *Groundwater and PFAS: State of Knowledge and Practice*. January.

United States Census Bureau. 2016. *Population and Housing Unit Estimates.* Available at https://www.census.gov/quickfacts/fact/table/johnstoncityiowa/PST045217 (Accessed October 2, 2018).

United States Climate Data. 2018. Available at https://www.usclimatedata.com/climate/des-moines/iowa/united-states/usia0231 (Accessed August 23, 2018).

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

URS Group Inc. (URS)/ARCADIS. 2013. *Army Operational Range Assessment Phase II Report, Camp Dodge, Iowa*. January.

Appendix A
Data Resources

Data Resources will be provided separately on CD. Data Resources for Camp Dodge include:

Camp Dodge AFFF Release Documentation

- 2016 Camp Dodge Data Call Map
- 2018 Camp Dodge Former Fire Brigade Chief Foam Map

Camp Dodge Fire Fighting Training Documentation

- 2007 Camp Dodge Burn Permit Car Detonation

Camp Dodge Previous Investigations

- 1999 Preliminary Assessment Report for Camp Dodge Training Site, Johnston, Iowa
- 2007 Iowa Department of Natural Resources Camp Dodge Site Inspection Approval Memorandum
- 2013 Integrated Natural Resources Management Plan for Camp Dodge
- 2013 Operational Range Assessment Phase II Report for Camp Dodge

Camp Dodge Facility Maps

- Camp Dodge City Water Supply Buildings Map
- Camp Dodge Map 1 – Potential PFAS Releases 1
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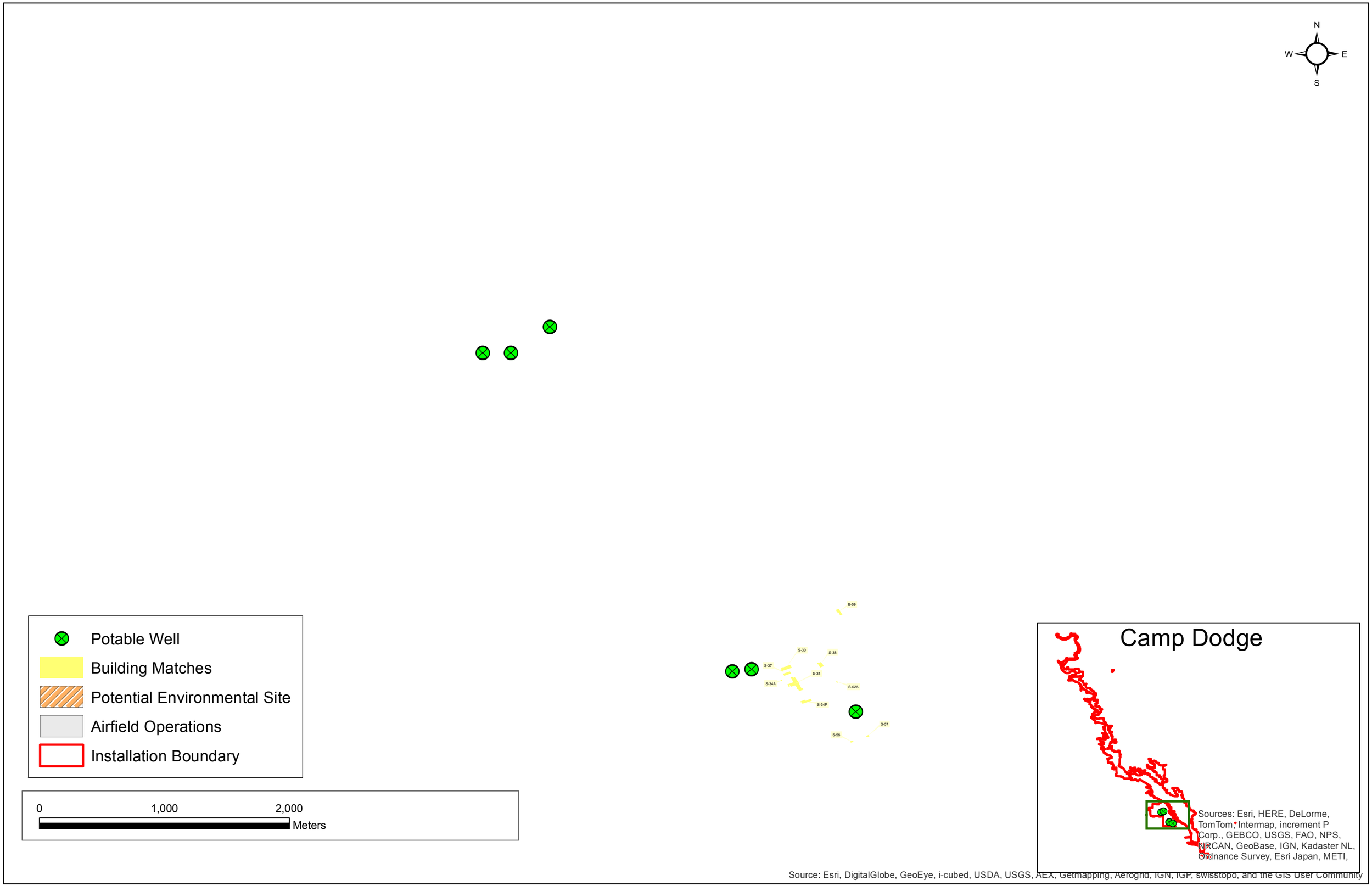
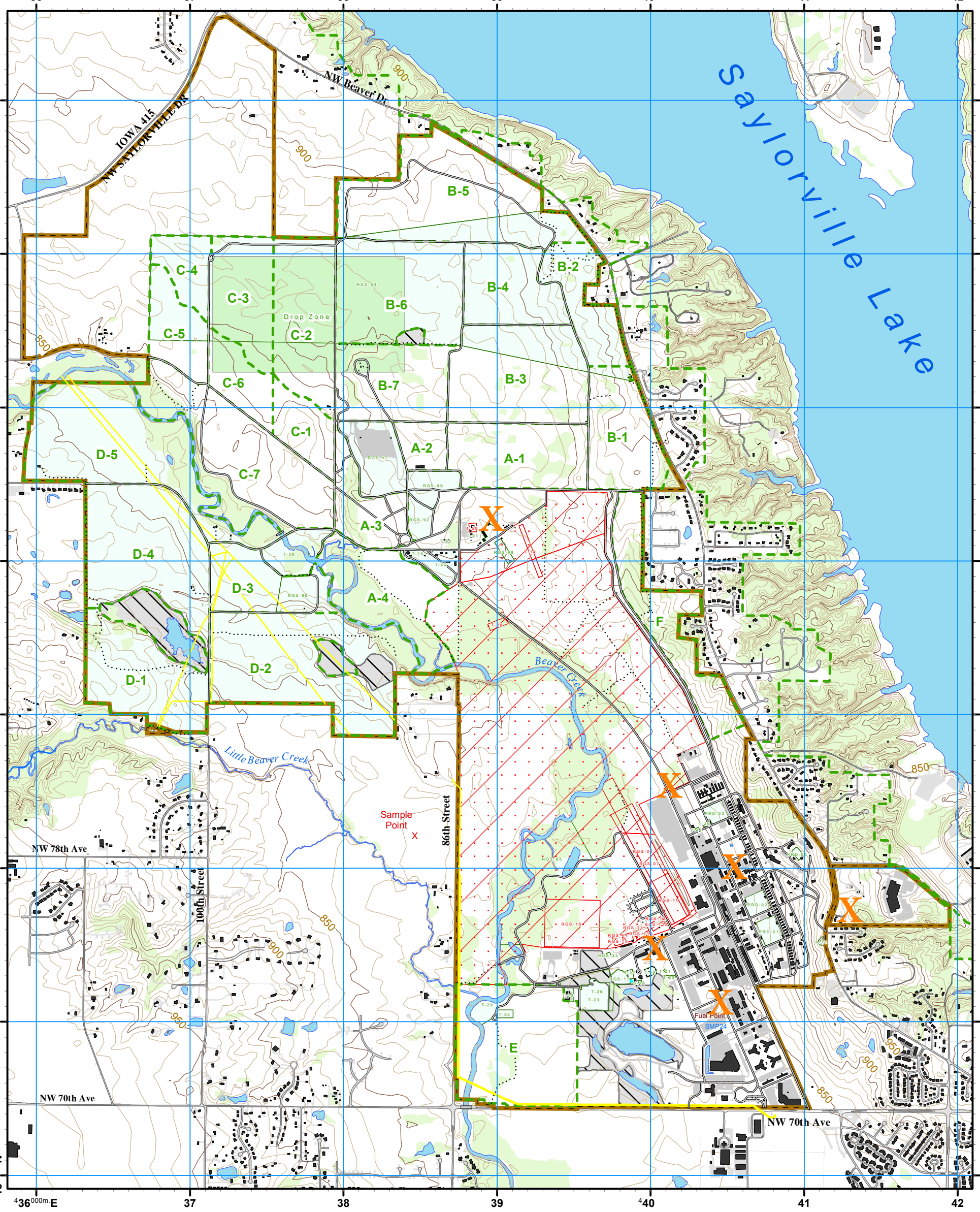
Camp Dodge EDR Report

- 2018 Camp Dodge EDR Report


N
W
E
S
Potable Well
Building Matches
Potential Environmental Site
Airfield Operations
Installation Boundary
0
1,000
2,000
Meters
B-59
S-30
S-38
S-37
S-34
S-34A
S-02A
S-34P
S-57
S-56
Camp Dodge
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI,
Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Camp Dodge Joint Maneuver Training Center, Iowa National Guard

Scale: 1:25,000



Legend

- Rivers and Lakes
- 10 Foot Contour
- 50 Foot Contour
- Structures
- Roads
- Trails
- Surfaced Area
- Installation Boundary
- Natural Gas Pipeline
- Impact Area
- Drop Zone
- Foot Traffic Only
- Live Fire Range
- Range Area
- Timber

INTEGRATED TRAINING AREA MANAGEMENT
ITAM GIS
GEOGRAPHIC INFORMATION SYSTEM

1 cm = 250 m (Meters: 500, 250, 0, 500, 1,000)

1 in = 2,083.3 ft (Feet: 2,000, 1,000, 0, 2,000, 4,000)

HUNTING INFORMATION

Training Area	*Limits*
F	Bow Only
B1,B2,B5,E	Shotgun(no slug) and Bow Only
Impact Area	Closed during S06 - S16 Fire
	Closed during Rifle and T14 Fire
	Closed during T14 and S06 Fire
T-22,T-50	No Hunting within 200 feet
All Other	No Limits
Trapping	1 November - 31 January

No Hunting within 100 Feet of Installation Boundary

Projection: Universal Transverse Mercator
Horizontal Datum: North American Datum of 1983
BLUE NUMBERED LINES INDICATE 1000 METER GRID

2010
G - M
ANGLE
2° 09'
(38 MILS)

TO CONVERT A MAGNETIC AZIMUTH TO A GRID AZIMUTH ADD G-M ANGLE

TO CONVERT A GRID AZIMUTH TO A MAGNETIC AZIMUTH SUBTRACT G-M ANGLE

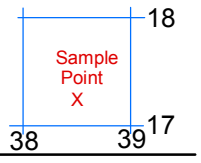
GN
GRID NORTH
TRUE NORTH
MAGNETIC NORTH

GRID CONVERGENCE AT CENTER OF SHEET
0° 29' (8.5 MILS)

N
W
E
S

11 January 2018
Iowa Army National Guard
Installation Geospatial Information & Services
NGIA-DIM-P

SAMPLE 1,000-METER GRID SQ



100,000-METER SQUARE IDENTIFICATION
VG

GRID ZONE DESIGNATION
15T

100-METER REFERENCE

1. Read large numbers labeling the VERTICAL grid line left of point and estimate tenths (100-meters) from grid line to point.
2. Read large numbers labeling the HORIZONTAL grid line below point and estimate (100-meters) from grid line.

Example: 385172

WHEN REPORTING ACROSS A 100,000-METER LINE, PREFIX THE 100,000-METER SQUARE IDENTIFICATION, IN WHICH THE POINT LIES.

Example: VG385172

WHEN REPORTING OUTSIDE THE GRID ZONE DESIGNATION AREA, PREFIX THE GRID ZONE DESIGNATION

Example: 15TVG385172

COUNTY OF POLK
Public Works Department

Larry Land, Director
5885 NE 14 Street
Des Moines, Iowa 50313
Ph 515.286.3705
Fax 515.286.3437
Email:publicwrks@co.polk.ia.us
www.co.polk.ia.us

July 13, 2007

Mr. Harlan Ratcliff
Camp Dodge
7105 NW 70th Avenue
Johnston, Iowa 50131-1824

Dear Mr. Ratcliff:

Please consider this a permit to conduct training fires on September 19, 2007 at Camp Dodge- 7105 NW 70th Avenue, Johnston This permit has been issued in accordance with, ARTICLE III. INCINERATION AND OPEN BURNING, Section (5) Training fires. Fires set for the purpose of a bona fide training of public or industrial employees in fire fighting methods, provided the health officer receives a written request at least one week before such action commences.

Note: Jeremy Becker is the health officer. HRR

The following condition(s) must be followed:

1. The training fire shall follow "Standard National Fire Protection Association (NFPA) c.1403 guidance.
2. Notification must be made to the Fire Department prior to the training session.

The health officer shall have the authority to suspend this permit at any time for violation of the above listed provisions or in the case of a weather condition resulting in stagnation or pollutant concentrations such that the public health is jeopardized.

This Department assumes no liability, directly or indirectly, for any loss due to damage to persons or property caused by, resulting from, or arising out of this activity.

Sincerely,

Jeremy Becker
Air Quality Engineer
Polk County Public Works Department – Air Quality

CC: Johnston Fire Department

PRELIMINARY ASSESSMENT

FOR

CAMP DODGE TRAINING SITE
JOHNSTON, IOWA

Prepared for

IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

Project No. 1217117.051801

January 1999

Prepared by

Montgomery Watson
11107 Aurora Avenue
Des Moines, Iowa 50322
515-253-0830

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ACRONYM LIST

µg/g	microgram per gram
µg/kg	micrograms per kilogram
µg/L	microgram per liter
ASTs	aboveground storage tanks
bgs	below ground surface
BNAs	base/neutral acids
BTEX	benzene, toluene, ethylbenzene, and xylene
C&D	construction and demolition
CEMRO	U.S. Army Corps of Engineers, Omaha District
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
cfs	cubic feet per second
cm/sec	centimeters per second
CN	chlorocetophenone
CSMS	Combined Support Maintenance Shop
cu ft	cubic feet
cu yd	cubic yard
Demo	Demolition
DMWW	Des Moines Water Works
DOD	Department of Defense
EBS	Environmental Baseline Study
EPA	Environmental Protection Agency
GBS	Geological Survey Bureau
gpm	gallons per minute
HAL	Health Advisory Level
HC	Hexachloroethane
HFA	Human Factors Applications, Inc.
HRS	Hazard Ranking System
IA ARNG	Iowa Army National Guard
IAC	Iowa Administrative Code
IDNR	Iowa Department of Natural Resources
Keystone	Keystone Laboratories, Inc.
m	meters
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
MEK	methyl ethyl ketone
MIBK	methyl isobutyl ketone
msl	mean seal level
mg/kg	milligrams per kilogram
NCP	National Contingency Plan
NGVD	National Geodetic Vertical Datum

ACRONYM LIST (CONTINUED)

NPL	National Priorities List
NRL	Negligible Risk Level
OMS	organizational maintenance shops
PA	Preliminary Assessment
PAHs	polynuclear aromatic hydrocarbons
PPE	probable point of entry
ppm	parts per million
ppt	parts per trillion
PRGs	Preliminary Remediation Goals
RBCA	Risk Based Corrective Action
RDX	Royal Demolition Explosive; Hexahydro-1,3,5-Trinitro-1,3,5-Triazine
SARA	Superfund Amendments and Reauthorization Act of 1986
sf	square feet
SI	site inspection
SMCL	Secondary Maximum Contaminant Level
sq ft	square feet
SVOCs	semivolatile organic compounds
TEH	total extractable hydrocarbons
TNT	Trinitro-Toluene
TPH	total petroleum hydrocarbons
USACE	U.S. Army Corps of Engineers
USTs	underground storage tanks
VOCs	volatile organic compounds
WP	White phosphorous
WWI	World War I
WWII	World War II
WWTP	Wastewater Treatment Plant

EXECUTIVE SUMMARY

A Preliminary Assessment (PA) was performed at the request of the Iowa Army National Guard (IA ARNG) for the Camp Dodge Training Site located in Johnston, Iowa (Camp Dodge). Montgomery Watson was retained on behalf of the IA ARNG to conduct the PA. The specific objectives of the Camp Dodge PA were to: 1) identify known or suspected release areas present at the installation and determine which areas are eligible for consideration in the PA; 2) identify the location, operational history, dimensions, and waste characteristics associated with each PA site; 3) determine the likelihood that contaminants could be released to groundwater, surface water, soil and air; 4) identify and characterize all exposure and migration pathways and receptors associated with contaminant release from the PA sites; and 5) determine the need for further investigation at each PA site, and prioritize the investigation status for the entire Camp Dodge installation.

Camp Dodge has been used for National Guard and other governmental and civilian training since 1907 for various military training activities, administration and weapons firing events. The training site encompasses more than 4,300 acres, including a cantonment area (300 acres), range firing points and surface danger areas (approximately 1,000 acres) and various training areas (approximately 3,000 acres). This PA was performed to address all potential sites located within Camp Dodge.

SCOPE OF THE PA

The PA was conducted between July 1997 and November 1998 and used the following sources of information: site reconnaissance visits to the various sites and surrounding areas; interviews with current and former IA ARNG employees, residents or others familiar with past and present activities at the facility; review of available IA ARNG records regarding past and present disposal practices at the installation; file and literature searches for relevant information regarding the site environment, disposal practices or nearby receptors; historical aerial photographs and maps; interviews, correspondence and telephone inquiries with representatives of other federal, state and local agencies; and limited groundwater, soil, surface water, and sediment assessments.

Sites were identified and retained for evaluation in this PA by working with IA ARNG personnel to identify possible locations at Camp Dodge where hazardous substances, pollutants and contaminants may have been released. Potential sites which are currently being addressed under another environmental statute, or sites which are currently active and under the supervision of trained personnel were not included in the PA.

Twenty-one sites were retained from the screening process for evaluation in the PA. The sites were broken down into five categories based on their historical use or location at Camp Dodge: 1) Landfill sites; 2) Historical Sites (pre-WWII); 3) Historical Sites (post-WWII); 4) South Cantonment Area sites; and 5) Farm Acquisition sites. For each PA site, the location and setting, site history, waste characteristics, and likelihood to release to groundwater, surface water, soil and air were described and evaluated. The groundwater, surface water, soil exposure and air pathways from the various PA sites to potential targets at Camp Dodge were characterized. The

relative threat of each PA site to pathway targets was qualitatively evaluated and ranked. A narrative and relative ranking of the PA sites was developed in lieu of the PA scoring associated with EPA guidance.

FINDINGS OF THE PA

A summary of the relative ranking of the PA sites according to their threats to groundwater, surface water, soils and air pathways is provided below. For this table, sites were ranked based on their relative risk for contaminants to migrate along each pathway to potential targets. Sites identified with a high overall risk were considered to be a greater risk to potential targets than sites determined to be a medium risk. Likewise, sites identified with a low risk were less likely to provide a pathway for contaminants to migrate to potential targets. The relative rankings are preliminary and will be reviewed and, possibly, modified when additional data is obtained.

Type of Site	Site ID	Groundwater Pathway	Surface Water Pathway	Likelihood of Exposure	Air Pathway	Overall Risk
Landfill Sites	Cemetery Landfill	Medium	Low	Low	Low	Low
	Scrap Iron Landfill	High	Medium	Medium	Low	High
	Range Dump	Medium	Medium	Low	Low	Medium
	LAW Range Landfill	Medium	Low	Low	Low	Medium
	Gravel Pit Dump	Medium	Low	Low	Low	Medium
	Kitchen Landfill	Low	Low	Low	Low	Low
	Pond Landfill	Low	Low	Low	Low	Low
Historical Sites (pre-WWII)	Incinerator	Medium	Medium	Low	Low	Medium
	Horse Dip Facility	Low	Low	Low	Low	Low
	Gas Instruction House	Low	Low	Low	Low	Low
Historical Sites (post-WWII)	Demo Pit	Medium	Low	Low	Low	Medium
	WWTP	Low	Low	Medium	Low	Medium
	Monitoring Well P-10	Low	Low	Low	Low	Low
	Town of Herrold	Low	Low	Low	Low	Low
South Cantonment Area Sites	Container Storage Area	Low	Low	Low	Low	Low
	Fuel Product Pipeline	Medium	Low	Low	Low	Medium
	Leach Bed	High	Low	Low	Low	High
Farm Acquisition Sites	Betz Farm	Low	Low	Low	Low	Low
	Greif Farm	Low	Low	Low	Low	Low
	Herrold Farm	Low	Medium	Low	Low	Low
	Melos Farm	Low	Low	Low	Low	Low

Based on the summary evaluation, the scrap iron landfill and leach bed were considered a high overall risk due primarily to potential contaminant migration in groundwater. The scrap iron landfill was also considered medium risks to the surface water and soil pathways. Eight sites were identified as a medium risk (cemetery, LAW Range, range dump and gravel pit dump landfills, incinerator, demo pit, former WWTP, and fuel product pipeline areas). The remainder of the PA sites were considered to be a relatively low risk compared to the other sites.

RECOMMENDATIONS

Recommendations for additional action at the various PA sites are provided below. Two categories for additional action are proposed: limited action, and no action. Sites with proposed limited action would be primarily focused on investigating the groundwater and soil pathways at various sites to determine whether a release has occurred, and whether the release constitutes a threat to the pathway targets.

Type of Site	Site ID	Recommendations
Landfill Sites	Cemetery Landfill	Limited Action: Groundwater Investigation
	Scrap Iron Landfill	Limited Action: Groundwater Investigation
	Range Dump	Limited Action: Groundwater Investigation
	LAW Range Landfill	No Action
	Gravel Pit Dump	Limited Action: Groundwater Investigation
	Kitchen Landfill	No Action
	Pond Landfill	No Action
Historical Sites (pre-WWII)	Incinerator	No Action
	Horse Dip Facility	Limited Action: Removal of Sediment and Surface Debris
	Gas Instruction House	No Action
Historical Sites (post-WWII)	Demo Pit	Limited Action: Groundwater Investigation
	WWTP	Limited Action: Soil Investigation
	Monitoring Well P-10	Limited Action: Groundwater Investigation
	Town of Herrold	Limited Action: Groundwater, Soil Investigation
South Cantonment Area Sites	Container Storage Area	No Action
	Fuel Product Pipeline	Limited Action: RBCA Tier 1
	Leach Bed	No Action
Farm Acquisition Sites	Betz Farm	No Action
	Greif Farm	No Action
	Herrold Farm	No Action
	Melos Farm	No Action

Limited action is proposed at ten sites from the Camp Dodge PA. The primary pathway threat at all but one of the PA sites is to groundwater. Soil action is proposed at two sites (former WWTP and Town of Herrold).

At three of the sites, action is proposed even though the overall ranking of the site was considered low (horse dip facility, town of Herrold, monitoring well P-10). At each of these sites, although there is a low risk for contaminants to migrate to potential targets, a release to the environment is suspected. Additional action is proposed at these three sites to characterize the nature of the release and verify that the release will not impact potential targets.

SECTION 1

INTRODUCTION

This section provides background information regarding the purpose and scope of the Preliminary Assessment (PA) and the methods and procedures used to conduct the assessment.

BACKGROUND

This PA was performed at the request of the Iowa Army National Guard (IA ARNG) for the Camp Dodge Training Site in Johnston, Iowa (Camp Dodge). Montgomery Watson was retained on behalf of the IA ARNG to conduct the PA. The PA was conducted in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), the National Contingency Plan (NCP), and applicable Environmental Protection Agency (EPA) guidance, including "Guidance for Performing Preliminary Assessments under CERCLA" (Ref. 1).

According to EPA guidance, the general purpose for performing PAs is to distinguish between sites that pose little or no threat to human health and the environment and sites that require further investigation. The PA typically involves compiling and reviewing available reports and documentation about a site and evaluating the site-specific data to determine whether the site warrants further action under CERCLA. Specifically, objectives of the PA include:

- Eliminating from further consideration under CERCLA those sites that do not pose threats to human health or the environment.
- Determining the potential need for response action.
- Setting priorities for site inspection.
- Gathering data for the Hazard Ranking System (HRS) score.

The PA is the first step in the site assessment process of the CERCLA response program. Following completion of the PA, sites can either be eliminated from further CERCLA consideration, or, if the PA identifies a suspected or potential release of hazardous substances that may threaten human health or the environment, a site inspection (SI) is performed. The SI builds upon the information gathered during the PA and typically involves collection of site sampling data. At the conclusion of the SI, sites are typically evaluated using the HRS for possible inclusion of the site on the National Priorities List (NPL). For the Camp Dodge PA, the HRS score was not calculated; rather, relative ranking criteria were developed to compare various sites and prioritize the need for further work.

PURPOSE AND SCOPE OF THE CAMP DODGE TRAINING SITE PA

The Camp Dodge Training Site has been used for National Guard and other governmental and civilian training since 1907 for various military training activities, administration and weapons firing events. The training site encompasses more than 4,300 acres, including a cantonment area

(300 acres), range firing points and surface danger areas (approximately 1,000 acres), and various training areas (approximately 3,000 acres) (Ref. 2). This PA was performed to address all potential sites located within the Camp Dodge installation area.

Although this PA was performed for the entire Camp Dodge installation, many smaller subsites actually comprise the overall Camp Dodge site. Each of these subsites may have potentially released CERCLA hazardous substances to the environment. However, several of these subsites are currently being managed under other regulatory programs or have been properly closed in accordance with applicable regulations. In addition, other potential release areas located at Camp Dodge are currently active and are being regulated under separate program areas. Therefore, because multiple subsites and potential release areas are present within the overall site, the first objective of this PA is to identify all of the potential release areas within the Camp Dodge facility and screen out the subsites which did not require a PA. The screening process is presented in Section 3 of this PA.

Following this screening process, the scope of the Camp Dodge PA involved compiling existing information about a subsite and its surrounding area, and identifying targets that might be threatened by a release from the site.

The specific objectives of the Camp Dodge PA are:

- Identify known or suspected release areas present at the installation and determine which areas are eligible for consideration in the PA.
- Identify the location, operational history, dimensions, and waste characteristics associated with each PA subsite.
- Determine the likelihood that contaminants could be released to groundwater, surface water, soil and air at each PA subsite.
- Identify and characterize all exposure and migration pathways and receptors associated with contaminant release from the PA subsites at Camp Dodge.
- Determine the need for further investigation at each PA subsite, and prioritize the investigation status for the entire Camp Dodge site.

PROCEDURES

This PA report was prepared using the following sources of information:

- Site reconnaissance visits to the various sites and surrounding areas.
- Interviews with current and former IA ARNG employees, residents or others familiar with past and present activities at the site.
- Review of available IA ARNG records regarding past and present disposal practices at the site.

- File and literature searches for relevant information regarding the site environment, disposal practices or nearby receptors.
- Historical aerial photographs and maps.
- Interviews, correspondence and telephone inquiries with representatives of other federal, state and local agencies.

The PA was conducted between July 1997 and November 1998 and was performed in general accordance with the 1991 EPA guidance document "Guidance for Performing Preliminary Assessments under CERCLA" (EPA/540/G-91/013) (Ref. 1).

REPORT ORGANIZATION

This PA report generally follows the narrative report outline presented in the EPA's PA guidance document, with modifications based on specific conditions encountered at the Camp Dodge site. The report is organized into the following sections:

- Section 1 is an introduction and includes the purpose and scope of the report.
- Section 2 provides a description of the Camp Dodge facility, including the base history, regional setting, and description of the facility.
- Section 3 identifies potential subsites within the Camp Dodge installation and provides rationale for including potential sites in the PA process.
- Sections 4 through 8 summarize the location, history, waste characteristics and likelihood to release at each subsite retained from the screening process in Section 3.
- Section 9 summarizes the groundwater pathway and identifies the potential targets associated with this pathway.
- Section 10 summarizes the surface water pathway and identifies the potential targets associated with this pathway.
- Section 11 summarizes the soil pathway and identifies the potential targets associated with this pathway.
- Section 12 summarizes the air pathway and identifies the potential targets associated with this pathway.
- Section 13 presents a preliminary summary of the PA findings at each PA subsite and provides recommendations for additional work at the various sites.
- Section 14 presents the findings of additional site characterization activities conducted as part of the PA and provides recommendations for the various sites.
- Section 15 lists the references used for the PA.

SECTION 2

SITE IDENTIFICATION AND SELECTION

This section presents the location and brief history of the Camp Dodge Training Site, and a description of the physical setting of the base and surrounding areas.

LOCATION

The Camp Dodge Training Site consists of more than 4,300 acres located approximately 1 mile north of Johnston, Iowa. The site occupies all, or portions of, Sections 14, 15, 16, 21, 23, 25, 26, 27, 28, 34, 35, and 36 of Township 80 North, Range 25 West (Refs. 3, 4). A site map showing the base locations and site boundaries is presented as Figure 2-1.

The Camp Dodge facility is accessed from two entrances located north off of NW 70th Avenue and two entrances west of NW Beaver Drive. All other entrances to the base are restricted by a locked gate. The entrances are only accessed by signing in with the base security office and receiving a key to the gate.

LAND USE

The Camp Dodge facility is situated in the valley of Beaver Creek that historically was developed predominantly for agricultural land use. Residential development from the cities of Johnston to the south, and Polk City to the north is currently encroaching on the agricultural land use in the vicinity of the site. Immediately south of the facility, at the junction of NW Beaver Avenue and NW 70th Avenue, the Hyperion Golf and Country Club has bordered Camp Dodge for more than 80 years. Facility maps for Camp Dodge show the Hyperion Golf and Equestrian Club occupying the west bluff of the Beaver Creek valley at its present location since at least 1917 (Ref. 5). Also south of the facility, and south of NW 70th Avenue, land is owned and operated by Pioneer Hybrid International for several agricultural test plots and research facilities.

Over much of the western and northern boundaries of Camp Dodge, the land use is predominantly agricultural with isolated areas of residential development. Private residences west of the site are primarily associated with small farmsteads, or small isolated housing developments. Along the eastern boundary of Camp Dodge and across the road of NW Beaver Avenue, several homes and small housing developments are present. In addition, public land and several recreational areas are located nearby to the east in association with Saylorville Reservoir.

BASE HISTORY

The present location of Camp Dodge was established on April 12, 1909, when William McHarg signed a warranty deed which transferred 78.5 acres of land to the State-owned training ground for the Iowa National Guard. The training ground was named one year later in honor of Major General Grenville M. Dodge, at the time, the only living army commander of the Federal Army from the Civil War. The training grounds were expanded over the next nine years and used for summer maneuvers by the Iowa National Guard until the United States entered World War I (WWI) on April 2, 1917 (Refs. 6, 7).

In June 1917, Camp Dodge was selected by the U.S. Army as one of 16 regional National Army training camps. When the federal government took over Camp Dodge, a huge building program was undertaken to construct facilities to house a full division of men. Between July and November 1917, somewhere between 1,200 and 2,000 buildings were constructed, including hundreds of barracks, store houses, headquarters, and stables. Other facilities constructed included a base hospital, three fire stations, post offices, libraries and railroad depots. At its peak, the camp extended north nearly 3 miles beyond the present cantonment area and housed over 40,000 troops. A map of the Camp Dodge facility in October 1917 is presented in Figure 2-2. The 88th Division was formed and trained at Camp Dodge before it was shipped overseas to France. The 19th Division was in the process of being formed when the war ended in November 1919 and demobilization began. Camp Dodge became the demobilization station for the 88th Division and for a short time was the station for the regular army 4th Division (Refs. 6, 7).

In May 1921, the federal government sold most of the camp for lumber to the public and Camp Dodge returned to being the state training ground for the National Guard. During the 1920s and 1930s, many of the existing buildings were constructed, including the present barracks and the pool. When World War II (WWII) broke out, the federal government exercised its option to reactivate Camp Dodge for use as an induction center for the armed services. At the close of the war, Camp Dodge was transferred to the State of Iowa for use as a state-owned training center (Ref. 6).

Camp Dodge today is the headquarters of the Iowa Army National Guard and serves as the logistics, training and administrative center for over 80 units throughout the state. It is classified as a Class B major training area with facilities capable to housing, feeding and training over 2,000 soldiers and air personnel during weekends and annual training periods. Soldiers trained at Camp Dodge make use of classrooms, firing ranges and computer-controlled targets, and over 2,000 acres of maneuver area. The Regional Training Site and the Equipment/Maintenance Center present at Camp Dodge are maintenance training facilities which attract National Guard, Army Reserve and Active Army units from all over the nation. Additionally, there are 16 organizational maintenance shops (OMS) and 3 flight facilities supported by Camp Dodge. Other groups receiving facilities and support include the Iowa Law Enforcement Academy, the Iowa Department of Public Safety, the American Legion Boys State operations, as well as other military components. In 1991, over 500,000 mandays were supported at Camp Dodge (Refs. 2, 6).

SITE DESCRIPTION

Climate

The climate of Polk County is subhumid. The normal annual precipitation ranges from 32-36 inches with most of the variability within a range of 5-10 inches in any given year. Precipitation is generally greatest during the spring and summer months, primarily between April and June. Average monthly temperatures range from a low of 20° F in January to more than 75° F in July. Maximum and minimum temperatures range from greater than 100° F in summer to sub-zero in winter. The annual mean temperature is near 50° F (Ref. 9). Prevailing winds are generally from the west and northwest, but this can be variable on any given day.

Topography and Physiography

The regional topography of the Camp Dodge site is shown in Figure 2-3. The installation occupies both a broad lowland valley containing Beaver Creek and some of the surrounding upland areas. The valley in which Camp Dodge resides was originally the preglacial Des Moines River valley and is thus larger and wider than what would be typical for a stream the size of Beaver Creek. The current Beaver Creek is generally too small to downcut significantly into the valley floor and effectively drain the bottom lands areas (Refs. 8, 9). The elevation of the Beaver Creek low land areas exhibit land surface elevations ranging from about 820 to 850 feet National Geodetic Vertical Datum (NGVD), whereas the bluffs to the east and west of the valley rise to elevations of approximately 950 to 1,000 feet NGVD. At the southern end of the Camp Dodge area, the Beaver Creek floodplain is nearly 10,000 feet wide. At the northern end of the facility (north of the town of Herrold), the floodplain is less well defined and is approximately 3,000 to 4,000 feet in width (Figure 2-3).

The Camp Dodge area lies within the Des Moines Lobe landscape region, which is characterized by glacial drift deposits from the most recent period of continental glaciation (12,000 to 14,000 years ago) (Ref. 10). Because the Camp Dodge site lies near the terminal moraine (Bemis) of the Wisconsinan glaciation, upland areas consist of uneven and hummocky topography composed predominantly of fine-textured loam materials. The Beaver Creek floodplain is associated with the Alluvial Plains landscape region (Ref. 10). This landscape region is characterized by thick sequences of alluvial deposits along well-defined valleys containing stream channels, oxbow lakes, terraces, alluvial fans and sand dunes.

Geology

The geology of the northern Polk County area, including Camp Dodge, is characterized by Quaternary-age glacial and alluvial deposits overlying Pennsylvanian-age bedrock.

Unconsolidated Deposits. The types of surficial materials encountered in the area depends largely on landscape position. Higher landscape positions are generally dominated by Pleistocene glacial drift deposits, whereas at lower landscape elevations, Holocene alluvial or colluvial sediments are primarily found.

Soils found in upland areas are derived primarily from glacial drift deposits and are represented by the Clarion, Nicollet, Storden, and Webster soil series (Ref. 11). These soils are dark colored that have formed in level to steeply sloping (0-40 percent) area. Soils are imperfectly drained to well drained, owing primarily to the slope of the land surface. Calcareous material is often encountered to depths ranging from 24-50 inches.

Soil borings have been installed around the Camp Dodge vicinity for an ongoing project conducted by the Iowa Department of Natural Resources-Geological Survey Bureau (IDNR-GSB) (Figure 2-4). Based on lithologic logs generated from this project, the types of deposits encountered and the generalized stratigraphy of the site can be described. Soil boring logs for the IDNR-GSB monitoring wells are included in Appendix A. In upland areas, the upper 1 to 4 feet of soil is dominated by soil structure development (A, B and C1 horizons) of the Holocene-age DeForest Formation (Ref. 12). Underlying this soil unit, the shallow stratigraphy (less than

20 feet) generally consists of variable sand, silt and clay deposits (supraglacial materials) overlying hard and dense silt loam diamicton (basal till). These two deposits correspond to the Morgan and Alden Members of the Wisconsinan Dows Formation, respectively. The heterogeneous deposits of the Morgan Member, generally encountered from approximately 4 to 15 feet below ground surface comprise much of the hummocky terrain observed in the upland areas. An abrupt boundary forms the underlying contact between the Morgan and Alden Members of the Dows Formation. The Alden Member is typically composed of firm, dense, oxidized to unoxidized (dark greenish gray) loam diamicton (Ref. 12). In some upland areas, the Wisconsinan sediments directly overlie Pennsylvanian bedrock. In other areas, the Dows Formation overlies older pre-Illinoian glacial drift.

Soils in the lowland areas are located near Beaver Creek and its tributaries. These soils developed in loamy glacial outwash, and sand and gravel, and are represented by soils of the Waukegan and Dickinson series (Ref. 11). Soils of these series are dark-colored loam with variable amounts of silt and sand, are well-drained to excessively well-drained, and typically have a low moisture content.

Along major stream valleys, alluvial deposits of floodplains and terraces are observed. These deposits are composed of materials transported by the rivers and generally consist of stratified bodies of clay, silt, sand and gravel. In the Beaver Creek valley, the thickness of the alluvial deposits is greater than 100 feet (Ref. 13).

Bedrock. The uppermost bedrock units encountered in the Camp Dodge area are assigned to the Cherokee Group of the Pennsylvanian System (Ref. 13). Small areas of younger Marmaton Group strata are present at some locations in Polk County. A summary of the geologic and hydrogeologic units in Polk County is presented in Table 2-1. In the Beaver Creek valley, depth to bedrock is estimated to be between 100 to 150 feet. Along the eastern slopes of the Beaver Creek valley, Pennsylvanian bedrock was encountered during IDNR-GSB drilling activities (P-3), at a depth of approximately 5 feet (Ref. 12).

Pennsylvanian strata consist predominantly of shales, siltstones, and sandstones interbedded with coal seams. At the Camp Dodge site Pennsylvanian bedrock at P3 consisted of yellowish brown siltstone with reddish-brown interbedded mudstone (Appendix A) (Ref. 14). The thickness of Pennsylvanian rocks near the Camp Dodge area is believed to be about 200-250 feet (Ref. 13).

In parts of the Polk County area, Pennsylvanian coal was extensively mined up until WWI using underground room and pillar techniques (Ref. 14). The nearest coal mine to the Camp Dodge facility is located near Beaver Creek, southwest of the town of Herrold (Figure 2-5). This coal mine was the Norwood-White Coal Co. Mine No. 8 that operated between 1922 and 1943 (Ref. 14). The mine encompassed approximately 770 acres and operated using a vertical shaft entrance (210-foot depth) and room and pillar techniques (Ref. 13). The thickness of coal mined in the vicinity ranged from 1 to 3 feet at elevations ranging from 660 to 690 feet (Ref. 14). Other mines located in the immediate area underlying the Camp Dodge site are not known to exist, though it has been reported that approximately one-third of the mines which operated in Polk County cannot be located. During the WWI encampment, coal used for Camp Dodge fuel came by train from Albia, Iowa and Red Oak, Iowa (Ref. 5).

Mississippian limestones and dolomites are encountered at depths of approximately 350-400 feet in the area (Ref. 13). The Mississippian System is divided into three series: Kinderhookian, Osagean and Meramecian, though it is often difficult to recognize these stratigraphic units in central Iowa due to extensive dolomitization. Minor quantities of shale, siltstone and sandstone are also present. The thickness of the Mississippian strata in the Des Moines area is approximately 350 feet.

Various lower Paleozoic sedimentary sequences underlie the Mississippian rocks at depth (Table 2-1).

Hydrogeology

Aquifers present in the Camp Dodge area can be divided into two principal sources: the unconsolidated materials near the land surface (surficial aquifer), and the bedrock aquifers. The surficial aquifer consists of three main water bearing units: 1) the drift aquifer, 2) alluvial aquifer, and 3) buried channel aquifer.

Surficial Aquifer. In upland areas, the surficial aquifer is primarily composed of the drift aquifer. This aquifer consists of both water bearing (lenses or beds of sand and gravel) and nonwater bearing deposits (glacial till) that are variably distributed. The sand and gravel deposits are typically not extensive and may be difficult to locate due to their irregular shape and buried location within other drift deposits. The drift aquifers often have limited transmissivities and are particularly susceptible to shallow groundwater contamination (Ref. 13). Yields are typically low from the drift aquifer (less than 20 gallons per minute [gpm]) and can contain undesirable concentrations of dissolved solids, iron, manganese and sulfate (Ref. 15). In the Wisconsinan drift, coarser grained deposits suitable for domestic water needs are more prominent in the variable Morgan Member than in the dense till of the Alden Member. Other sand and gravel deposits in the drift are located in older pre-Illinois drift deposits. Groundwater discharge from the drift aquifer is primarily to alluvial aquifers/surface water, drainage tiles, or to the underlying till.

In the upland areas, the till units can often behave as a confining unit to restrict the downward movement of groundwater to underlying aquifers. Water movement through the confining unit would be predominantly downward to more permeable horizons or units where lateral flow can occur. The rate of groundwater movement within the till can be very slow. Little vertical and lateral infiltration into the underlying sand and gravel is expected unless porous zones, such as sand lenses and macropores within the till, are sufficiently interconnected to provide a pathway to the more permeable aquifer.

The alluvial aquifer is found in stream valleys and consists of sand and gravel transported and deposited by modern stream. Alluvial deposits are found near the land surface in floodplains and terraces in major valleys and are generally about 50 to 60 feet deep. Yields from the alluvial aquifer can be large, ranging from 10 to more than 500 gpm (Ref. 13). The quality of water is generally very good, although the aquifer may be easily contaminated by infiltrating surface water or other contaminant sources located on the floodplains.

Buried channel aquifers are found in preglacial valleys that were filled with alluvial sand and gravel. These valleys are now buried by glacial drift and may or may not coincide with modern alluvial valleys. The Beaver Channel aquifer is a buried channel aquifer found in the valley of Beaver Creek (Figure 2-6). This aquifer consists of a thick sequence of sand and gravel that is covered by Wisconsinan drift. Groundwater yields from this aquifer are substantial in the area and range from 100 to 500 gpm. One well located at the Pioneer Hybrid International facility south of Camp Dodge has a yield of 700 gpm (Ref. 13). The water quality can vary from excellent to marginal, with elevated concentrations of dissolved solids, iron and sulfate (Ref. 15). Groundwater movement in the buried channel aquifer would be predominantly horizontal with much of the discharge presumably to the Des Moines River channel approximately 3 miles to the south-southeast. The limited lateral extent of the Beaver Channel suggests that groundwater flow in the aquifer would parallel the major axis of the bedrock channel to the south-southeast.

Bedrock Aquifers. The major sequences of Pennsylvanian shales are considered a regional confining unit between the surficial aquifers above and the Mississippian carbonates below. Some small sandstone layers within the Pennsylvanian rocks (Cherokee Group; Table 2-1) can be used to provide small quantities of water (5 to 25 gpm). The depth of these sandstone units vary between 75 and 100 feet (Ref. 13).

The Mississippian aquifer is the first major bedrock aquifer in the Des Moines area. This aquifer is heavily used by rural residents in Polk County and consists of limestones and dolomite. The Mississippian aquifer yields small to moderate quantities of water, although the lower Mississippian formations of the Kinderhookian Series are generally better producers. Groundwater flow in the Mississippian aquifer is to the southeast with discharge to the Des Moines River and to underlying units. Water quality in the aquifer is often affected by high dissolved solids content and sulfate concentrations around the Des Moines area. The Devonian aquifer contains very poor quality water that is generally unacceptable for human or livestock use. This aquifer is seldom utilized in Polk County (Ref. 13).

The Cambro-Ordovician aquifer is the major deep aquifer used in Polk County. This aquifer is encountered at a depth of about 2,400 feet and includes the St. Peter sandstone, Prairie du Chien dolomite and the Jordan sandstone (Table 2-1). The Cambro-Ordovician aquifer is the best producing bedrock aquifer in the county, owning primarily to the presence of the Jordan sandstone which is the major water-producing unit in the aquifer (Ref. 13).

SURFACE WATER

The Camp Dodge facility is located along the western bluffs of the Beaver Creek floodplain (Figure 2-3). Beaver Creek flows southward through the Camp Dodge area where it joins the Des Moines River approximately 3 miles downstream of the site. Little Beaver Creek is located in the western portion of the reservation (Figure 2-3). This tributary joins Beaver Creek within the facility boundaries immediately west of the cantonment area. Several smaller tributary creeks discharge into Beaver Creek and Little Beaver Creek within the Camp Dodge reservation. East of Camp Dodge and Beaver Road, Saylorville Reservoir is maintained behind Saylorville Dam installed across the Des Moines River.

In much of the upland area within the Camp Dodge site, no discernible connected surface water drainages are evident. Many closed depressions and wetland areas have developed in this area as a result of the Wisconsinan glaciation. Many of the upland areas contain scattered upland swales and depressions, kettle lakes, prairie potholes and other depressions. In between the swales are saddle-like ridges which separate segments of the landscape into smaller drainage basins. However, since the advent of intensive agricultural practices, artificial drainage has been instituted in many of the areas to increase tillable acreage which has served to eliminate some water-filled depressions.

Three significant wetland areas at the Camp Dodge site are being monitored and restored to native conditions. One site is a native prairie pothole; and a second is a lowland area that was formerly tiled, and is now being restored to marsh. Both of these areas are located in the northwest portion of the reservation. The third wetland site is located near the Betz farm site in the southern portion of the site (Ref. 16). The locations of the restored wetland sites are shown in Figure 2-1 (areas marked in blue in zones D-1, D-2 and E-2).

NATURAL RESOURCES

Vegetation

Camp Dodge has a total size of approximately 4,300 acres - with approximately 300 acres of cantonment area and 1,000 acres of surface danger zone. With the exception of approximately 200 acres, which are restricted due to sensitive natural and cultural resources, the remaining area is usable for training.

About 650 acres (15%) of Camp Dodge is leased for agricultural row crop, with most of this land within the surface danger zone. Camp Dodge has 92 acres (2%) of upland forest; 234 acres of prairie; 7 acres (.2%) of sand prairie; 19 acres (.4%) of savanna; 1,042 acres (24%) of successional field; and about 750 acres (17%) of wetlands, including bottomland forest, emergent (seasonal), low prairie (temporary), and scrub/shrub. About 1,172 acres (27%) of Camp Dodge are hay fields used for open training areas (Ref. 16).

The vegetation found at the Camp Dodge site shows the effects of past and present agricultural or pasture use over much of the area. Most of the site contains a mixture of mature trees and shrubs interspersed within a much larger area of agricultural row crops and pasture ground. In areas where disturbed ground was allowed to grow back to pasture or unused grounds, dominant woody vegetation consists of American elms, honeylocusts, black cherry, and white mulberry; whereas, understory vegetation contains poison ivy, rose honeysuckle and various cool-season grasses. In native areas where disturbances to the vegetation have been minimized, small areas contain red oak and white oak groups with scattered eastern cottonwoods and other various trees (Ref. 12). A list of vegetative species of trees and shrubs found within the flood plain and upland zones of the valley is provided in Table 2-2. A list of grasses that may be observed in the areas is provided in Table 2-3. This table was compiled for the Des Moines River valley prior to construction of Saylorville Reservoir and probably reflects the types of vegetation found in the Beaver Creek valley.

Wildlife

The existing population of wildlife in the area would most likely consist of songbirds, upland game birds, mammalian predators associated with woodlands and meadows, and white-tailed deer (Ref. 17). A listing of known species which inhabit the Saylorville area is presented in Table 2-4. Camp Dodge training areas are also used for hunting and fishing. The post is also used for outdoor recreation by various service groups such as the Boy Scouts, and for field trips by area schools and environmental groups (Ref. 16).

Other collections of wildlife species at Camp Dodge include detailed amphibian and reptile inventory assessments in the three restored wetland areas, and inventories of dragonfly and damselfly populations (Refs. 16, 18, 19).

SECTION 3

SITE IDENTIFICATION AND ANALYSIS CRITERIA

SITE IDENTIFICATION AND SELECTION

The site identification and selection process was initiated by working with IA ARNG personnel to identify all possible locations at the Camp Dodge facility where hazardous substances, pollutants, and contaminants eligible for CERCLA response are known or suspected to be in use or have been used in the past. A preliminary list of potential sites was provided by IA ARNG. The sites identified were obtained by review of historical maps of the Camp Dodge facility, and interviews with past and present IA ARNG personnel and persons familiar with IA ARNG activities. Sites meeting the above-stated requirements have been segregated into Active sites which currently utilize hazardous substances, and Inactive sites which are known or suspected of utilizing hazardous substances in the past. A compilation of these sites is presented in Table 3-1.

In following the guidance of CERCLA eligibility requirements (Ref. 1), sites which are covered under another environmental statute were not addressed in this PA. The basis for this approach is that these sites are either: 1) remedial actions addressed by the appropriate regulatory agency (such sites have been determined adequate to protect human health and environment); or 2) sites undergoing active investigative or remedial actions which are being monitored by the appropriate regulatory agency. Also, active sites which consist of current maintenance activities, painting operations, hazardous waste management activities, fuel point facilities, and chemical storage facilities are not included since these sites are under direct supervision of personnel trained in spill response and hazardous material management. If a release were to occur in these areas, the proper regulatory notification and involvement would exist.

Two exceptions to this reasoning include the area near Building S-4 and the past firing ranges. Three sites are located in the Building S-4 vicinity.

1) Container Storage
2) Leach Bed
3) Fuel Product Pipeline

The area associated with Container Storage has completed RCRA Closure activities. However, closure was limited to specific contaminants related to the Container Storage Area and no potential impact to groundwater was evaluated. The Fuel Product Pipeline is located in the same general vicinity; data confirming concentrations and extent of contamination is not available. The Leach Bed is located to the west of Building S-4; existing analytical data suggest some impact to groundwater in the area. State regulatory agencies have been made aware of existing conditions, yet have decided not to take an active oversight role for further investigation. Therefore, a decision was made to include these areas and take the necessary measures to adequately evaluate their environmental impact.

Past firing ranges at the Camp Dodge facility were not included in this PA pending the development of the DOD Range Rule. This decision was made due to the assumption that the requirements for addressing former firing ranges will be specifically detailed in the DOD Range

Rule and Camp Dodge will address these sites in accordance with schedules outlined in the final rule; thereby, eliminating unnecessary or duplicative efforts in the PA process.

LOCTIONS OF PA SITES

Figure 3-1 shows the locations of the sites included in this PA. Twenty-one sites have been identified for inclusion in the PA. A photographic log of the 21 PA sites is included in Appendix B.

ANALYSIS CRITERIA

PA subsites retained for evaluation in this PA are evaluated in Sections 4 through 8 for waste characteristics and the likelihood of the wastes to release to groundwater, surface water, soil and air. The waste characteristics and likelihood to release factor categories are grouped together because both factors relate specifically to an individual PA site (i.e., variable location and setting, types and quantities of wastes, site descriptions, etc.). A discussion of the evaluation criteria is presented below. In subsequent sections, PA sites have been grouped together under the following categories:

Section 4: Waste Characteristics And Likelihood Of Release: Landfill Sites
Section 5: Waste Characteristics And Likelihood Of Release: Historical Sites (pre-WWII)
Section 6: Waste Characteristics And Likelihood Of Release: Historical Sites (post-WWII)
Section 7: Waste Characteristics And Likelihood Of Release: South Cantonment Area Sites
Section 8: Waste Characteristics And Likelihood Of Release: Farm Acquisition Sites

Each of these groupings has been made a separate section of this PA Report in order to shorten each section and improve the readability of the document.

Waste Characteristics

The waste characteristics evaluation involves estimating the type and quantity of hazardous waste present at a site. According to PA guidance (Ref. 1), hazardous waste refers to "any material suspected to contain a hazardous substance, pollutant or contaminant that is or was in a source." A source is defined as "an area where a hazardous substance may have been deposited, stored, disposed or placed." Therefore, the goal of the PA is to identify the specific areas where waste disposal, deposition, storage, treatment or handling activities may have occurred that could result in a release of contaminants to the environment.

Many types of sources can be identified at sites including landfills, industrial dumps, surface impoundments, waste piles, aboveground storage tanks (ASTs) or underground storage tanks (USTs), land treatment areas, drum and container storage areas, spill areas, burn areas, etc. Sources can either be described in terms of their physical structure (e.g., surface impoundments, landfills) or how the wastes have come to be deposited (e.g., pile, contaminated soil).

The purpose of the waste characteristics evaluation is to develop an estimate of the quantity of potential hazardous wastes associated with a site (or source). PA guidance suggests the use of a tiered approach to evaluate waste quantity consisting of constituent quantity, wastestream quantity, source volume, or source area. Constituent quantity refers to the mass of pure substance present at a site (this level of information is often difficult to obtain). Wastestream quantity refers to the total mass of a particular type of waste present in a source, such as a known

mass of drums of solvent, a known mass of lead acid batteries, etc. If constituent or wastestream quantities cannot be obtained, source volume or area can be estimated. Source volumes or areas are most often evaluated at PA sites based on the level of information available at most sites.

In addition to the source type and the waste quantity evaluations (as described in EPA guidance), a third waste characteristics criteria to be evaluated during the Camp Dodge PA is an identification of the suspected contaminants likely to be present at an individual PA site. This identification process will include those contaminant suites (i.e., volatile organic compounds [VOCs], metals, etc.) or specific constituents (i.e., benzene, toluene, ethylbenzene, and xylene [BTEX], lead) that are suspected of being disposed at a source area. Based on the types of contaminants present, the toxicity and mobility of the contaminants, in relation to groundwater, surface water, soil and air targets, can be assessed.

Likelihood of Release

According to PA Guidance (Ref. 1), the likelihood of release factor category refers to an evaluation of the relative likelihood a hazardous substance migrating from the site through the specific pathway medium (groundwater, surface water or air). Sites can either be judged as having a "suspected release" or "no suspected release." Each of the pathways requires an assessment of various issues relating to specific medium of interest.

Groundwater. To evaluate the likelihood of release of contaminants to groundwater, the following considerations may be addressed:

- Containment of the wastes.
- Source types and waste quantities.
- Precipitation and infiltration.
- Permeability of the soils.
- Depth to aquifer.
- Contaminant mobility.
- Availability of analytical data.

Based on evaluation of these criteria, the potential release of contaminants to groundwater can be assessed.

Surface Water. Surface water is defined by PA Guidance (Ref. 1) as a naturally-occurring, perennial water body, and some artificially-made and/or intermittently-flowing water bodies. To evaluate the likelihood of release to surface water, the following items can be considered:

- Distance to surface water.
- Waste quantity.
- Drainage area.
- Precipitation.
- Infiltration rate versus runoff.
- Locations of distressed vegetation, discolored sediments.
- Direct deposition of wastes into surface water.
- Groundwater discharge to surface water.
- Availability of analytical data.

Based on evaluation of these criteria, the potential release of contaminants to surface water can be assessed.

Soils. Rather than evaluation of the likelihood of release to soils, PA Guidance (Ref. 1), soils are suspected of being contaminated at most sites unless the following is demonstrated:

- Sources with more than 2 feet of cover.
- Sources with an impermeable cover (e.g., asphalt paving), regardless of thickness.

Analytical data may also rule out the presence of areas of suspected contamination. Therefore, an evaluation of potential soil contamination at source areas will focus on the type of cover available at the site.

Air. The air pathway is evaluated according to whether a release to air could, or has been, detected at the site. The following criteria should be considered:

- Reportable odors.
- Observable release to air.
- Adverse health effects from vapors.
- Analytical data.

Because of the transient nature of air releases, the detectable release of contaminants to air becomes the most important evaluation criteria for this pathway.

SECTION 4

WASTE CHARACTERISTICS AND LIKELIHOOD OF RELEASE: LANDFILL SITES

Seven PA sites included in this section are associated with landfill disposal activities: 1) Cemetery Landfill, 2) Scrap Iron Landfill, 3) Range Dump, 4) LAW Range Landfill, 5) Gravel Pit Dump; 6) Kitchen Landfill; and 7) Pond Landfill. The waste characteristics and likelihood to release evaluations for each site are presented below.

CEMETERY LANDFILL

Location and Setting

The Cemetery Landfill is located approximately 2,500 feet north of the cantonment area along Des Moines Avenue (Figure 3-1). The Cemetery Landfill is situated along the eastern bluffs of the Beaver Creek floodplain, where the land surface slopes to the west from an elevation of about 950 feet mean seal level (msl) near the Valley View Cemetery to 900 feet msl along Des Moines Avenue (Ref. 3). The slope of the land surface is approximately 0.08 (50 feet divided by 600 feet).

The Cemetery Landfill consists of approximately 10 acres of land (650 feet north-south by 680 feet east-west) bounded by Des Moines Avenue to the west, tree lines north and south, and trees and Valley View Cemetery to the east. A layout of the Cemetery Landfill is presented in Figure 4-1. A photograph of the landfill is provided in Appendix B. The Cemetery Landfill appears to be divided into northern and southern portions by a east-west line of trees and a small drainage depression, and the topography of the Cemetery Landfill is slightly rounded in both areas. The ground surface is covered with vegetation consisting of high weeds and native grasses which were introduced into the area after closure.

Site History

The Cemetery Landfill was the main post disposal location from the 1970s to 1985 (Refs. 20, 21). According to an on-site maintenance worker, the Cemetery Landfill began in or around 1965 (Ref. 20), although a 1967 aerial photograph does not appear to indicate significant disposal activity occurring at that time compared to the Scrap Iron Landfill (Ref. 22). Major excavation activities were occurring at the Cemetery Landfill in 1974 (Ref. 23). In 1983, a solid waste disposal study to determine the suitability of two adjacent areas for landfill disposal was conducted by the Department of the Army (U.S. Army Environmental Hygiene Agency) (Ref. 24). This report indicated that the Cemetery Landfill was nearing capacity and should be closed when disposal activities were completed.

During the Cemetery Landfill's period of operation, every type of solid waste from the post was disposed at the site (Refs. 20, 21, 24). Disposed materials included household and other wet garbage, construction and demolition debris, uniforms, tires, semi loads of liquor and wine, and

many other types of miscellaneous materials (Ref. 20). In 1983, it was estimated that 2,300 cubic yards (cu yd) of solid wastes generated by Camp Dodge were disposed at the Cemetery Landfill per year (Ref. 24). The Cemetery Landfill was constructed by excavating the hillslope down to the water table and filling the excavations with solid wastes (Ref. 20). The excavated dirt was then stockpiled for later use as backfill or cover material. Approximately 3 feet of cover was placed on the landfill after the Cemetery Landfill was discontinued (Ref. 20).

Waste Characteristics

Solid wastes were disposed at the Cemetery Landfill by excavating soils along the hillslope down to the water table and then filling the excavations with wastes (Ref. 20). Based on drilling activities conducted adjacent to the Cemetery Landfill in 1983, the depth to the water table can range from approximately 27 feet along the eastern boundary near the fence line (see Figure 4-1) to less than 5 feet along Des Moines Avenue (Ref. 24). Based on these depths to water (as a substitute for landfill thickness), and the overall estimated dimensions of the Cemetery Landfill (650 feet by 680 feet), the total volume of solid wastes disposed at the Cemetery Landfill may range up to 7,100,000 cubic feet (cu ft) (263,000 cu yd). Considering the period of use of the Cemetery Landfill to be 20 years (1965 to 1985), and the total estimated waste quantity at the Cemetery Landfill (263,000 cu yd), the amount of wastes disposed per year would have been more than 13,000 cu yd. This estimate is considerably more than the estimated waste production rate from 1983 (Ref. 24) and may indicate either that disposal practices changed from early years to 1983 (resulting in a lower rate of disposal over time) or that the total volume estimates are overconservative.

Currently, there is no evidence of surface debris or waste materials exposed at the Cemetery Landfill site. A small area of bare ground was observed in the south central portion of the site (Figure 4-1). The entire Cemetery Landfill is covered by a soil and thick vegetative cover.

From an interview with a maintenance worker familiar with the Cemetery Landfill, the following wastes were known to have been disposed during the Cemetery Landfill's operation:

- Road Oil
- Paints
- Anti-Freeze
- Rubber Tires
- Alcohol and Liquor
- C&D Debris
- Uniforms
- Household Trash and Wet Garbage
- Office Materials
- Building Materials

The above list should not be considered exhaustive and has been presented only as a testimony to the wide range of materials which could be present in the Cemetery Landfill. The types of contaminants which could be associated with the disposed wastes include VOCs, semivolatile organic compounds (SVOCs), and metals.

Likelihood of Release

Groundwater. Solid wastes disposed at the Cemetery Landfill were placed in unlined trenches or cells excavated from the hillslope. It is believed that the disposal cells were excavated down to the water table for placement of the solid wastes. This would have placed the disposed wastes

in close proximity to groundwater and, during wet periods, may have resulted in placement of wastes in direct contact with groundwater.

Depth to groundwater at the Cemetery Landfill appears to vary according to height above the floodplain elevation. Depth to water measurements from investigations conducted in areas immediately adjacent north and south of the Cemetery Landfill indicate that groundwater can range from 5 to more than 25 feet below ground surface depending on location near the road or high on the bluff line, respectively (Ref. 24). Groundwater flow directions determined in these investigations were to the west (downslope). Soil boring logs from the 1983 study indicated the native stratigraphy of the upland landfill areas consist of predominantly brown silts and silty clays overlying dense blue-gray silty clay. Gray shale was encountered in one soil boring at a depth of about 35 feet. Several soil borings installed near Des Moines Avenue showed sand from about 5 to 20 feet below ground surface overlying silt and silty clay (Ref. 24).

Permeabilities of various subsurface deposits encountered during the geotechnical investigation ranged from the following (Ref. 24):

Type of Material	Permeability (cm/sec)
Sand with Silt	5.6E-04
Clayey Sand	1.5E-05 to 4.0E-08
Clay	3.2E-05 to 7.7E-09

Precipitation infiltrating through the surface cover layer would come in contact with the solid wastes and potentially leach contaminants into groundwater. Based on the range in permeabilities encountered at the Cemetery Landfill, contaminants present in groundwater contained in the upland clay deposits would not be particularly mobile in the low hydraulic conductivity strata. However, contaminants present in the sand deposits could be rapidly transported with the groundwater flow system to areas of discharge. The primary discharge area for groundwater may be to either Beaver Creek, located approximately 2,500 feet to the west, or to wells located in the southern portion of the Camp Dodge facility.

Surface Water. Surface water drainage from the Cemetery Landfill is directed downslope to the west (Figure 4-1). The Des Moines Avenue roadway grade forms a minor embankment along the western edge of the site and serves to prevent significant overland runoff over the roadway. Two culverts located in the northern and southern portions of the Cemetery Landfill direct surface runoff to areas west of the road (Figure 4-1). The culverts empty surface water into grass waterways which trend toward the west in the vicinity of Beaver Creek. Beaver Creek is located approximately 2,500 feet west of the Cemetery Landfill (Figure 3-1).

Most of the Cemetery Landfill is covered by thick grassy vegetation and sandy cover materials which would prevent significant surface water runoff from occurring. Surface runoff would be concentrated mainly in minor drainageways that formed in the slopes of the Cemetery Landfill. Most of the site is located above the 500-year floodplain of Beaver Creek.

Soils. Based on an interview with a maintenance worker familiar with the Cemetery Landfill closure, 3 feet of cover material was placed on the wastes prior to closing the Cemetery Landfill.

This would prevent direct contact access to the waste materials. One area of bare ground was observed at the Cemetery Landfill, although it is uncertain that the bare ground is associated with disposed materials. Most of the site is fully vegetated and covered by a thick vegetative cover of grasses, weeds and trees.

Air. There have been no reports of detected releases to air associated with the Cemetery Landfill and odors were not detected during the site visit. Most of the site area is heavily vegetated and covered which would limit creation of airborne dust or vapors resulting from wind. Areas of bare ground would be more susceptible to dust migration.

SCRAP IRON LANDFILL

Location and Setting

The Scrap Iron Landfill is located northwest of the cantonment area along the former Interurban railroad line, midway between the cantonment area and the town of Herrold (Figure 3-1). The Scrap Iron Landfill is most easily accessed via the abandoned railroad right of way which forms the western boundary of the site. A gravel road intersects with the railroad at the Scrap Iron Landfill and bisects the Scrap Iron Landfill into northern and southern portions. West of the railroad bed, the roadway consists of broken concrete.

The Scrap Iron Landfill is centered around two clearings of grass, weeds and debris in the midst of dense tree growth and second growth vegetation. A layout of the Scrap Iron Landfill site is depicted in Figure 4-2. The first clearing east of the railroad bed, and south of the gravel road, consists of a large concrete pad approximately 25 feet wide and 150 feet long (Figure 4-2). Several pallets of bricks, various concrete and fencing materials, and railroad ties were setting on, or bordered, the concrete pad area. Immediately east of the concrete pad clearing, a larger second clearing was identified. This clearing encompassed both sides of the road and had the overall dimensions of approximately 320 feet north-south by 60 feet wide (Figure 4-2). The clearing was surrounded by piles of concrete and brick materials, truck beds, barricades, fencing, scrap iron piles, railroad ties and various other debris. Sparse grasses and weedy vegetative growth formed the clearing; in the northern half, two areas of bare ground and distressed vegetation was observed (Figure 4-2). Overall, the clearing was surrounded by predominantly scrub trees and high weeds with occasional old growth trees.

In general, the topography of the clearing areas is relatively flat with a slight slope to the west toward the railroad bed. In the northern half of the Scrap Iron Landfill area, the western and northern sides of the clearing are surrounded by steep slopes with a 10- to 15-foot drop-off from the clearing to the low areas (Figure 4-2). At the southern half of the Scrap Iron Landfill, the main clearing slopes down to the concrete pad area. Uneven ground was observed in the southwest portion of the clearing near several discarded and rusty drums. East of the site, the topography is flatter and is currently being farmed. Photographs of the Scrap Iron landfill are provided in Appendix B.

Site History

Based on the 1917 utilities map for Camp Dodge, the location of the Scrap Iron Landfill corresponds to the former location of the coal docks for the camp (Ref. 20). The location of the Scrap Iron Landfill in relation to the 1917 plot plan is shown in Figure 4-3. It is probable that the

concrete pad which forms the first clearing is a pad remaining from a coal dock structure from 1917. The second long coal dock structure from 1917 shown in Figure 4-3 may be buried today or missing altogether. The current gravel path which bisects the Scrap Iron Landfill, and turns into a broken concrete road west of the railroad bed, appears to correspond with the former Remount Road of the 1917 camp. This road provided the major link from the main camp east of Beaver Creek to the remount camp west of the creek. Remnants of Remount Road can be followed today from the railroad area to Beaver Creek, and the former bridge concrete supports can be observed at the creek crossing. The bridge over the creek is no longer present.

It was estimated by a maintenance worker that waste disposal at the Scrap Iron Landfill occurred between 1958 and 1963 (Ref. 20). An aerial photograph from 1961 shows active disposal occurring in this area, primarily concentrated on the south side of former Remount Road (Ref. 25). The area of disturbed ground shown in 1961, corresponding to the possible limits of the Scrap Iron Landfill, was approximately 500 feet long (starting south of Remount Road) and 300 feet wide (from edge of the railroad tracks). In addition, a road is identified in the aerial photograph which trends through the large area of disturbed ground to the south, which may extend the limits of the Scrap Iron Landfill to a distance of approximately 1,200 feet. Piles of dirt or various debris appear to be concentrated along the western borders of the Scrap Iron Landfill. The dimensions of the Scrap Iron Landfill identified in 1961 are much larger that the boundaries identified during the site visit in 1997. This suggests that much of the Scrap Iron Landfill area has been overgrown since its period of active use.

By 1967, disturbed ground in the Scrap Iron Landfill area is concentrated in the area north of former Remount Road (Ref. 22). South of the road appears vegetated by grasses and sparse trees. The disturbed area forms an approximate circular area with a diameter of about 200 to 250 feet. Piles of dirt and other debris appear to be forming the northern and western boundaries of the circular area of bare ground. The concrete pad forming the first clearing area is clearly identifiable in the 1967 air photo.

In 1974, the circular bare ground area is still evident, although it is difficult to discern whether the area is active or not (Ref. 23). Landfill operations at the Scrap Iron Landfill are underway at this time, however. South of Remount Road, an area of disturbed ground corresponding to the 1961 limits appears to be distinguishable by a change in vegetative cover and topographic variations. Based on this photo, the limits of the Scrap Iron Landfill (including both north and south areas) was approximately 1,500 feet north-south by 300 feet east-west. In all three air photos (1961, 1967, 1974) the road into the Scrap Iron Landfill from the east appears to be well maintained and routinely utilized.

The Scrap Iron Landfill was used to dispose of a wide range of materials (Ref. 20). Most of the materials were disposed of by burning, with fires being maintained at all times (Ref. 20). At intervals of 4 to 5 months, the fires would be extinguished and buried; and new fires would then be started in the area. Therefore, most of the subsurface materials comprising the Scrap Iron Landfill consist primarily of ash (Ref. 20). Before the Cemetery Landfill began use, the Scrap Iron Landfill was the main landfill used by the base. According to a maintenance worker who was familiar with the landfill operation, any wastes generated by the Camp Dodge facility at some point probably made it to the Scrap Iron Landfill (Ref. 20).

Waste Characteristics

Based on review of historical aerial photographs, the limits of the Scrap Iron Landfill delineated today do not coincide with the historical maximum extent of disposal estimated for the site. The current limits of the Scrap Iron Landfill, as delineated by the extent of the clearing areas, was estimated to be approximately 19,200 square ft (sq ft) (320 feet by 60 feet). Based on the maximum southern and northern extent of the Scrap Iron Landfill identified in 1961 and 1967, respectively, the surface area of the Scrap Iron Landfill could extend over as much as 450,000 sq ft (1,500 feet by 300 feet). The thickness of the waste materials at the Scrap Iron Landfill is estimated to range from 5 to 15 feet. Along the northern and western boundary of the north disposal area, there is a 10- to15-foot break in slope from the plateau area of the clearing to the adjacent low area. If a 15-foot thickness is assumed over the entire Scrap Iron Landfill area, then the volume of wastes disposed at the Scrap Iron Landfill could be as high as 250,000 cu yd. Further work will be needed to delineate the actual dimensions and volume of waste materials disposed at the Scrap Iron Landfill.

Abundant construction materials and other surface debris were observed at the Scrap Iron Landfill during a site visit on July 23, 1997. Following is a partial inventory of items encountered during the site visit:

- Railroad Ties
- Pallets of Bricks
- Sheet Metal
- Concrete/Bricks Rubble Piles
- Empty 55-Gallon Drums
- Empty 10-Gallon Drums
- Wood Blocks
- Steel Cable
- Culverts
- Razor-Type Wire
- Metal Fencing
- Wood Poles, Stakes
- Dump Truck Beds (10)
- Pallets
- Pill Box Building
- Scrap Iron Piles
- Trailer Kettle
- Concrete Barricades

The variety of materials encountered during the site visit attest to the possible range of items which may be present at the Scrap Iron Landfill. Several drums were observed in the southwestern portion of the Scrap Iron Landfill in an area of undulating ground and abundant surface debris (Figure 4-2). Drums were also observed lying on the ground surface near the intersection of former Remount Road and the railroad.

Based on the site history and method of disposal (primarily burning), and the types of materials found at the site, the following contaminant suites may be present in soil or groundwater:

- VOCs - including BTEX constituents, waste oils, heavy-range hydrocarbons, paint wastes (methyl ethyl ketone [MEK], methyl isobutyl ketone [MIBK]), degreasing solvents from machined products, volatile sources of ignition.
- SVOCs - Polynuclear aromatic hydrocarbons (PAHs) from combusted materials, phenols, creosote.
- Metals - weathering of metal debris, including heavy metals arsenic, cadmium, copper, chromium, lead, zinc.

Concentrations of contaminants associated with possible releases at the Scrap Iron Landfill would be expected to vary accordingly.

Likelihood of Release

Groundwater. Wastes were disposed at the Scrap Iron Landfill in unlined areas that were used for burning and burying the ash material. The burn areas were probably located in either naturally formed depressions or excavated pits to accommodate additional wastes and control the burn. After a period of burning was completed, the burn areas were buried and a new area was started. Therefore, wastes and ash present at the Scrap Iron Landfill may, in some cases, be in direct contact with groundwater or have little unsaturated zone between the wastes and water table.

The depth to groundwater at the Scrap Iron Landfill would probably be less than 10 feet. Although some of the disposed waste materials appear to have been covered by a thin layer of soil and second growth vegetation, the cover material consists mainly of loamy soils with a moderately high infiltration rate (Ref. 11). Bare ground is exposed in some areas of the Scrap Iron Landfill. Precipitation falling on the exposed debris, or infiltrating through the surface cover layer, may come in contact with the waste materials and ash deposits and leach contaminants into groundwater. Once in groundwater, contaminants could be rapidly transported with the groundwater flow system to areas of discharge. The primary discharge area for groundwater would be Beaver Creek located approximately 1,500 feet to the west. The Scrap Iron Landfill is situated on the Beaver Creek floodplain and is likely underlain by sand and gravel deposits exhibiting high hydraulic conductivity.

The mobility of potential contaminants at the Scrap Iron Landfill range from highly mobile VOC constituents to less mobile SVOCs and metals. Metals, waste oils, heavy hydrocarbons, creosote, and PAHs do not tend to be found as mobile groundwater contaminants.

Surface Water. Surface water drainage from the northern half of the Scrap Iron Landfill is directed to the west and north down a steeply sloping embankment to a low area which surrounds this portion of the site. Drainage in the low area immediately west of the north Scrap Iron Landfill area appears to be relatively poor with surface water migration blocked by the elevated gravel road to the south and railroad right of way to the west. North of the Scrap Iron Landfill, drainage is more concentrated in an intermittent drainageway (Figure 4-2). Surface water flow from the north half of the site is generally directed northward to a culvert located 275 feet north of the intersection between the railroad and former Remount Road. The culvert directs surface water underneath the railroad embankment toward an intermittent creek and eventual discharge to Beaver Creek. Beaver Creek is located approximately 1,500 feet west of the Scrap Iron Landfill.

Surface water flow in the southern half of the Scrap Iron Landfill area is generally directed toward the west in the direction of the former railroad tracks (Figure 4-2). There is a relatively gentle slope of the land surface from the second clearing area through the vegetation and down toward the concrete pad clearing. West of the concrete pad clearing, drainage patterns were difficult to delineate due to the heavy growth of trees and brush.

Overall, most of the Scrap Iron Landfill site is relatively flat and covered with permeable soils (high infiltration capacity) and a heavy growth of vegetation. Therefore, the potential for surface water runoff from the Scrap Iron Landfill would be minimal. The potential for surface water runoff would be greatest near the edge of the dumps in contact with the drainage channels. In

these areas, contaminants could migrate to surface water. In the central portion of the northern clearing, an area of bare ground and distressed vegetation was observed. Runoff from this area could have had direct contact with contaminated soils.

The site is located in the 100-year floodplain of Beaver Creek (Appendix C; Ref. 26).

Soils. In general, soils at the Scrap Iron Landfill are not covered with more than 2 feet of cover material or with an impermeable material (asphalt, concrete, etc.). Several areas of bare ground (no vegetative cover) are scattered throughout the Scrap Iron Landfill, although primarily located in the northern clearing area. However, most of the site is fully vegetated and covered by weeds, grasses, scrub brush and second growth trees.

The abundant surface debris mixed with the soil suggests close proximity of the buried waste materials to the land surface. In addition, large piles of C&D wastes and miscellaneous debris present on the land surface suggests that disposal of wastes has continued to occur at the Scrap Iron Landfill. Access to the site is moderately restricted but can be reached most easily from the former railroad right of way.

Air. There have been no reports of detected releases to air associated with the Scrap Iron Landfill and odors were not detected during the site visit. Most of the site area is heavily vegetated and covered which would limit creation of airborne dust or vapors resulting from wind. Areas of bare ground would be more susceptible to dust migration. Prevailing winds from the north and west are blocked by trees forming the northern and western site boundaries.

RANGE DUMP

Location and Setting

The Range Dump is located approximately 2,000 feet west of the cantonment area and northwest of the firing ranges (Figure 3-1). The Range Dump is accessed via a dirt road that comes from the Camp Dodge Pond to the west. The road empties into the firing range grounds in the vicinity of the Range Dump.

The Range Dump occupies a clearing of scrub grasses that is nearly surrounded by old growth trees. A layout of the Range Dump site is shown in Figure 4-4. The dimensions of the clearing area are approximately 325 feet north-south by 270 feet east-west, although the boundaries of the clearing (and suspected dumping area) are variable. A dense tree-line forms the western and northern borders of the area, and scattered trees and the firing range bound the area to the east. A second growth area of dense scrub trees is located in the northeastern portion of the site area (Figure 4-4). Along the northern edge of the grassy clearing, small, rounded piles covered by grass were observed. Except for various piles of debris, the entire dump was covered by a thick layer of vegetation. A photograph of the Range Dump is included in Appendix B.

Site History

The Range Dump was used as a disposal area for a variety of construction and demolition (C&D) wastes, yard wastes, brush and stumps (Ref. 20). The area was used for dumping until approximately 1987 (Ref. 20); the starting date of the dump is unknown. According to a maintenance worker who used the dumping area, the dump was originally a low swampy area that was filled in with the C&D and brush debris. It was estimated by the worker that the dump

filled the low swampy area to a height of approximately 10 to 12 feet which created a terrace-like level above the low relief area (Ref. 20). At the northern end of the dump, a 10-12 foot drop-off was observed down to a low drainage ditch (Figure 4-4). A large area of surface debris was also noted to be concentrated in this area of the site, although it is suspected that the debris was moved to this location by flooding occurring in 1993. No "wet" garbage (i.e., household garbage, liquids) was disposed in the Range Dump (Ref. 20).

Waste Characteristics

Waste materials at the Range Dump were disposed of by landfilling a natural depression and covering most of the materials with a soil cover. Some materials present at the site are in the form of piles of junk and debris on top of the landfill cover. Based on the dimensions of the clearing and the suspected depth of burial (average of 10 feet), it is estimated that approximately 32,500 cu yd of materials were landfilled at the Range Dump.

Based on observations conducted during a site visit on July 23, 1997, the following inventory of items were noted at the dump:

- Pallets
- Roofing Materials (asphalt shingles, nails)
- Railroad Ties
- Wooden Poles
- Sheet Metal - Unknown Source
- Culvert Materials
- Concrete/Masonry Blocks
- Construction Scrap Lumber
- Fencing Material - Chain Link
- Scrap Pieces of Tin
- Metal Shelving
- Metal Tubing and Conduit
- Wooden Crates and Shelves

Based on the site history and the observed materials at the site, it appears to be unlikely that hazardous substances were directly disposed at the Range Dump. It is possible that by-products or weathering residuals associated with the inert materials could contain the following contaminants:

- Asphalt shingles - heavy-range hydrocarbons.
- Railroad ties - creosote, PAHs, phenols, arsenic, chromium, copper.
- Machined metal products - waste oils, heavy hydrocarbons, metals, including lead.
- Weathered metal debris - heavy metals, including lead, nickel, chromium, copper.

Concentrations of contaminants associated with possible releases at the Range Dump would be expected to be low.

Likelihood to Release

The likelihood of contaminants at the Range Dump to release to groundwater, surface water, soil and air is presented below.

Groundwater. Waste materials present at the Range Dump are contained in an unlined depression, the base of which is likely at or near the top of the water table surface. The depth to the shallowest aquifer at the Range Dump would probably be less than 10 feet. Although most of the disposed waste materials appear to have been covered by a layer of soil, the cover material consists mainly of loamy soils with a moderately high infiltration rate (Ref. 4). Therefore, precipitation falling on the exposed debris, or infiltrating through the surface cover layer, may

come in contact with the waste materials and result in leaching of contaminants into groundwater. Once in groundwater, the high hydraulic conductivity of the upper sand aquifer suggests that contaminants could be rapidly transported with the groundwater flow system to areas of discharge.

Potential contaminants at the Range Dump are not particularly mobile in groundwater. All of the suspected contaminants have high molecular weights and prefer to bind to clayey soil particles. Metals, heavy hydrocarbons, creosote, and PAHs do not tend to be found as mobile groundwater contaminants.

Surface Water. Drainage ditches form the northern and part of the eastern boundaries of the Range Dump site. In general, drainage from the site is to the north-northeast toward the northern drainage ditch/low area. Flow in the ditch is to the west toward eventual discharge to Beaver Creek located 600 feet to the west. Because the site is generally flat, is covered with permeable soils (high infiltration capacity) and is heavily vegetated, the potential for surface water runoff at the dump would be minimal. The potential for surface water runoff would be greatest near the edge of the dumps in contact with the drainage channels. In these areas, contaminants could migrate to surface water.

The site is located in the 100-year floodplain of Beaver Creek, and evidence at the dump suggests that the site was flooded during the 1993 flood. Surface debris is concentrated in the northeastern portion of the site along the tree line, which suggests that flooding of the dump area mobilized surface materials toward the drainage channel to the north. There appears to be limited amounts of debris present along the banks of the northern drainage channel. Shallow groundwater flow in the northern portion of the dump area may also discharge to the northern drainage ditch.

Soils. The Range Dump is neither capped with more than 2 feet of cover material nor with an impermeable material (asphalt, concrete, etc.). Therefore, if contaminants have migrated to surface soils there would be potential for exposure to contaminants at the Range Dump. However, the site is fully vegetated and there does not appear to be areas with bare or exposed ground. There are piles of exposed materials and debris located at the site which could provide direct access to potential contamination. Potential site contaminants at the Range Dump would tend to adhere to site soils and become relatively immobile.

Air. There have been no reports of detected releases to air associated with the Range Dump and odors were not detected during the site visit. Further, the site area is heavily vegetated and covered which would limit creation of airborne dust or vapors resulting from wind. Prevailing winds from the north and west are also blocked by trees forming the northern and western site boundaries. Potential site contaminants at the Range Dump are relatively immobile and nonvolatile, unless rendered airborne as windblown dust.

LAW RANGE LANDFILL

Location and Setting

The LAW Range Landfill is located approximately 3,000 feet west of the cantonment area in the southwestern portion of the Camp Dodge site (Figure 3-1). The LAW Range Landfill is located between Beaver Creek to the west and the firing ranges to the east. Although the precise location

of the LAW Range Landfill is unknown, an interview with a facility maintenance worker (Ref. 20) and a 1974 aerial photograph (Ref. 23) place the landfill in its currently identified position. Further information will be needed to better delineate the location and boundaries of the landfill area.

A layout of the LAW Range Landfill is presented in Figure 4-5. The site occupies a very flat area positioned between a line of old growth trees and scrub trees to the west and an access road to the east. The Demo pit site area, shown by the location of the barbed wire fence, is located immediately north of the LAW Range Landfill site (Figure 4-5). The fenced off area to the northwest of the landfill area is associated with the LAW Range Landfill. The rectangular dimensions of the landfill area are approximately 470 feet north-south and 210 feet east-west. These dimensions are probably larger than the actual boundaries of the disposal area but, given the approximate location identified, likely encompass the entire disposal area.

Features identified at the LAW Range Landfill include rows of military trailers located immediately south of the landfill area and a large grass-covered soil pile in the north-central portion of the landfill. The landfill area itself is covered by sparse, weedy vegetation and numerous small (less than 1 to 2 inches) fragments of broken glass and other debris. The area appears to form a slight plateau area above the low area behind the western tree line (Figure 4-5). This buildup may signify the western edge of the disposal area. Photographs of the LAW Range Landfill are provided in Appendix B.

Site History

The LAW Range Landfill was operated for a brief period in the early 1970s for disposal of a variety of materials. According to aerial photographs, the landfill was not active between 1960 to 1967 but was operational during 1974 (Refs. 22, 23, 25). According to a site maintenance worker involved with the landfill, the landfill only operated for a 2.5- to 3-year period (Ref. 20). It was reported that the dumping area originally consisted of a low swampy area that was similar in nature to the area west of the tree line. The low area was filled to create a suitable flat area useable for vehicle traffic. In some areas, the buried materials were placed in standing water and filled up through the water (Ref. 20).

Buried materials at the LAW Range Landfill consisted of old cars and other vehicles, trees, brush, broken concrete and other C&D materials (Refs. 20, 21). The depth of burial of materials and debris was approximately 5 to 6 feet (Ref. 20).

Waste Characteristics

Waste materials were disposed at the LAW Range Landfill by filling in naturally-occurring low swampy areas with vehicles and other debris. The number of vehicles buried at the landfill is unknown. Some waste materials were buried in contact with water. Based on the estimated dimensions of the landfill, and the approximate depth of burial (5 feet), approximately 18,300 cu yd of materials were disposed at the landfill. A site visit conducted on July 23, 1997 did not indicate any large anomalous objects or piles (except for the grass covered pile) present at the site. The following small broken pieces were observed commingled with the surface soil: broken glass, tin cans, small metal pieces, broken bricks and concrete.

Potential contaminants at the LAW Range Landfill would be associated with the burial of vehicles. If the vehicles were not drained, oil, fuel (gasoline or diesel) or other various petroleum products could migrate from the vehicles and release to groundwater. Brush or generic C&D materials would not contain hazardous substances.

Likelihood to Release

Groundwater. Wastes disposed at the LAW Range Landfill were placed in direct contact with groundwater or standing surface water and, therefore, no subsurface containment was provided. Based on the topography and elevation of nearby standing surface water, the depth to the shallow aquifer is likely less than 10 feet in the area. The cover soil placed over the landfill is of unknown thickness and consists of very sandy loam. The soil cover would promote rapid infiltration of precipitation. Permeabilities of the underlying aquifer are very high and can range up to nearly 300 feet/day (Ref. 27). Contaminants migrating into groundwater would be expected to be rapidly transported downgradient of the site to areas of discharge.

Potential contaminants at the LAW Range Landfill consist of predominantly oils or fuel-related petroleum products associated with the buried vehicles. Oils and heavy petroleum hydrocarbons in contact with groundwater would not be particularly mobile and would tend to bind with organic and clay particles present in the soils. Lighter fuel hydrocarbons, such as BTEX, can be very mobile in groundwater and travel great distances in productive aquifer systems. However, these hydrocarbons also tend to be very biodegradable in aerobic aquifers (such as the shallow sand and gravel at Camp Dodge) and could conceivably be entirely biodegraded since their time of disposal in the early 1970s.

Surface Water. Due to the low relief of the landfill area, there would be little potential for surface water runoff at the site. There is a slight slope on the western border of the landfill (less than 3 to 5 feet) that may coincide with the boundary of the landfill area. This portion of the site is heavily grassed and anchored by a dense growth of scrub trees (Figure 4-5). Northwest of the landfill, a grass waterway may provide the primary surface water migration pathway from the site. Because the site is covered by very sandy soils, the potential to generate runoff from the site would only occur during exceptionally large storm events. The nearest surface water body to the LAW Range Landfill is Beaver Creek located 1,000 feet west of the site.

The site is located on the 100-year floodplain of Beaver Creek and was flooded during the 1993 flood event. There does not appear to have been abundant surface debris present at the land surface which could have been mobilized during the flood event.

Soils. The LAW Range Landfill is covered with a layer of sandy soil of unknown thickness, although the cover is not likely to be greater than 2 feet thick. Over most of the landfill area, the soils are vegetated by a sparse collection of weeds and grasses. Most wastes buried at the LAW Range Landfill are covered by the sandy soils and vegetation; however, bare or open ground are present in scattered small areas of the site. In these areas, exposed waste materials could provide direct access to potential contamination. Potential site contaminants, consisting of waste oils or heavy hydrocarbons, would tend to adhere to site soils and become relatively immobile. Lighter hydrocarbons, such as BTEX, would tend to volatilize and be degraded naturally in the environment.

Air. There have been no reports of detected releases to air associated with the LAW Range Landfill and odors were not detected during the site visit. Further, the site area is vegetated and covered by sandy soils which would limit generation of airborne dust or vapors resulting from wind erosion. Prevailing winds from the north and west are also blocked by trees forming the northern and western site boundaries.

GRAVEL PIT DUMP

Location and Setting

The Gravel Pit Dump is located approximately 1.5 miles north of the cantonment area and 3/4 mile northeast of the town of Herrold (Figure 3-1). The Gravel Pit Dump site occupies approximately a 9-acre area located north of an intersection between east-west and north south trending gravel roads. The north-south road bisects the dump area into nearly equal sized eastern and western portions.

A layout of the Gravel Pit Dump is presented in Figure 4-6. The boundaries of the dump area are outlined by a ridge line to the east that was formed by gravel mining activities, and a noticeable break in slope and a tree line area to the west and north. The dimensions of the apparent dumping area, as delineated by the ridge line and break in slope, are approximately 475 feet north-south, by 800 feet east-west (370 feet wide in the western half and 430 feet wide in the eastern half). Overall, the topography of the area is relatively flat with surface drainage generally to the west. More pronounced drainage occurs in the eastern half of the site where there is greater slope. In this area, a sandy ravine has formed in the side of the hillslope.

The Gravel Pit Dump is mostly covered by weedy vegetation and piles of brush, debris, equipment and other materials. A large number of concrete pads were placed on the ground in the southern area of the site (Figure 4-6), and several large soil and brush piles were located along the western side of the north-south gravel road. Brush appears to have been burned on occasion in this area, witnessed by smoldering embers still alive in one section of a large pile (see Appendix B photograph). On the eastern side of the road, several piles of dirt, concrete, asphalt and stumps were located in the southern half, and several trucks were parked along the northern half near the gravel road (Figure 4-6; Appendix B).

Site History

Little information was obtained regarding the period of operation of the Gravel Pit Dump and the time of use for disposal activities. An aerial photograph from 1961 shows an area of bare ground on either side of the north-south road (Ref. 25). Trees are more abundant on the east side of the road than the west (suggesting little excavating activity at that time), and a well-used access road appears to trend into a small pit area north of the Gravel Pit Dump boundaries delineated in Figure 4-6. This former pit area may correspond to the low area identified north of Gravel Pit Dump in Figure 4-6. No evidence of disposal was identified on the aerial photograph.

A poor quality aerial photograph from 1967 appears to show more excavation activity occurring on the east side of the road at that time (Ref. 22). In 1974, excavation appears to focus more on the northwest portion of the gravel pit than the east side (Ref. 23). The 1976 topographic map shows symbols for two gravel pits on either side of the north-south road (Ref. 23).

Based on the historical aerial photographs, it is probable that most dumping at the Gravel Pit Dump occurred after the mid-1970s. After this time, the gravel pit was filled with a variety of materials including C&D materials, trees, buildings, beds, mattresses and other general debris. No wet garbage was disposed at the site (Ref. 20). At its greatest depth, the bottom of the pit was about 50 feet deep, which was filled with various materials and debris (Ref. 20). Currently, the only evidence of past disposal is the abrupt break in slope at the boundaries of the dump, the relatively flat plateau area with sparse weedy vegetation, and the abundant surface debris in the area. The break in slope around the west and northern boundaries appears to be approximately 10 to 15 feet.

Waste Characteristics

Waste materials were disposed at the Gravel Pit Dump by filling in the gravel pit excavations with C&D materials and other debris. Based on the maximum depth of the pit, it is likely that some waste materials were buried in contact with water. Unless the entire deposit was mined to completion, the bottom of the pit is likely composed of native sand and gravel deposits. Based on the estimated dimensions of the dump (500 feet by 800 feet), and the approximate depth of burial (15 feet), approximately 222,000 cu yd of materials were disposed at the Gravel Pit Dump.

Based on observations made during a site visit on July 23, 1997, the following inventory of surface debris were noted at the dump:

- Soil and Brush Piles
- Concrete Tent Pads
- Trucks and Miscellaneous Truck/Auto Parts
- Asphalt Pile
- Stumps
- Miscellaneous Lumber, Wood, Poles
- Metal Culverts
- Building Materials

The following small broken pieces were also observed commingled with the surface soil: broken glass, tin cans, small metal pieces, broken bricks and concrete.

Based on the site history and the observed materials at the site, it appears unlikely that hazardous substances were directly disposed at the Gravel Pit Dump. It is possible that by-products or weathering residuals associated with various materials could contain the following contaminants:

- Vehicles on surface or buried - oils, fuel hydrocarbons.
- Building materials and debris - lead paint, asbestos.
- Asphalt shingles - heavy-range hydrocarbons.
- Machined metal products - waste oils, heavy hydrocarbons, metals, including lead.
- Weathered metal debris - heavy metals, including lead, nickel, chromium, copper.

Concentrations of contaminants associated with possible releases at the Gravel Pit Dump would be expected to be low.

Likelihood of Release

Groundwater. Dumping at the Gravel Pit Dump appears to have occurred in an unlined sand and gravel quarry with little or no containment of the disposed materials. Based on the depth to groundwater observed at a piezometer located approximately 1,000 feet north of the Gravel Pit

Dump (P-7; Figure 2-4), the depth to groundwater is probably less than 5 feet. This suggests that some buried materials at the dump are likely in contact with groundwater.

The P-7 piezometer north of the Gravel Pit Dump is also installed in predominantly sandy deposits (Appendix A), which suggests that the sand unit mined at the gravel pit may be fairly widespread in this area. The bottom of the sand at P-7 was encountered at a depth of about 13.5 feet (Ref. 12). Permeabilities of the sand and gravel deposits would typically be moderate to very high.

Contaminants possibly present at the Gravel Pit Dump include mainly oils, heavy hydrocarbons, and metals, all of which tend to be relatively immobile in groundwater. Light hydrocarbons, such as BTEX constituents, are more mobile and could migrate with the groundwater flow system downgradient of the site.

Surface Water. Drainage at the Gravel Pit Dump is generally to the west and north toward low grassy waterways located in these areas (Figure 4-6). The grassy waterways appear to merge northwest of the site and trend toward the northwest. The area is heavily vegetated with grasses and weeds which would prevent significant runoff from occurring. More increased runoff occurs along the slope breaks which surround the site. East of the dump, surface water runoff from higher landscape positions has resulted in a series of rills and ravines forming in the hillslope. Flow in the grassy waterways to the northwest may eventually reach Beaver Creek located 4,100 feet to the west.

Soils at the Gravel Pit Dump consist predominantly of sandy materials which would increase the potential for infiltration of precipitation into the disposed waste materials. Runoff would probably occur only from the larger precipitation events.

The Gravel Pit Dump site is located above the 100-year floodplain for Beaver Creek.

Soils. The Gravel Pit Dump does not appear to be capped with soils greater than 2 feet thick. The abundant small surface debris mixed with the soil suggests close proximity of the buried waste materials to the land surface. In addition, large piles of materials, C&D wastes and miscellaneous debris present on the land surface suggests that disposal of wastes has continued to occur at this Gravel Pit Dump site. Access to the site is not restricted and can be reached by maintained roads.

Air. There have been no reports of detected releases to air associated with the Gravel Pit Dump and odors were not detected during the site visit. Potential residual contaminants at the dump at the ground surface would not tend to volatilize. Most of the site area is vegetated which would limit generation of airborne dust. Smoldering wood materials were observed during the site visit.

KITCHEN LANDFILL

Location and Setting

The Kitchen Landfill is located in the northern section of the cantonment area and north of the new ammunition storage area (Figure 3-1). A layout map of the Kitchen Landfill site is presented in Figure 4-7. The precise location of the landfill is not known conclusively but is

believed to be approximately 100 to 150 feet north of the Ammo building and fence (Ref. 28). Currently, there is no visual evidence on the land surface that the Kitchen Landfill was present at this location. The site is located on the east side of the Main Street which formerly ran through the area (Figure 4-7). The road currently ends at the ammunition storage area. Beyond the fence line to the north, the road is covered by dirt and not visually apparent.

The topography of the Kitchen Landfill area is very flat with a very slight slope to the west and southwest. The former road appears to separate the east and west sides of the fields and may limit any drainage from the east side from migrating west. The entire landfill area on either side of the former road is covered under cultivation. A photograph of the Kitchen Landfill vicinity is presented in Appendix B.

Site History

The Kitchen Landfill was used for a brief period (two to three years) in the late 1960s to early 1970s for disposal of household trash and wet garbage (Ref. 28). Aerial photographs from 1961 and 1967 do not show the presence of the landfill (Refs. 25, 22). The 1974 aerial photograph indicates some ground disturbance in the general vicinity of the identified location and may correspond to its actual location (Ref. 23). The location identified on the 1974 photograph is located approximately 200 feet east of the former Main Street.

The landfill was constructed by excavating into the soil with a bulldozer and filling the excavation with garbage (Ref. 28). The approximate dimensions of the landfill were 150 feet long, 30 to 40 feet wide and 10 to 15 feet deep (Ref. 28). The width of the Kitchen Landfill corresponds to the width of three bulldozer buckets. Household and kitchen refuse for the Kitchen Landfill came from the various households located on the base, and from other base activities, including Boy's State (held annually for a period of one week) and periodic National Guard training (Refs. 28, 21). At the conclusion of the Kitchen Landfill period of operation, the Cemetery Landfill was opened (Ref. 28).

Waste Characteristics

Based on the maximum suspected dimensions of the Kitchen Landfill (150 feet long, 40 feet wide and 15 feet deep), approximately 3,300 cu yd (90,000 cu ft) of waste materials were placed in the landfill. The landfill was excavated out of native soils to the approximate depth to the water table and, therefore, was constructed without any containment. Wastes disposed at the landfill consisted primarily of household trash and garbage (Ref. 28). These types of materials would not contain hazardous substances. Other materials disposed at the landfill may have included minor quantities of household hazardous wastes, such as paints, thinners, oils, etc.

Observations during a site visit to the Kitchen Landfill on December 12, 1997 did not note any surface materials or remnants of burial activities. The entire site area was covered by a field of corn. No evidence of distressed vegetation or discolored soils was observed.

Likelihood to Release

Groundwater. Wastes disposed at the Kitchen Landfill were probably placed in direct contact with groundwater and with no subsurface containment. The depth to the shallow aquifer is likely less than 15 feet in the area. A soil boring (P-2) installed by the INDR-GSB in the immediate

vicinity of the landfill site showed the shallow stratigraphy to consist of nearly 2 feet of dark gray loam topsoil overlying approximately 11.5 feet of grayish-brown to yellow-brown silty and sandy loam (Wisconsinan Morgan Member) (Appendix A). At a depth of 11.5 feet, dense glacial till (Wisconsinan Alden Member) was encountered (Ref. 12).

Depth to groundwater measured in the INDR-GSB piezometer (PZ-2) ranged form 3.6 to 7.1 feet below ground surface (Ref. 12). Based on this water table surface, landfill wastes were probably placed directly into groundwater. Based on the general site stratigraphy, the depth to nearest aquifer (buried channel aquifer) would probably be greater than 20 to 30 feet below ground surface (i.e., below the Wisconsinan glacial deposits).

Potential contaminants at the Kitchen Landfill would consist predominantly of dissolved solids or other nontoxic constituents. Migration of potentially hazardous substances from the landfill would not be expected.

Surface Water. Due to the low relief at the Kitchen Landfill, there would be little potential for surface water runoff at the site. There is a slight slope of the landfill to the west. Most of the site is covered with a layer of topsoil and the entire landfill area is under cultivation. Because the site is covered by permeable soils, the potential to generate runoff from the site would only occur during exceptionally large storm events. The nearest surface water body to the landfill is Beaver Creek located approximately 2,000 feet west of the site. The site is located above the 500-year floodplain of Beaver Creek.

Soils. The Kitchen Landfill is covered with a layer of topsoil of unknown thickness, although the cover is not likely to be greater than 2 feet thick. Most wastes buried at the landfill are covered by the soils and crops; however, bare or open ground may be generated during plowing and cultivation. Depending on the depth of plowing and the depth of the buried landfill wastes, there could be potential to provide direct access to buried wastes. No evidence of exhumed waste materials was observed during a site visit.

Air. There have been no reports of detected releases to air associated with the Kitchen Landfill and odors were not detected during the site visit. Further, the site area is covered by topsoil and crops which would limit generation of airborne dust or vapors resulting from wind erosion.

POND LANDFILL

Location and Setting

The Pond Landfill is located west of the cantonment area near Camp Dodge Pond (Figure 3-1). A layout of the Pond Landfill site is presented in Figure 4-8. Although the precise location of the landfill is not known conclusively, the landfill is located along the north side of a dirt road from Camp Dodge Pond to the west and the Range Dump to the east. The location corresponds to the slight turn in the road from west to the north.

The topography of the Pond Landfill area is exceptionally flat with no obvious slope to the land surface. The area is extensively vegetated by grasses, weeds and second growth vegetation (Appendix B).

Site History

The Pond Landfill was used for a 1- to 2-month period prior to starting the Kitchen Landfill (Refs. 28, 20). The year of operation for the landfill was first reported to be 1963 (Ref. 20); however, this date did not coincide particularly well with historical aerial photographs of other landfills in use at the time (i.e., Kitchen Landfill, Scrap Iron Landfill). During a second interview with the same maintenance person, the year of operation of the Pond Landfill was stated to be around 1970 (Ref. 28). This date would appear to more consistent with other data collected for the PA.

The Pond Landfill was constructed by excavating into the soil with a bulldozer and filling the excavation with garbage (Refs. 20, 28). A single trench was used at this location for disposal. After this bulldozer got stuck in the excavation, and groundwater was encountered at a very shallow depth, the landfill site was discontinued (Ref. 20).

The approximate dimensions of the Pond Landfill were 60 feet long, 12 feet wide (width of a bulldozer blade) and up to 10 feet deep (Refs. 20, 28). The same wastes disposed at the Kitchen Landfill were disposed prior to that time at the Pond Landfill. The wastes included household and kitchen refuse from the various households located on the base, and from other base activities, including Boy's State and periodic National Guard training (Refs. 28, 21). At the conclusion of the Pond Landfill period of operation, the Kitchen Landfill was opened (Ref. 28).

Waste Characteristics

Based on the maximum suspected dimensions of the Kitchen Landfill (60 feet long, 12 feet wide and 10 feet deep), approximately 267 cu yd (7,200 cu ft) of waste materials were placed in the landfill. The Pond Landfill was excavated out of native soils to the approximate depth to the water table and no subsurface containment was provided. Wastes disposed at the landfill consisted primarily of household trash and garbage which would not contain hazardous substances (Ref. 28). According to the maintenance worker responsible for the landfill, no vehicles or waste oils were placed in the pit (Ref. 28). Household hazardous wastes materials possibly disposed at the landfill could have included minor quantities of paints, thinners, insecticides, etc.

Surface materials or disturbed ground were not observed during a site visit to the Pond Landfill on December 12, 1997. The entire site area was covered with grasses and second growth vegetation. No evidence of distressed vegetation or discolored soils were observed.

Likelihood to Release

Groundwater. Based on the site history, wastes disposed at the Pond Landfill were probably placed in direct contact with groundwater and with no subsurface containment. The depth to the shallow aquifer is likely less than 5 feet in the area.

As described for the Kitchen Landfill, potential contaminants at the Pond Landfill would also consist predominantly of dissolved solids or other nontoxic organic and inorganic constituents. Migration of potentially hazardous substances from the landfill would not be expected.

Surface Water. Due to the low relief at the Pond Landfill, there would be little potential for surface water runoff at the site. There is a slight slope of the landfill to the west. Most of the site is covered with a layer of topsoil and the entire landfill area is under a vegetative cover. Because the site is covered by permeable soils, the potential to generate runoff from the site would only occur during exceptionally large storm events. The nearest surface water body to the landfill is Camp Dodge Pond located approximately 400 feet west of the site. The site is located in the Beaver Creek 100-year floodplain.

Soils. The Pond Landfill is covered with a layer of soil of unknown thickness, although the cover is not likely to be greater than 2 feet thick. Most wastes buried at the landfill are covered by the soils and vegetation. No evidence of waste materials was observed during a site visit.

Air. There have been no reports of detected releases to air associated with the Pond Landfill and odors were not detected during the site visit. Further, the site area is covered by topsoil and crops which would limit generation of airborne dust or vapors resulting from wind erosion.

SECTION 5

WASTE CHARACTERISTICS AND LIKELIHOOD OF RELEASE: HISTORICAL SITES (pre-WWII)

Three PA sites included in this grouping include: 1) Incinerator Area, 2) Horse Dip Tank, and 3) Gas Instruction House. Each of these sites are associated with activities occurring at Camp Dodge during the period before WWII (pre-1940s). This period includes the buildup and operation of the camp as a regional training center during WWI.

INCINERATOR AREA

Location and Setting

The Incinerator Area is located on the west side of Beaver Creek and is accessed through a locked gate and dirt road east off of NW 86th Street (Figure 3-1). The site is located east of the Horse Dip Tank site and is reached by driving over a plowed farm field. The area is identifiable in winter months by the appearance of several structures located just inside the tree line. During summer months, the area is hidden by brush and trees. A layout map of the Incinerator Area is presented in Figure 5-1. Photographs of the Incinerator Area are included in Appendix B.

The Incinerator Area consists of several partially intact structures and footings (Figure 5-1). Viewed from the west, the Incinerator Area is marked by a concrete loading platform and a dozen or more concrete footings. The concrete platform structure is 20 feet wide and 35 feet long. The footings are placed in a rectangular pattern in an area immediately north of the concrete platform and may identify the location of a former wood structure. Extending east of this area, several concrete footings were located in a straight line path from the concrete platform area to a second concrete platform approximately 100 feet east (Figure 5-1). This second platform is 20 feet wide and 30 feet long, and is attached to a concrete building foundation. Grooves notched in the building foundation walls indicated that the structure may have supported wooden beams and flooring. In the western portion of the foundation, flooring is apparently supported by reinforced concrete and four steel beams. The entire foundation structure is approximately 20 feet wide and 45 feet long (Figure 5-1).

West of the foundation, two brick manholes were identified (Figure 5-1). Each manhole was about 3 feet in diameter and appeared to have been connected to subsurface piping. One manhole immediately east of the structure appeared to be connected to the inside of the base of the foundation and did not appear to have any subsurface outlet (Appendix B). The second manhole appeared to have an outlet directed to the south.

The entire Incinerator Area appeared to be surrounded by a concrete road and apron area (Figure 5-1). A north-south trending concrete road was identified as entering the Incinerator Area from the north.

The Incinerator Area is situated in a heavily wooded and vegetated area dominated by first and second growth vegetation. The land surface slopes to the east toward the Beaver Creek channel. The site itself is positioned near the steeply sloping bank of a terrace of Beaver Creek. Scattered debris was identified along the terrace bank and along the flat floodplain area. South of the incinerator, an area of interconnected piles of soil were identified. These soil piles were about 5 to 15 feet long and 3 to 6 feet high and appeared to be connected by various trough-like depressions. These soil piles may or may not be related to operation of the incinerator.

Site History

The Incinerator Area was probably constructed around 1918 during the period of camp expansion during WWI. The Incinerator Area was located in the former Remount Station area of Camp Dodge (Ref. 5). A layout of the former Remount Station and the Incinerator Area is shown in Figure 5-2. Two main routes of access to the Incinerator Area are shown in Figure 5-2; Incinerator Road entering the area from the north, and a railroad spur entering the Incinerator Area from the west. The concrete road that was mapped to be encircling the Incinerator Area (Figure 5-1) is shown on a historical layout map (Figure 5-2).

Two structures are identified in the Incinerator Area as numbered buildings: Building 3021 and Building 3023 (Ref. 5). A third structure, Building 3022, was probably located in the area but was not identifiable on the 1919 utilities map (Ref. 5). Building 3021 was designated the incinerator. Based on records from a camp inventory in 1919, the incinerator building was 20 feet wide and 114 feet long, consisted of eight rooms, and was constructed of a concrete foundation and wood floors, walls and roof (Ref. 5). The building had steam heat, electric lights, and was connected to water and sewer. Building 3028 was identified as a platform. Although a similar building record was not maintained for this structure, architectural drawings for proposed improvements to the concrete loading platform were located (Ref. 5). These drawings identified the platform as being 20 feet wide and 40 feet long and constructed on concrete pilings. The proposed building on top of the platform (uncertain whether this building was actually constructed) was intended to be a 1-story structure composed of wood (Ref. 5). The possible third structure at the Incinerator Area was identified in the camp inventory records as the hose house (Ref. 5). It seems likely that a hose house would be located in the vicinity of an incinerator. This building was constructed of wood on concrete pilings, and was 7 feet wide by 10 feet long. The one-story structure was not evidently serviced by utilities, including a connection to water (Ref. 5). It is possible that the hoses were stored in this structure and water connections were used at the incinerator building.

Both the incinerator building and the concrete platform were partially identifiable during the site visit in November 1997 (Figure 5-1). The incinerator building likely corresponds to the remnants of the concrete foundation and some portion of the attached concrete platform (the dimensions of the incinerator do not match with the measured dimensions of the foundation). The concrete platform was identifiable in the western portion of the Incinerator Area (Figure 5-1). The location of the hose house was not identified.

The actual operation of the incinerator was not described in available records. However, the remnants of the facility give clues as to how the incinerator may have been used. With the rail access at the concrete loading platform, garbage from the camp may have been unloaded from

rail cars at this location. Other camp architectural drawings from 1917 indicate garbage transfer stations and garbage can platforms were located near rail access (Ref. 5). Garbage brought to the incinerator via Incinerator Road was probably unloaded near the concrete platform attached to the foundation building. Garbage wastes may have been burned at the incinerator in the building basement area corresponding to the location of reinforced concrete and steel beams (see Figure 5-1). Subsurface piping from the basement to a manhole may have delivered smoke (similar to flue on a fireplace) or liquid wastes to the outside for disposal. Residual wastes from the burning process would have been periodically shoveled out of the incinerator and disposed.

It is unknown how long the camp incinerator was operated at Camp Dodge. However, given the age of many trees in the area growing in and around foundations and access points, it is unlikely that the incinerator was operated for much longer after the camp was dismantled in the 1920s.

Waste Characteristics

Wastes in the Incinerator Area would consist of primarily of ash, and partially burned or melted materials from the incineration process. Around the immediate area of the incinerator, evidence of ash or other burned rubble was not observed during the site visit. However, in and around the slope to the Beaver Creek floodplain, east of the incinerator, and throughout the floodplain area, scattered debris and miscellaneous materials were littered on the ground surface. These materials consisted of a variety of inert home-use products, including dishes, plates, cans, buckets, pots, bottles and other debris. Most of this debris was broken or highly rusted. Other materials included some demolition materials such as concrete blocks, bricks and miscellaneous metal. Most of the scattered debris and miscellaneous materials were concentrated in the area immediately east of the incinerator foundation and in the floodplain area to the south.

At several locations during the site visit in November 1997, a shovel was used to dig into the hillslope east of the Incinerator Area. At most of these locations, beneath a layer of 1/2 to 1 foot of soil, ash, melted materials, and other partially burned debris were encountered. At some places, these materials were loosely compacted and had numerous void spaces in and around the wastes. All of the partially burned materials were highly weathered and easily crumbled when touched.

Based on the location of the scattered debris and the burned materials, it is speculated that much of the hillslope behind the Incinerator Area is composed of waste materials. The height of the slope is approximately 10 to 20 feet above the floodplain. Based on a thickness of 20 feet, and the estimated dimensions of the area of disposal (30 feet wide by 120 feet long), the quantity of wastes at the Incinerator Area estimated for this PA is 72,000 sq ft, or (rounded up), to approximately 3,000 cu yd. Wastes were probably disposed at the Incinerator Area by pushing burned ash and debris over the hillslope behind the Incinerator Area. Disposal of wastes in this manner, and later covering these materials with a thin layer of topsoil, would make the Incinerator Area considered a landfill. It is uncertain how far back into the hillslope the waste materials are located. It is unlikely that the disposal of the wastes were provided with subsurface containment.

The types of contaminants present at the Incinerator Area would consist primarily of metals. Metals would be present in the ash and also derived from the weathering of partially combusted

materials. The types of metals encountered in the area may consist of heavy metals, such as arsenic, lead, copper, cadmium, chromium and zinc, or other metal contaminants or metal oxides.

Likelihood to Release

Groundwater. Metal contaminants at the Incinerator Area could migrate to groundwater in the Beaver Creek floodplain. Subsurface containment of the ash and burned materials was not provided at the Incinerator Area. The wastes were disposed along the hillslope in a manner which could promote rapid infiltration of precipitation and leaching of contaminants to groundwater. Further, the haphazard disposal method of the burned materials would increase the permeability of subsurface materials. The depth to the alluvial aquifer is the Beaver Creek floodplain would be less than 10 feet.

Metal contaminants are not particularly mobile in groundwater. These contaminants tend to bind with soils and do not typically migrate to great distances in groundwater systems. It is likely that most of the metals present in the Incinerator Area have been oxidized into less mobile metal oxide constituents.

Surface Water. The Incinerator Area is located along the floodplain banks of Beaver Creek. Some of the waste materials at the base of the slope are likely located in the 100-year floodplain of Beaver Creek. Wastes disposed at higher landscape positions, near the incinerator foundation area, would be located above the 100- and 500-year floodplains. The site is located approximately 200 to 300 feet west of the Beaver Creek channel.

There is evidence to suggest that the scattered debris present along the edge of the floodplain and the lower hillslope were mobilized by flooding surface water from Beaver Creek. Materials from the Incinerator Area, such as dishes, pans, and other inert debris, were observed downstream of the area for several hundred feet. However, most of the floodplain area of Beaver Creek is exceptionally flat, and except for surface water flooding events, there would not be any consistent drainage from the site to Beaver Creek. Most of the area is highly vegetated and covered with first and second growth vegetation, weeds, and scattered tree litter. Most precipitation falling on the landfill area would infiltrate into the ground surface. Only the larger precipitation events would result in overland surface runoff at the site. There was not evidence of distressed vegetation or discolored sediments in Beaver Creek or near the landfill area.

Soils. Soils at the Incinerator Area are not covered with more than 2 feet of cover material or with an impermeable material (asphalt, concrete, etc.). Most soils in the landfill portion of the site, including the bank slope, appear to be less than 1 foot thick. However, most of the site is fully vegetated and covered by weeds, grasses, scrub brush and first and second growth trees. Access to the site is restricted by a locked gate off of NW 86th Street and can only be reached by driving or walking through a farm field.

Air. There have been no reports of detected releases to air associated with the Incinerator Area and odors were not detected during the site visit. Most of the site area is heavily vegetated and covered which would limit creation of airborne dust or vapors resulting from wind. Areas of

bare ground would be more susceptible to dust migration. Prevailing winds from the north and west are blocked by trees located throughout the area.

HORSE DIP TANK

Location and Setting

The Horse Dip Tank is located west of Beaver Creek and situated between Beaver Creek to the east and NW 86th Street (Clive Road) to the west (Figure 3-1). The site is accessed through a locked gate and dirt road from NW 86th Street. A layout map of the Horse Dip Tank area is presented in Figure 5-3.

The site consists of two main structures, an old wooden building and a long, narrow concrete trough, which are located off the dirt access road in the middle of a farm field (Figure 5-3). It is the concrete trough that appears to represent a Horse Dip Tank. The trough is approximately 70 feet long and 3.5 feet wide that gently slopes on either end to a maximum depth of about 6.5 to 7 feet in the middle. The trough is currently surrounded by high weeds and is partially filled with empty pesticide cans and other debris. The wooden building north of the trough is approximately 12 feet wide and 32 feet long and is in obvious disrepair. Various other surface debris are located around the Horse Dip Tank area, including a metal junk pile on the east side of the building.

Site History

The Horse Dip Tank area was located in the former Remount Station area of Camp Dodge (Ref. 5). A layout of the former Remount Station and the location of the Horse Dip Tank area is shown in Figure 5-2. The Remount Station was one of the largest in the cantonment area in 1919 and was capable of handling over 10,000 head of stock (Ref. 5). The Remount Station consisted of more than 80 buildings, including 32 open stables, 12 hay sheds, 8 closed stables. 10 company barracks, and assorted other buildings (Ref. 5). The Horse Dip Tank area was located on the far southern side of the Remount Station near building number 3077 (Figure 5-2). According to the building inventory records from 1919, building number 3077 was identified as the Drip Pen. The Drip Pen consisted of a foundation, walls, and floor made of concrete with the floor dimensions of 18 feet by 20 feet (Ref. 5). It is uncertain how the currently identifiable dip tank fits into the Drip Pen building and its surroundings, although the close association of the dip tank location to a building called the Drip Pen suggests that both were involved with treating livestock.

Little specific information is known about how the Horse Dip Tank Area was used at the Remount Station and the type of chemicals involved. It is hypothesized that horses or other livestock were walked down through the concrete trough which was filled with some form of disinfectant solution. According to Dr. Nolan Hartwig, Iowa State University Extension Veterinarian, three types of products were most likely used for livestock dipping in the early 1900s: lime sulfur, chrysilics, and arsenicals (Ref. 29). Two other products, pyrithrian, and nicotine sulfate, may have been used, but there was no evidence that these products were used before the mid-20th century (Ref. 29). Other types of insecticides used prior to 1940 included petroleum oils, rotenone, and hydrogen cyanide gas (Ref. 30).

Waste Characteristics

Of the three types of solutions possibly used for livestock dipping in the early 1900s, lime sulfur would be considered most innocuous. This solution is nontoxic and would have degraded naturally in the environment. The use of chrysilics for dipping solutions is considered unlikely at the site (Ref. 29). Chrysilics is a generic term applied to a variety of coal tar derivatives (i.e., cresols, creosote) that are used as disinfectants and deodorizers (Ref. 31). Varieties of these products are even used today in some pet shampoos for flea and tick control. The third type of solution that may have been used for dipping would be arsenic-based solutions (arsenicals). Little is known about the actual composition of an arsenic-based solution, but arsenic would have been the active ingredient used for disinfectant. According to the Insecticide Dictionary, arsenicals consist chiefly of copper acetoarsenite, lead arsenate and calcium arsenate (Ref. 30). Arsenic is a naturally-occurring metal that has been widely used in various pest-control poisons, herbicides, some medicines, and in arsenic-treated wood (Ref. 31). Arsenic would be very persistent in the environment.

Various cans and other surface materials and debris were observed during a site visit to the Horse Dip Tank Area on August 14, 1997. Many of the cans were located haphazardly inside the trough; most cans were located in the eastern side of the trough. Following is an approximate inventory of cans identified in the bottom of the trough:

- Empty 5-gallon cans of Sutan or Treflan (counted 40 to 50 cans).
- Transmission oil can.
- Hydraulic oil cans.
- Oil filters.
- Beer/pop cans.

Around the building other surface materials and debris were observed, including a tractor gas tank, tractor tires, and various metal debris and piles.

The quantity of wastes present at the Horse Dip Tank Area is unknown. The volume of the concrete trough is less than 50 cu yd. Considering the site to include the wooden building and horse dip trough, the areal extent of the site is approximately 3,500 sq ft (70 feet long by 50 feet wide).

The types of hazardous substances which may have been used or disposed at the site include the following:

- Cresols.
- Arsenic.
- Copper, lead, other metals used with arsenic.
- Trifluralin (Treflan).
- Butylate (Sutan).
- Waste oils, various fuel-related hydrocarbons.

Likelihood to Release

Groundwater. The Horse Dip Tank Area is located on an upland terrace above the floodplain of Beaver Creek and is probably underlain by silty and sandy loam deposits. These soils are not

likely to be highly conductive for groundwater flow. The depth to groundwater is probably between 5 and 10 feet below ground surface, although the bottom of the concrete trough at 7 feet was dry during the site visit in August 1997. It is unlikely that the bottom of the concrete trough was entirely watertight, so that solutions placed in the trough for horse dipping activities may have leached into the surrounding soils. Precipitation falling on the empty cans or debris dumped into the trough may also have mobilized some contaminant residuals in the cans and also leached these constituents into groundwater. At the time of inspection; however, the cans observed in the trough appeared to be old and rusty and generally void of any product residuals.

Pesticides are generally highly soluble in water and could easily migrate into groundwater. However, the pesticides and hydrocarbon contaminants can often be highly biodegradable and easily broken down in soils and groundwater by naturally-occurring microorganisms. Metals, oils and heavy petroleum hydrocarbons in contact with groundwater would not be particularly mobile and would tend to bind with organic and clay particles present in the soils.

Surface Water. The topography of the Horse Dip Tank area is generally flat with a slight slope to the north in the vicinity of the concrete trough. The area is heavily vegetated by grasses, weeds and trees, and is surrounded by acres of farm fields. Although the ground surface in the area slopes to the north and east, there does not appear to be a well developed drainage pattern at the site. Precipitation falling in the area would primarily infiltrate into the ground or pond in small ground surface undulations. Some excess surface water could flow into the concrete trough and pond at the bottom of the trough. The site is located approximately 1,000 feet west of Beaver Creek above the floodplain.

Soils. The concrete trough is not covered and commingled soils and various solid wastes (cans and other debris) disposed at the bottom of the trough are accessible. Elsewhere at the site, the area is heavily vegetated and covered by native soils.

Air. There have been no reports of detected releases to air associated with the Horse Dip Tank Area and odors were not detected during the site visit.

GAS INSTRUCTION HOUSE

Location and Setting

The Gas Instruction House was located in west-central portion of Camp Dodge on the west side of Camp Dodge Pond (Figure 3-1). The building no longer exists at the site and no remnants were found during a site visit to the approximate location on November 13, 1997. Today, the west side of Camp Dodge Pond consists of high weeds and brush with scattered old growth and second growth trees. It is difficult to tell where the Gas Instruction House was once located on the grounds. The 1917 utilities map of Camp Dodge shows the Gas Instruction House located approximately 500 feet north of the southern tip of Camp Dodge Pond (or, conversely, approximately 250 feet south of the northern boundary) (Ref. 5).

Camp Dodge Pond is accessed by a gravel road which begins at the western boundary of the firing range. Access to the Camp Dodge Pond area is restricted by a locked gate placed across the road.

Site History

It is unknown when the Gas Instruction House was constructed, but it was most likely built during the construction phase of the facility that occurred in 1917. During the WWI combat training period at Camp Dodge, the use of gas masks was included in the training regimen. The soldiers were trained at the Gas Instruction House which simulated gas attacks (Ref. 32).

According to the records of the 7th Corps Area of the Chemical Warfare Service, chemical warfare training was conducted at Camp Dodge during the 1920s and 1930s. Monthly activities reports from the Headquarters 7th Corps Area (Office of Chemical Warfare) in Omaha, Nebraska to the Chief, Chemical Warfare Service in Washington, D.C. were obtained for the period between September 24, 1924 to May 6, 1938 (Ref. 33). The monthly reports document training activities involving chemical warfare for the entire 7th Corps Area, including Camp Dodge. Based on the available monthly records, the following specific chemical warfare training activities were carried out at Camp Dodge during this period (Ref. 33):

- Training was given to personnel of the 168th, 133rd and 163rd Infantry consisting of instruction in chemical warfare agents, individual protection, collective protection, and tactical use of chemical warfare ammunition. Special emphasis was placed upon the use of chemical ammunition in the dispersion of mobs. A demonstration given at the end of the training simulated an attack upon a mob using a combination of tear gas and smoke.

- A three-day summer course was presented which included one morning devoted to a demonstration on the tactical use of smoke when a battalion is under attack.

- In conjunction with one summer training session (April 1926), the Acting Chemical Warfare Officer (Captain E.P.H Gempel) visited with the Adjutant General in each state in the 7th Corps regarding the chemical warfare training and use of lachrymatory munitions. These meetings highlighted the use of chemical warfare munitions in riot duty and maintained that every state will have an emergency reserve of tear gas on hand and conduct 8-hours of chemical warfare training during each state encampment.

- A 1.5-hour conference and lecture was given including topics such as: the status of chemical warfare; the importance of chemical warfare training emphasizing gas discipline and collective protection: recent developments of the Chemical Warfare Service; and use of lachrymatory munitions in case of riot duty.

- A one-hour class was given to the entire command on general chemical warfare and special protective measures applicable to field artillery units. This was followed by a demonstration of the use of smoke in the withdrawal of artillery from a battery position and use of smoke and tear gas against a battery position. The entire command was then passed through a smoke and tear gas cloud. After the general lecture, a three-hour specialist class was given to issue equipment, conduct gas mask training drills. mask inspections, and uses and handling of smoke and tear gas munitions.

- Chemical Warfare School was held for three days for selected personnel. During this event, a series of tactical maneuvers were held for battalions in smoke and tear gas.

- In October 1931, it was reported that an emergency issue of 250 candles, lachrymatory, chlorocetophenone (CN), and M1 was made to the IA ARNG (unknown whether this issue was sent to Camp Dodge). This material was requested for use against farmers who objected to tuberculosis testing of cattle.

In the records available for the 7th Corps Area training activities, chemical training plans from other National Guard facilities were described. These training plans included various courses in practical training in the use of a gas mask, wearing the gas mask at drill and on the march, identification of chemical agents by odor, mask drill practice in a gas chamber, actual use of smoke and tear gas, the laying and advancing through smoke screens, and first aid measures (Ref. 33). Nowhere in the specific references to Camp Dodge was it mentioned that identification of chemical agents by odor or other actual chemical warfare procedures were practiced at Camp Dodge.

Chemical warfare materials listed in the records as being shipped to Camp Dodge included the following materials:

- Hexachloroethane (HC) smoke candles.
- CN smoke candles.
- CN grenades, hand and rifle.
- White phosphorous (WP) grenades, hand and rifle.

It is unknown when the last period of chemical warfare training was conducted at Camp Dodge. Training records are available for the period up to July 1938. When WWII broke out, Camp Dodge was reactivated by the federal government but was used only as an induction center. Instruction in chemical warfare at Camp Dodge probably ceased prior to this time.

In 1989, one gas identification set was recovered by the Technical Escort Unit at Camp Dodge. However, this container originated off site and was brought to Camp Dodge by an individual at some point before 1989. Based on available training records, this container was unrelated to past training practices at Camp Dodge.

Waste Characteristics

Prior to records being available in 1926, little information exists on the type and quantity of gases used for training at the Gas Instruction House. In the period between 1926 and 1938, the only reported chemical warfare materials used at Camp Dodge included small quantities of HC smoke candles, CN smoke candles, CN hand and rifle grenades, and WP hand and rifle grenades. One specific training demonstration expended only two to four individual pieces of ammunition during a two hour period (Ref. 50).

The types of chemical warfare agents used at Camp Dodge do not leave behind toxic contaminant residuals. HC smoke is a pyrotechnic composition of grained aluminum, zinc oxide

and hexachloroethane. On burning, the mixture produces zinc chloride which rapidly absorbs moisture from the air to form a grayish-white smoke (Ref. 34). WP is a spontaneously flammable natural element that burns to form solid particles of phosphorus pentoxide in the air (smoke) (Ref. 35). The phosphorus pentoxide then reacts with moisture in the air to form phosphoric acid. CN is a riot control agent with lachrymatory properties (tear gas), that is a potent eye, throat and skin irritant (Ref. 36).

It is highly unlikely that large quantities of chemical warfare ammunition were stockpiled and stored at Camp Dodge for use in training exercises. More likely, these materials were specifically requisitioned by the 7th Corps training officers and brought to each individual training site for demonstration purposes.

If excess chemical warfare materials were disposed at Camp Dodge, they may have been disposed near their point of use at the Gas Instruction House. However, there is no basis to suspect this occurred. Inspection of the Gas Instruction House area has revealed no reports of contamination (Ref. 32). Furthermore, the former location of the Gas Instruction House is no longer identifiable at Camp Dodge.

Likelihood to Release

Based on the available information regarding the types and uses of chemical warfare materials at Camp Dodge, there is no basis to conclude that hazardous substances associated with these materials are present in the vicinity of the Gas Instruction House. Therefore, the likelihood of contaminants to release to the environment at this location was not evaluated.

SECTION 6

WASTE CHARACTERISTICS AND LIKELIHOOD OF RELEASE: POST-WWII HISTORICAL SITES

Four PA sites are included in this grouping: 1) Demolition Pit, 2) former Wastewater Treatment Plant (WWTP), 3) town of Herrold, and 4) Monitoring well P-10. Each of these sites are associated with activities occurring at Camp Dodge since WWII (post-1940s).

DEMOLITION PIT

Location and Setting

The Demolition (Demo) Pit is located approximately 225 feet north of the LAW Range Landfill in the southwestern portion of the Camp Dodge facility (Figure 3-1). The Demo Pit consists of a bermed area of soils (berm height estimated at 6 feet) that is surrounded by a locked gate and fence. The entire area is approximately 160 feet square. A layout of the Demo Pit area is shown in Figure 6-1. Photographs of the Demo Pit area are provided in Appendix B.

Inside the Demo Pit, most of the bottom was loose sand and fill that could be used for burying demolition materials prior to detonation (Ref. 37). Guard personnel would add excess sand and fill to the bottom of the pit as needed to provide for additional fill material. At some point during the Demo Pit operation, a large concrete slab was added to the bottom of the pit to offer a platform for placement of materials prior to detonation. The slab was estimated to be 4 feet by 8 feet and up to 2 feet thick (Ref. 37). In some areas, craters in the bottom of the Demo Pit were filled with water, suggesting that part of the bottom of the pit was located at or near the water table (Ref. 37).

The Demo Pit area is heavily vegetated with grasses, and a dense growth of trees and brush located about 80 feet west and north of the bermed area. Abundant poison ivy is located around the northwest corner of the berms. The slope of the land surface trends to the west and north toward a low area and possible wetland (Appendix B; Figure 6-1).

Site History

The Demo Pit was constructed in the early 1970s (1971 or 1972) in response to a series of bombings that had occurred in Des Moines about that time and was used at the site from 1972 to 1990 (Refs. 20, 37). The area was built by initially excavating a large hole and then building the berms around the area (Ref. 20). The Demo Pit was used primarily by IA ARNG personnel for explosives training, although the City of Des Moines Police Department also reported use of the area to detonate bombs gathered by the bomb squad. It was estimated that the Demo Pit was used a maximum of 20 times per year (Ref. 20).

According to the City of Des Moines Police Department, they used the Demo Pit for emergency disposal about two to three times per year (Ref. 37). In addition, twice a year, in the spring and fall, they would use the pit for detonation of materials collected throughout the year, including fireworks, small caliber ammunition, range materials from the Camp Dodge firing range, and

other explosive materials (Ref. 37). The City of Des Moines apparently had an agreement with the IA ARNG to detonate surplus range materials from the firing range, including military simulators, subcaliber ammunition and spotting charges (Ref. 37).

Waste Characteristics

The exact dimensions of the inside bottom of the Demo Pit are unknown at this time. For purposes of this PA, the inside surface bottom dimensions are estimated to be 80 feet by 80 feet. If the loose sand and fill comprising the bottom of the pit are considered a potential source of contamination, and estimated to be 2 feet thick, the volume of contaminated material at the Demo Pit would be approximately 474 cu yd.

Based on a telephone conversation with Lt. Leonard Murray of the City of Des Moines Police Department, the following types of materials were detonated at the Demo Pit (Ref. 34):

- Fireworks - Class C.
- C-4 explosives.
- TNT.
- Claymore mines.
- Hand grenades.
- Small caliper ammunition.
- Old tear gas canisters.
- Smoke grenades.
- Ammonia nitrate fertilizer.
- Range cleanup materials (military simulators, subcaliber ammunition, spotting charges, etc.).

Potential contaminants associated with explosives materials include nitroaromatics and nitroamines. The following list of compounds is typically analyzed by EPA Method 8330 at munitions sites (Ref. 38):

- MMX
- RDX
- 1,3,5-Trinitrobenzene
- 1,3-Dinitrobenzene
- Tetryl
- Nitrobenzene
- 2,4,6-Trinitrotoluene
- 4-Amino-2,6-Dintrotoluene
- 2-Amino-2,6-Dintrotoluene
- 2,6- Dintrotoluene
- 2,4- Dintrotoluene
- 2-Nitrotoluene
- 4-Nitrotoluene
- 5-Nitrotoluene
- Nitroglycerin
- PETW

Likelihood of Release

Groundwater. Explosive materials were detonated at the bottom of the Demo Pit either in a medium consisting of loose sand or fill, or on a concrete slab. It was also recalled by Lt. Murray that holes or craters created by the exploded ordnance occasionally filled with water, which suggests that the bottom of the pit was in close association with the water table (Ref. 37). Based on how the pit was constructed, there would not appear to be subsurface containment provided at the pit (Ref. 20). It is unlikely that the area was covered or capped when use of the site was discontinued. Because of the high permeabilities of the underlying loose sand and fill at the bottom of the pit, and the high hydraulic conductivity of the underlying aquifer, it is possible that contaminants could migrate into groundwater at the Demo Pit and be rapidly transported downgradient of the site to areas of discharge. Groundwater flow at the Demo Pit is likely to the west-northwest toward the low area which forms the northwest boundary of the site area (Figure 6-1).

Potential contaminants at the Demo Pit consist of predominantly nitroaromatics and nitroamines associated with explosives materials. These types of contaminants are not particularly mobile and would tend to bind with organic and clay particles present in the soils. However, due to the fact that the bottom of the pit was at or near the water table, the contaminants could have had direct access to groundwater and become mobile. At other sites, there is evidence to suggest that nitroaromatics may be biodegradable in aerobic aquifers (such as the shallow sand and gravel at Camp Dodge) (Ref. 39).

Surface Water. The Demo Pit area is completely surrounded by a 6-foot berm which would prevent surface water runoff at the site. Precipitation landing on the inside surface of the berm would flow inward and infiltrate into the bottom of the pit area. Like the LAW Range Landfill site, the Demo Pit is located on the 100-year floodplain of Beaver Creek and was probably flooded during the 1993 flood event. The nearest surface water body to the Demo Pit is Beaver Creek located 800 feet west of the site, although the low area north and west of the site may contain standing surface water.

Soils. Soils at the bottom of the Demo Pit are not believed to be covered with more than 2 feet of material or an impermeable cover. However, the potential for direct contact exposure to contaminated soils would be limited. The Demo Pit area is completely surrounded by a berm and a locked fence and gate.

Air. Because the Demo Pit area is surrounded by a large berm, the potential for air releases from the area would be remote. There have been no reports of detected releases to air associated with the Demo Pit and odors were not detected during the site visit.

FORMER WASTEWATER TREATMENT PLANT

Location and Setting

The Wastewater Treatment Plant (WWTP) for the Camp Dodge facility was located in the southwestern portion of installation, approximately 1,500 feet west of the cantonment area. The location of the former WWTP at the site is shown on the 1976 topographic map of Camp Dodge (Ref. 3). In the mid-1980s, the former WWTP was dismantled and there is currently no evidence of the former plant at the site. Currently, the grounds of the former WWTP are used for a vehicle storage and cannibalization area. The location of the former WWTP in relation to the existing site usage is shown in Figure 6-2. The position of the former plant in relation to existing structures was determined primarily based on an aerial photograph from 1961 (Ref. 25) and the location of the former WWTP relative to the eastern row of evergreen trees and other vegetation landmarks. Because the locations of roads and buildings in the area have changed substantially in the last decade since the plant was dismantled, other landmarks were not available to pinpoint the location of the facility in the area.

The former WWTP location is situated on a relatively flat parcel of ground adjacent to a small drainage ditch (Figure 6-2; Appendix B). Part of the WWTP site is now associated with the Combined Support Maintenance Shop (CSMS) cannibalization area and is fenced and under gravel and concrete, whereas the remainder of the site area is open. The open area north and west of the fenced area is covered by mowed grass. This open area is bounded to the west by dense weeds and trees and to the north by a small drainage ditch (Figure 6-2). The mowed

grassy area slopes slightly to the north in the direction of the drainage ditch, and to the west in the western portion of the site. The drainage ditch is approximately 5 to 10 feet wide in many places and ranges from 2 to 4 feet in depth.

Site History

The WWTP was constructed in the 1930s and consisted of five main structures: 1) pump station, 2) primary clarifier, 3) filters, 4) sludge digester, and 5) sludge drying beds. The location and orientation of the structures are shown in Figure 6-2. Information regarding the layout and dimensions of the plant are provided in the 1942 "Survey of Camp Dodge to Determine the Present Condition of the Premises for Transfer from the State of Iowa to the USA" (Ref. 40).

Raw sewage from Camp Dodge was gravity piped to the WWTP through a 12-inch line which entered the pump station. From the pump station, the sewage was pumped into the primary clarifier and the solids and liquids were separated. The liquids were piped into a series of two filters, a smaller filter 18 feet in diameter, and a large filter 40 feet in diameter. Water from the filters was then pumped through an 8-inch force main to the final clarifier located approximately 800 feet to the east. Solids separated at the primary clarifier were pumped to a sludge digester for sludge decomposition. The sludge digester was 30 feet in diameter, 21 feet tall, and partially buried in the ground. Construction diagrams indicate that the lower 12 feet of the digester were buried in the ground (Ref. 40).

The sludge was then piped to the sludge drying beds for drying with the liquid draining from the sludge pumped back to the filter unit. Original blueprints show the sludge drying beds to be 20 feet wide and 40 feet long (Ref. 40); however, the beds may have been expanded at a later date because the 1961 aerial photograph shows the drying beds to be approximately 80 feet long (Ref. 22). Sludge that was dried in the sludge drying beds was periodically excavated and disposed at various unknown locations around the base. The drying beds were constructed with a sand and gravel base in order to promote drainage of the liquids. The thickness of the entire drying bed was approximately 3 feet (Ref. 40).

Liquids pumped to the final clarifier were treated and discharged at an outfall to the Des Moines River. Effluent from the WWTP was gravity fed from the final clarifier and discharged to the Des Moines River approximately 2.5 miles south and east of the Camp Dodge base (Ref. 41). The outfall point was located on the Des Moines River approximately 1,500 feet northwest of the intersection of Beaver Road and NW 66th Avenue.

The WWTP was used at Camp Dodge from approximately 1935 to 1989 (Ref. 41). When the plant was dismantled in 1989, the pump station, primary clarifier, filters and sludge digester were demolished, and the structures pushed in on themselves. The site area was then plowed over and leveled (Ref. 41).

Waste Characteristics

During its period of operation, solid and liquid wastes from the Camp Dodge facility were piped to the WWTP for treatment and disposal. Organic wastes present in the solid and liquid wastestreams were treated by biological processes in the filters and sludge digester. The aerobic and anaerobic processes would have degraded the organic wastes and left behind little in the way

of organic contaminants. Liquid wastes were then further treated at the final clarifier and discharged to the Des Moines River. Residual contaminants associated with liquid treatment at the treatment plant are probably not present at the site today.

Nonorganic wastes sent to the WWTP would not have been treated by the biological treatment processes. Whereas organic wastes would have been destroyed by the treatment process, the nonorganic wastes would have formed the waste residuals left behind after the treatment process. Sludge containing these wastes would have been concentrated in the digester and spread in the drying beds. When the treatment plant was dismantled, the waste residuals were likely buried *in situ* or transported to another area of the facility for disposal.

Based on the dimensions of the sludge digester (diameter of 30 feet), and assuming that sludge materials were present in the digester to a level equal to the ground surface (depth of about 12 feet), the amount of sludge residuals remaining in the digester could be as high as 8,482 cu ft (314 cu yd). From the dimensions of the sludge drying beds (80 feet long, 20 feet wide and 3 feet deep), approximately 4,800 cu ft (171 cu yd) of waste residuals could be remaining in the sludge drying beds.

Potential contaminants at the former WWTP would be associated with the burial of residual WWTP sludge, including heavy metals and other inorganics. Heavy metals could include metals such as arsenic, barium, cadmium, chromium, lead, nickel and zinc. Other inorganics could include concentrations of major (calcium, magnesium, chloride, sulfate, etc.) and minor inorganics (iron, manganese, nitrogen, potassium, etc.) and trace metals.

Likelihood to Release

Groundwater. Wastes remaining at the former WWTP were probably associated with the digester or sludge drying beds. Residual wastes remaining in the digester would have had the concrete bottom of the digester to provide some subsurface containment. However, depending on how the digester was dismantled, the subsurface piping from the digester to the sludge drying beds could have provided a conduit for the digester wastes to release to groundwater.

On the other hand, the sludge drying beds were not constructed with concrete subsurface containment. The beds were constructed with a drainage layer of gravel and piping beneath the beds which directed water drained from the beds back to the filters (Ref. 40). It is unknown how the beds were removed when the WWTP was dismantled and whether the drainage layer beneath the bed is still intact. During operation of the sludge drying beds, contaminants leached through the sludge and into the subsurface drainage system. Although percolating water through the drainage layer would have moved most of the contaminants back to the filter, some residual contaminants probably entered the soils immediately below the drainage layer.

Based on the topography and elevation of nearby standing surface water, the depth to the shallow aquifer is likely less than 10 feet in the area. The cover soil placed over the area is of unknown thickness and consists of very sandy loam. The soil cover would promote rapid infiltration of precipitation. Permeabilities of the underlying aquifer are very high and can range up to nearly 300 feet/day (Ref. 27). Contaminants migrating into groundwater would be expected to be rapidly transported downgradient of the site to areas of discharge.

Potential contaminants at the former WWTP would consist mainly of heavy metals which would have been concentrated in the digester sludge and sludge drying beds. Metals are not particularly mobile in groundwater and tend to bind with soils. Some heavy metals in their reduced form can be mobile in groundwater systems.

Most residual sludge associated with the digester and beds was removed during active use of the WWTP and spread at various locations around the Camp Dodge facility. Therefore, the quantity of residual wastes remaining at the former WWTP would be limited.

Surface Water. Due to the low relief of the former WWTP area, there would be little potential for surface water runoff at the site. There is a slight slope on the northern border of the location (less than 3 to 5 feet) toward a small drainage ditch (Figure 6-2). Most of the site area is covered by gravel and concrete associated with the CSMS area, or covered by grassy vegetation. In some isolated areas of the grass, small areas of bare ground (less than 6 inches) were observed. No areas of distressed vegetation, discolored soils or foundation debris were observed which could have identified the precise locations of the WWTP buildings.

West of the WWTP area, the drainage ditch which joins a grass waterway may provide the primary surface water migration pathway from the site. Because the site is covered by very sandy soils, most rainfall would infiltrate into the soils rather than runoff; the potential to generate runoff from the site would only occur during large storm events. The nearest surface water body to the former WWTP is Beaver Creek located 3,000 feet west of the site. The site is located above the 100-year floodplain of Beaver Creek.

Soils. The former WWTP site is covered with a layer of sandy soil of unknown thickness, although the cover is not likely to be greater than 2 feet thick. Over most of the WWTP area, the soils are covered by the fenced CSMS area or vegetated by weeds and grasses. Any residual wastes remaining at the former WWTP are likely covered by the vegetated soils or gravel parking areas. Potential site contaminants, consisting primarily of heavy metals, would tend to adhere to site soils and become relatively immobile.

Air. There have been no reports of detected releases to air associated with former WWTP area and odors were not detected during the site visit. Because the site area is vegetated and covered by soils, generation of airborne dust or vapors resulting from wind erosion would be limited. Prevailing winds from the north and west are also blocked by trees which form the northern and western site boundaries.

MONITORING WELL P-10

Location and Setting

Monitoring well P-10 is located in the northwestern area of the Camp Dodge training grounds, approximately 3/4 mile northwest of the town of Herrold (Figure 3-1). The monitoring well was installed by the IDNR-GSB as part of their detailed mapping study at Camp Dodge. The purpose of the mapping program is to develop a series of overlying GIS coverage maps for the facility which can be used to characterize the upper five meters of materials and groundwater resources at a glance (Ref. 42). Piezometer P-10 is situated on top of small hill approximately 105 feet

north of a dirt road. A layout map of the monitoring well location is presented in Figure 6-3, with a photograph presented in Appendix B.

The monitoring well was installed to a depth of 6.45 meters (m) (21.2 feet) and screened from 5.65 m to 6.25 m (18.5 feet to 20.5 feet) (Appendix A). The soil stratigraphy at P-10 consists of approximately 3.6 feet of gray-brown sandy loam material overlying 4.8 feet of light olive-brown silt loam and 12.8 feet of pale olive to dark gray sandy loam diamicton. Water levels measured at P-10 eight times between November 1996 and July 1997 showed the water level in the monitoring well fluctuating between 9.1 feet and 4.3 feet below ground surface.

Site History

Monitoring well P-10 was installed at Camp Dodge in October 1996. After it was installed, a "paint-like" odor was noted in the head space of the well during subsequent water level measurement activities (Ref. 42). On July 25, 1997 a Teflon® bailer was used to purge and sample groundwater from the well. The well was initially bailed dry and then allowed to recover sufficiently before a groundwater sample was collected. The water sample was submitted to Keystone Laboratories, Inc. (Keystone) in Newton, Iowa for analyses of VOCs according to EPA Method 8260. The only VOC that was detected in groundwater from the well was acetone, which was found at a concentration of 624 µg/L (Ref. 43). A copy of the laboratory analytical report is provided in Appendix D.

Waste Characteristics

Acetone, which was the only VOC detected in a groundwater sample collected from P-10, is a colorless, volatile liquid with a sweet, pleasant odor. It is used industrially as an intermediate for chemicals, paint, varnish, sealants, adhesives, nail polish remover and lacquer solvent, and to dissolve gums, resins, nitorcellulose and other substances (Ref. 44). Volatilization from soil and leaching through groundwater are the major transport routes associated with acetone. It exists exclusively in the vapor phase in air and has a half life on the order of days. Acetone is completely miscible in water and tends not to adsorb to soil or sediment particles (Ref. 44).

The areal extent of acetone impacts in the vicinity of P-10 are unknown. It is also unknown whether acetone, a highly soluble chemical with a very low retardation factor, is the first chemical to arrive at the P-10 location from an upgradient position and may be part of a larger suite of contaminants present nearby.

Likelihood to Release

Groundwater. Data from P-10 indicates that a release to groundwater has occurred. The horizontal or vertical extent of groundwater impacts has not been determined at the well location.

Surface Water. Surface water drainage in the vicinity of P-10 slopes to the north and west toward an intermittent creek. The intermittent creek flows southward toward discharge to Beaver Creek located approximately 3,000 feet to the south (Figure 3-1). The area around P-10 is

heavily vegetated by native grasses which would reduce the occurrence of overland runoff in the area.

Soil and Air. Because the waste at P-10 is associated with groundwater, there would not be potential for soil contamination or air impacts to occur. The area is covered by native soils and vegetation which would prevent direct contact access to the contamination.

TOWN OF HERROLD

Location and Setting

The unincorporated town of Herrold is located approximately 1.2 miles northwest of the Camp Dodge cantonment area (Figure 3-1). The town is a 5.9-acre plot that is completely surrounded by the Camp Dodge training grounds and located on NW 88th Avenue. Currently, the town of Herrold is completely abandoned and used for National Guard training or training by the Iowa Law Enforcement Academy. Access to the town is by permit only from the Camp Dodge Security office. The town is bounded by three gravel roads: NW 88th Avenue to the north, Salenrno Road to the east, and Elbe River Road trending northwest-southeast (Figure 6-4). (Note: The identification of roads in the town of Herrold has changed over the years. In 1917, the town roads were named as follows: Elbe River Road = Main Street; NW 88th Avenue = Beck Street; Salenrno Road = Eastern Avenue; and Cassino Circle = Mitchell Street.)

A layout map of the town of Herrold as it exists today is provided in Figure 6-4. The town consists of five former houses, two garages, one maintenance garage, and one two-story concrete building (Figure 6-4). Concrete foundation slabs for two other structures and the former grain elevator location were also identified. Four large grain silos were located in close proximity to the former grain elevator. All of the buildings are boarded up to prevent unauthorized access. The Iowa Law Enforcement Academy maintains the recent concrete building for training purposes. In addition, they also use several of the boarded up houses for SWAT training.

Several other buildings are located in the immediate vicinity of the central town of Herrold (Figure 6-4). These include a former schoolhouse (later turned into apartments) located west of the town, a boarded up house, and an old ordnance building remaining from the WWI period. The latter two structures are located northeast of the town of Herrold as shown in Figure 6-4. Also, the Iowa Law Enforcement Academy maintains several two-dimensional structures and pop-up targets for training purposes located southwest of the town of Herrold.

Site History

The unincorporated town of Herrold was founded by Mert Herrold in 1915 or 1916 (Refs. 45, 46). By 1917, the town streets and general size were established (Ref. 4). During the WWI buildup, the town was bordered to the north by the base hospital, to the south and west by railroad spurs, and the east by Ordnance Road and ammunition buildings (Ref. 5). Little is known regarding the town of Herrold during this period.

During the 1920s, 30s and 40s, the town of Herrold apparently bustled around a railroad, mining and agriculture economy. Former residents remember a post office, a hotel, a grain elevator, a

blacksmith, a railroad stockyard, and a powder house that thrived during the coal-mining years of nearby Scandia Mine No. 8 (Refs. 45, 46). (Note: This mine is probably the same mine referred to as the Norwood-White Coal Co. Mine No. 8 that operated between 1922 to 1943; see Ref. 14). The powder house, also known as the ordnance building, is still standing on the Camp Dodge grounds east of the town. However, this structure may not be at its original location, possibly being moved by Camp Dodge maintenance personnel during the last few years (Ref. 20).

The Interurban railroad ran along the western side of Herrold between the cities of Perry and Des Moines. The tracks no longer remain at the site although their path is marked by a gap among the trees. The tracks were pulled in 1981 (Ref. 45).

After the 1940s, and up until the town was acquired by the U.S. Army Corps of Engineers (USACE) in the late 1980s, the town of Herrold was home to a small number of people and few businesses. In 1982, the population of Herrold was 27 (Ref. 45). A Conoco filling station formerly occupied the corner of NW 88th Street and Elbe River Road (Figure 6-4). This station was later purchased for use as a storage building (Ref. 45). Along the south side of town, southwest of the former gas station, a grain elevator and county maintenance garage were located (Figure 6-4). The elevator burned down in 1979 (Ref. 45) and is currently marked by the location of three grain bins and a former building foundation. The former county maintenance garage appears to be used to this day for storage of equipment and road maintenance supplies (i.e., culverts, sand, salt, etc.).

In May 1991, an underground fuel tank at the former county maintenance garage was removed from the south side of the building (Ref. 47). Visible soil contamination was observed following removal of the UST; subsequently, the soils in the immediate vicinity of the UST were over-excavated and soil and groundwater samples were obtained for analysis. Contaminant levels detected in soils were significantly below applicable IDNR regulations (highest total petroleum hydrocarbons [TPH] detected was 45 mg/kg). No BTEX contaminants were detected in a soil boring groundwater sample (Ref. 47).

In August 1991, additional soil and groundwater sampling at the former county shed was conducted by the IA ARNG (Ref. 48). Two soil borings were advanced to a depth of 15 feet in the vicinity of the former UST. Soil and groundwater samples obtained from the soil borings did not contain detectable concentrations of TPH or BTEX (Ref. 48).

In 1993, the IA ARNG commissioned Veenstra and Kimm, Inc. to investigate the area around the town of Herrold to locate and inventory all underground utilities, including septic tanks, cisterns and wells (Ref. 49). A total of 25 facilities were located during the facility inventory, including ten wells, seven septic tanks, and seven cisterns (Ref. 49). All of the wells were approximately 40 to 50 feet deep (Refs. 49, 50). The wells and other underground facilities supported houses in the town of Herrold. In 1993, all of the wells, septic tanks, and cisterns were closed by Rewerts Well Company in accordance with Chapter 39 of the Iowa Administrative Code (IAC) (Ref. 50).

Currently, there are five remaining houses located in Herrold and two garages (Figure 6-4). Concrete foundation slabs were observed marking the locations of two other structures formerly located in the town. One new structure is the two-story concrete block building located in the northwest corner of town. This structure is located immediately east of the former gas station location (Appendix B). None of the structures are occupied.

Waste Characteristics

Wastes disposed at the town of Herrold include miscellaneous spills, tanks or debris left behind after the town was purchased by the USACE. Potential sources of contamination would be located in areas where contaminants were used or handled. At the town of Herrold, this would include the former gas station, the county garage, the grain elevator, and the ordnance building (powder house).

EM31 Survey. To determine whether USTs were remaining at the gas station and county garage, an EM31 geophysical survey was conducted at each area (see Figure 6-4). The Geonics EM-31 ground conductivity meter is a one-man portable unit that consists of a transmitter coil and receiver coil linearly oriented at a fixed spacing of 3.6 meters (approximately 12 feet). The effective depth of exploration with the EM-31 is 6 meters (approximately 18 feet). In addition to direct readings of terrain conductivity, the unit can also be utilized for the detection of buried metallic objects with a secondarily induced magnetic phase component (inphase component). Both ground conductivity and inphase values at each measurement station are measured and recorded. A photograph of the operation of the EM31 is presented in Appendix B.

The results of the EM31 survey at the former gas station location are shown in Figures 6-5 and 6-6. The results indicated two areas of subsurface anomalies. One anomaly, identified in the central portion of the site, was approximately 10 feet in diameter that indicated conductivity and inphase readings above background. At this anomaly, the readings showed elevated conductivity and inphase readings in a north-south orientation (66 m/s and 6.50 parts per trillion [ppt], respectively) and much lower readings in an east-west orientation (25 m/s and -7.3 ppt). The origin of this anomaly is not known but may be associated with underground piping or other subsurface structure (possibly a septic tank).

A second and much larger anomaly was identified in the northwestern corner of the lot (Figure 6-6). At this location, inphase readings rapidly went off-scale negative when the instrument was passed over it. Conductivity readings did not fluctuate to significant degree over the disturbance. The area of subsurface disturbance was mapped at the site to be approximately 9 feet north-south by 7.5 feet east-west. Based on the large inphase deflection of the EM31, it is likely that the subsurface anomaly is associated with buried metal. Given the former use of the property as a gas station, it is probable that the underground metal structure is a UST.

The EM31 survey conducted around the county garage did not reveal any subsurface disturbances indicative of buried metal or debris. High conductivity values were identified in the southern portion of the survey area, most likely due to storage and leaching of salt in the area.

Former Gas Station. Contaminants present in the vicinity of the possible UST at the former gas station site would consist primarily of petroleum hydrocarbons, including TPH and BTEX. If the UST has leaked, the area of petroleum contamination in the vicinity of the tank could be on the order of 10 cu yd of soil. Groundwater near the UST could also be impacted with BTEX constituents. Because the contaminants would not be contained at the source area, it is possible that the area of contamination could be larger.

County Garage. Petroleum contamination at the county garage was addressed by soil removal actions conducted in 1991 (Ref. 47). Soil and groundwater confirmation sampling results from

two soil borings installed in the area did not detect contamination (Ref. 48). No other USTs or buried materials were identified in the county garage area from the geophysical reconnaissance. Therefore, if residual fuel-related contamination were located at the garage area, it would be at concentrations less than State of Iowa action levels.

Grain Elevator. It is not known what types of agricultural activities occurred at the former grain elevator during its period of operation. If herbicides or pesticides were stored at the facility, these could have leached into soil or groundwater in the area. In particular, these contaminants could have been mobilized during the fire that destroyed the elevator in or around 1979. If the elevator was used strictly for corn storage, it is possible that grain fumigants were used during storage. Grain fumigants may include chemicals such as carbon tetrachloride or chloroform. Any contaminants present at the grain elevator may have migrated into soil or groundwater at the site. The total area of potential impact of these chemicals is estimated to be 500 sq ft.

Ordnance Building. Gun powders and explosives were likely stored in the ordnance building. The building was constructed in 1917 as part of a larger ordnance depot areas for the Camp Dodge base. The depot area and ordnance building were accessed by a railroad spur and road called "Ordnance Road" (Ref. 5). Remains of the former Ordnance Road exist at the site today. A layout of the ordnance building is shown in Figure 6-7. A photograph of the building is presented in Appendix B. The building is constructed of reinforced concrete walls and a concrete foundation, and is approximately 20 feet wide by 25 feet long (Figure 6-7). A loading dock platform is located on the south side of the building. There is currently no evidence of former ordnance storage activities in the building, and reports indicated that the building was moved from its original location (Ref. 20). Therefore, in the unlikely event that contaminants were released from the ordnance building area, it would be further unlikely that the point of release could be accurately identified. Currently, the area around the ordnance building consists of grasses and cropland.

Likelihood to Release

Groundwater. Groundwater encountered at the town of Herrold would be relatively shallow (less than 10 feet). The soil cover consists primarily of silty to sandy loam which would promote rapid infiltration of precipitation. The first available aquifer in the area for water supply is probably located at a depth of approximately 40 to 50 feet. This depth corresponds to the depth of the town of Herrold wells that were abandoned in 1993 (Ref. 50).

There is potential for contaminants to release to shallow groundwater at the former gas station location and the grain elevator, if chemicals were used at the grain elevator location. Assuming that the EM31 anomaly identified in the northwest corner of the gas station plot is associated with a leaking UST, it is likely that soils in this area are impacted with fuel-related hydrocarbons, including BTEX and total extractable hydrocarbons (TEH). Due to the shallow depth to groundwater in the area (less than 10 feet) and the lack of containment at the bottom of the tank, any release to soils has the potential to impact groundwater. Petroleum hydrocarbons from a leaking UST can be mobile in groundwater; however, these types of contaminants can be highly susceptible to natural bioattenuation under most circumstances.

If chemicals were used or stored at the grain elevator location, there would be potential for contaminants to migrate to groundwater. These chemicals could have become mobilized either during routine handling of the chemicals, or during the fire that destroyed the building. The upper soils are generally permeable and could promote rapid migration of contaminants to groundwater. Agricultural chemicals or volatile grain fumigants can be highly mobile in groundwater.

Groundwater samples collected at the county garage in 1991 indicated that groundwater has not been impacted at this location. Any residual contaminants remaining in soils in this area would not be a threat to release to groundwater.

At the ordnance building, any release of chemicals to the surrounding soils near the building would be limited in scope and not pose a threat to migrate to groundwater.

Surface Water. The town of Herrold is located on a relatively flat upland plateau area that exhibits very low relief. Therefore, there would be little potential for surface water runoff in the town. There is a slight slope of the land surface to the south and southwest, although the steepest slopes are located west of the former railroad right-of-way (Figure 6-4). Most of the town is covered by grassy vegetation or covered by gravel and concrete associated with the roadway areas or former structures. No areas of distressed vegetation or discolored soils were observed during the site visit.

Because the site is covered by silty and sandy loam soils, most rainfall would infiltrate into the soils rather than runoff. The potential to generate runoff in the town would only occur during large storm events. The nearest surface water body to the town of Herrold is Beaver Creek located 1,800 feet southwest of the town.

Soils. Most of the town of Herrold is covered by soils vegetated by weeds and grasses. Other open areas consist of crushed gravel and dirt paths associated with roadways or former building structures. No areas of distressed vegetation or discolored soils were observed during the site visit.

Currently, the town of Herrold is completely abandoned and used for National Guard training or training by the Iowa Law Enforcement Academy. Training periods occur on an occasional basis and may disturb the soil cover at the site.

Air. There have been no reports of detected releases to air associated with former Herrold area and odors were not detected during the site visit. Because the site area is vegetated and covered by soils, generation of airborne dust or vapors resulting from wind erosion would be limited. Prevailing winds from the north and west are also blocked by trees and other structures in the area.

SECTION 7
WASTE CHARACTERISTICS AND LIKELIHOOD OF RELEASE: SOUTH CANTONMENT AREA

Three PA sites located in the southern portion of the cantonment area at Camp Dodge include 1) Container Storage Area; 2) Fuel Product Pipeline; and 3) Former Leach Bed. These sites were retained for PA evaluation from Section 3, based on the fact that releases to the environment have been observed at these locations. All three of the sites have been addressed by recent investigation and sampling activities. The locations of the sites in the south cantonment area are shown in Figure 7-1. Photographs of the sites are provided in Appendix B.

CONTAINER STORAGE AREA

Location and Setting

The Container Storage Area is located in an alleyway between buildings S-3 and S-4 (currently both buildings are designated as building S-4). The location of the S-3, S-4 alley within the cantonment area is shown in Figure 7-1. The alley sets in the south-central portion of the cantonment area and is surrounded by other buildings, paved parking areas and roadways. The land surface is primarily flat in the area with a slight slope to the southwest.

Site History

Buildings S-3 and S-4 were constructed in approximately 1930, probably during the facility buildup that occurred in the 1920s and 1930s. The 1942 survey maps of Camp Dodge show the two buildings in their present location (Ref. 40). The buildings were identified in 1942 as being used for a garage (S-3) and transportation building (S-4) (Ref. 40). In a 1961 aerial photograph, Buildings S-3 and S-4, along with Building S-5, comprised the major center of truck maintenance activity at the base. The area is surrounded by car and truck parking and appears to be associated with a major focus of activity. Currently, the buildings are used for truck maintenance activities.

The alleyway between S-3 and S-4 is comprised of three separate sites that have been grouped together for purposes of this PA. Each "subsite" has been the subject of individual investigation and remediation activities since 1992. The three sites contained in the Container Storage Area consist of: 1) Container Storage Area; 2) UST area; and 3) north S-3, S-4 alley. The locations of the three subsites in the S-3 and S-4 alleyway is shown in Figure 7-2. The site history and investigation results of each are described below.

Container Storage Area. The Container Storage Area is located at the northern half of the alley between Buildings S-3 and S-4. In 1989, an EPA inspection of the Camp Dodge facility identified drums of sodium hydroxide and waste battery fluid that were present on the northern 35 feet of the concrete pad for a period longer than 90 days. In September 1992, soil samples collected beneath the concrete pad during initial closure sampling were found to exceed soil closure performance standards for lead. Soil samples collected from six locations at the Container Storage Area in June 1993 (Figure 7-2) indicated that lead contamination above closure standards did not exceed a depth of 3 feet below ground surface (Ref. 51).

Between July 21-23, 1993, the concrete pad overlying the contaminated soil was removed. In addition, the upper 3 feet of soil in the northern 35 feet of the concrete pad was excavated and disposed at the Browing Ferris Industries Landfill in Milan, Illinois. After the soil was removed, the excavation was backfilled with clean gravel. Also in July 1993, the entire concrete pad between Buildings S-3 and S-4 was removed and replaced with 6 inches of reinforced concrete (Ref. 51).

S-4 USTs. During the same time as the closure plan for the Container Storage Area was implemented, two USTs were removed from the alley between Buildings S-3 and S-4. The locations of the former USTs are shown on Figure 7-2. One tank was a 1,000-gallon kerosene tank and the second tank was a 2,000-gallon heating oil tank. The tanks were neutralized, drained, removed and transported off site for metal salvage. Excess fluids were processed through Hauf Oil Company in Saylorville, Iowa, and excavated soil (down to a depth of 12 feet) was disposed at the Browing Ferris Industries Landfill in Milan, Illinois. The excavation was backfilled with clean gravel and fill sand (Ref. 52).

Four soil samples and one groundwater sample were collected and analyzed as part of closure activities (Figure 7-2). TEH were not detected in soil samples collected beneath either tank, and BTEX constituents were also not found below the Kerosene tank (Ref. 53). In the groundwater sample collected approximately 18 feet downgradient to the southwest, the following constituents were detected (Ref. 53):

Constituent	Concentration (µg/L)
Benzene	5
Toluene	2
Ethylbenzene	10
Xylene	29
TEH	239

Based on the report of findings, the IDNR concluded that no further action associated with the two USTs was required (Ref. 54).

North S-3, S-4 Alley. On May 28, 1996, a contractor was removing concrete from the northern portion of the S-3, S-4 alley as part of sanitary and storm sewer replacement project. During the excavation, stained soils and petroleum odors were observed. The excavation was approximately 25 feet wide and 100 feet long when two noticeably stained areas and other smaller areas were identified. The stains were believed to be the result of a spill which occurred many years ago because the stains were located beneath concrete which was severely aged (Ref. 55). At this point in the excavation, activities were stopped for collection of soil and groundwater samples.

On May 29, 1996, three soil samples were collected from the walls of the excavation and a shallow hole near the excavation, and analyzed for various constituents (sample S-1 was analyzed for BTEX, TPH, THE, VOCs, SVOCs and metals). The sampling locations are shown in Figure 7-2. Xylenes, TPH and TEH were detected in two soil samples at concentrations ranging up to 14 µg/g, 270 µg/g and 310 µg/g, respectively. Other VOCs detected in soils included 1,2,3-trimethylbenzene (3,140 µg/g), isopropyltoluene (1,330 µg/g), butylbenzene

(695 µg/g) and 1,1,2,2-tetrachloroethane (469 µg/g). SVOCs were not detected in soils, and metals were found at typical background levels (Ref. 56).

One groundwater sample was collected from a sump well (Figure 7-2). Laboratory results indicated the presence of low concentrations of VOCs (less than 3.3 µg/L), including n-butylbenzene, 1,2-dichlorobenzene, p-isopropyltoluene, naphthalene and 1,2,4-trimethylbenzene. None of the constituents exceeded Maximum Contaminant Levels (MCLs). SVOCs were not detected in groundwater and metals were found at typical background levels (Ref. 56).

At the conclusion of the sewer construction activities, excavated soils were land applied at the Camp Dodge facility in accordance with IDNR regulations. Approximately 960 cu yd of soil were taken to the 20-acre application site, spread over the site, and disked (Ref. 57).

Waste Characteristics

The type of waste source at the Container Storage Area would be considered contaminated soil in accordance with PA guidance (Ref. 1). The volume of contaminated soil present in the area can be approximated by evaluating the area of potential impact. The area of the south alleyway (containing the Container Storage and UST areas) is 85 feet long by 16 feet wide (1,360 sq ft) (Ref. 53). In the north S-3, S-4 alleyway, the area of impacted soils was approximately 20 feet wide by 40 feet long (800 sq ft). However, the area and volume of impacted soils in both areas was significantly reduced by excavation activities. In the Container Storage Area, approximately 62 cu yd of soil was excavated and removed from the site (Ref. 51). At the UST area, approximately 350 cu yd of soil was removed (Ref. 53), and at the north alley area, nearly 210 cu yd of soil was removed (Ref. 56).

Because of the excavation and soil removal activities implemented at the Container Storage Area, UST area and S-3, S-4 alley area, the volume and concentrations of residual contaminants in soils would be expected to be low. The total volume of soil impacts in the Container Storage Area would be less than 10 cu yd. Lead-contaminated soil at the Container Storage Area was excavated until lead levels were less than EPA closure criteria. At the UST and S-3, S-4 alley excavation area, petroleum-impacted soils were overexcavated until the soils were no longer stained or contaminated. This was verified at the UST area by confirmation sampling. At the S-3, S-4 alley area, testing of the visibly stained soils did not reveal the presence of high concentrations of contaminants; therefore, any residuals which left soils after the excavation activities were probably impacted at only very low concentrations or not impacted at all.

Contaminants that have been detected in soils at the Container Storage Area during past investigations that may be present as contaminant residuals include:

- Lead
- BTEX
- TEH
- TPH
- n-Butylbenzene
- sec- Butylbenzene
- Isopropylbenzene
- p-Isopropylbenzene
- Naphthalene
- 1,1,2,2-Tetrachloroethane
- 1,2,4-Trimethylbenzene
- 1,3,5-Trimethylbenzene

Likelihood to Release

Groundwater. Groundwater sampling data from the Container Storage Area indicates that a release to groundwater has occurred. Low concentrations of VOCs were detected in shallow groundwater in the area. The horizontal or vertical extent of groundwater impacts has not been determined at this location, although it is anticipated to be very limited due to the nature of the contaminants and the low concentrations found near the source. Two groundwater samples collected at the Container Storage Area indicated the presence of the following contaminants:

Contaminant (μg/L)	South Alleyway (UST and Container Storage Areas)	North Alleyway (S-4 Excavation Area)
Benzene	5	<1
Toluene	2	<1
Ethylbenzene	10	<1
Xylenes	29	<1
TPH	239	NA
TEH	NA	NA
n-Butylbenzene	NA	1.1
1,2-Dichlorobenzene	NA	2.3
p-Isopropyltoluene	NA	1.1
Naphthalene	NA	2.4
Trimethylbenzene	NA	3.3

NA = Not analyzed

Based on the concentrations of contaminants detected in groundwater at the two areas of the north S-3, S-4 alleyway, the area of impacted groundwater would be expected to be very small. Although BTEX constituents can be mobile in groundwater and migrate over large distances, these contaminants can be highly biodegraded in aerobic aquifers and are rapidly naturally attenuated in most settings.

Surface Water. Contaminant sources and releases at the Container Storage Area are located below the ground surface. Both areas have been covered with new reinforced concrete pads that extend to a depth of 6 inches. This would effectively prevent surface water infiltration and further leaching of contaminants to groundwater. Surface water drainage in the north S-3, S-4 alley slopes to the north and south in each respective alley.

Soil and Air. Because the contaminants at the Container Storage Area are associated with groundwater, there would not be potential for soil exposure or air impacts to occur. Also the area is covered with concrete which would prevent soil or air direct contact access to the contamination.

FUEL PRODUCT PIPELINE

Location and Setting

An abandoned Fuel Product Pipeline was encountered during excavation activities associated with a retaining wall construction project adjacent to Building S-3 (currently identified as part of Building S-4). The location of the pipeline is shown in Figure 7-3. The abandoned pipeline was

located approximately 15 feet south of Building S-3 and appeared to be trending in a east-west orientation. The depth of the pipeline was approximately 3 feet below grade (Ref. 58).

The area around the Fuel Product Pipeline includes a tiered concrete parking area for accommodating Buildings S-2 and S-4; the parking area for Building S-2 is approximately 3 feet higher than the parking area for Building S-4. It was during construction of the retaining wall separating the two parking areas that the abandoned pipeline was found. The retaining wall excavation was approximately 5 feet wide and 4 feet deep and was oriented directly south of Building S-4 (Ref. 58).

Site History

On April 13, 1995, the retaining wall construction project uncovered soils with suspected petroleum contamination. The IDNR Emergency Response Hotline was notified and the notification was assigned Spill Number 04135-JS1-1305 by IDNR Field Office 5 (Ref. 58). After discussion with the IDNR field office, the construction project continued for the retaining wall footing excavation. Soils were segregated into visibly stained and nonstained soils. The east wall of the excavation appeared to be free of staining whereas the west wall continued to show staining during excavation.

After the excavation was completed for the retaining wall, and some minor overexcavation was conducted to remove stained soils, two soil samples were collected from a depth of approximately 1 foot below the location of the abandoned Fuel Product Pipeline. The 2-inch piping showed evidence of pitting and holes at approximately the mid-point of the excavation. The soil samples were submitted to the laboratory for analysis of TEH. Analytical results of the soil samples showed the east sample with TEH less than the detection limit (<3 mg/kg), whereas the west sample contained TEH at 1,100 mg/kg (Ref. 58).

The source of the release at the time of notification was unknown, although further review of the site indicated that an abandoned Fuel Product Pipeline was the source. The line was assumed to be the product line from a historical aboveground fuel storage tank that was located approximately 600 feet east of the excavation (Ref. 58). The 10,000-gallon gas storage tank was built prior to 1942 (Ref. 40) and was torn down and removed in 1988. It is speculated, because the gas storage tank was located immediately next to the railroad tracks, bulk gasoline was brought to the site by rail and off-loaded into the large storage tank. From this location, the gasoline could then be pumped or gravity fed to the west via the 2-inch product line to the vehicle maintenance garages (Buildings S-3 and S-4). A UST was removed from the vehicle maintenance garage area in 1985 that could have been the final distribution point for gasoline at the facility.

Waste Characteristics

The type of waste source at the Fuel Product Pipeline would be considered contaminated soil resulting from the pipeline leak or break. The actual dimensions of the contamination has not been assessed to date at the site, although available evidence suggests contamination was localized near the pitted portion of the pipeline located in the middle of the excavation. Contaminated soil encountered in the west portion of the excavation was not found in a second sample located less than 5 feet east. This suggests that the area of contaminated soil may extend

over a relatively short distance. For the purpose of this PA, the soil contamination is estimated to extend 10 feet to the west, and 5 feet north or south of the contaminated soil sample. Therefore, the area of contaminated soil would be estimated to be approximately 50 sq ft.

TEH was the contaminant of concern detected at the pipeline area, although this was the only analyte examined. Other contaminants possibly associated with the pipeline could be fuel-related contaminants such as BTEX, TPH or other aromatic hydrocarbons. The concentration of TEH detected in soil (1,100 mg/kg) is greater than regulatory standards, although the level would not be considered particularly high for the sample location immediately adjacent to the source. This also suggests that the area of contamination is localized.

Likelihood to Release

Groundwater. Based on the detection of elevated concentrations of TEH in soil at the Fuel Product Pipeline area, and the relatively shallow water table at this location (approximately 4 feet; Ref. 58), a release of contaminants to groundwater has likely occurred. Based on the depth of the pipeline (3 feet) in relation to the water table depth, there would be little unsaturated zone between the pipeline leak and the water table. Soils encountered in this area of Camp Dodge probably consist predominantly of sand which would not provide significant retention capacity to inhibit contaminant migration to groundwater. Much of the area near the pipeline is covered with concrete which would prevent significant infiltration from leaching contaminants.

The release of contaminants would probably consist of fuel-related hydrocarbons. Although petroleum constituents can be mobile in groundwater and migrate over large distances, these contaminants are also highly biodegraded in aerobic aquifer settings and can be rapidly naturally attenuated.

Surface Water. Contaminants at the pipeline area are located 3 to 4 feet below the ground surface. The area has been covered with new concrete as a result of the retaining wall construction project. This would effectively prevent surface water infiltration and further leaching of contaminants to groundwater. Surface water drainage in the pipeline area slopes gently to the southwest.

Soil and Air. Because the contaminants at the pipeline area are found below the ground surface in soil and possibly groundwater, there would not be potential for soil exposure or air impacts to occur. Also, the area is covered with concrete which would prevent soil or air direct contact access to the contamination.

LEACH BED

Location and Setting

The Leach Bed site is located west of Building S-25 in the western portion of the cantonment area. The location of the site is shown in Figure 7-4. The site was discovered during construction of a concrete road (Maintenance Drive) and storm sewer collection system at Camp Dodge (Ref. 59). The Leach Bed is situated immediately below the roadway and extends some

distance on either side of the drive. The entire site is covered by either concrete, grass or packed gravel.

Site History

During construction of a new sewer line and access road, an old rock-filled Leach Bed was discovered. The Leach Bed was revealed to consist of a limestone rock bed buried approximately 6 feet below ground surface. When it was first encountered, a slight hydrocarbon odor was noticed and a black greasy material was observed at the bottom of the bed (Ref. 60). Construction activity was halted and an environmental consultant was retained to advance soil borings and collect water and soil samples from the Leach Bed (Ref. 59).

Two soil borings were advanced in the area of the Leach Bed and soil and groundwater samples were collected approximately 10 feet below ground surface. Soil boring locations B-1 and B-2 are shown in Figure 7-4. Samples were analyzed for metals, organic hydrocarbons and waste oil (Ref. 60). A summary of the soil and groundwater results is as follows (Ref. 61):

	B-1		B-2	
Hydrocarbons	**Soil (mg/kg)**	**Groundwater (µg/L)**	**Soil (mg/kg)**	**Groundwater (µg/L)**
Benzene	NA	ND	NA	ND
Toluene	NA	1	NA	ND
Ethylbenzene	NA	2	NA	6
Xylenes	NA	6	NA	ND
Gasoline	366	6,000	ND	ND
Fuel Oil #1	ND	ND	ND	ND
Fuel Oil #2	2,330	100,000	ND	ND
Waste Oil	2,670	90,000	ND	ND

NA = Not Analyzed
ND = Not Detected

The results of metals analyses of soil and groundwater did not indicate concentrations were above typical background levels. Based on a conversation with the IDNR regarding the preliminary results, permission was granted by the IDNR to continue the construction activities (Ref. 60).

In September 1993, a monitoring well (MW-1) was installed on the east side of the former Leach Bed (Figure 7-4). Soil and groundwater samples were collected and analyzed for VOCs, SVOCs and metals. At a depth of 8 to10 feet, TEH as waste oil was detected in soil at 290 mg/kg; TEH as diesel fuel was not detected (<100 mg/kg). BTEX, SVOCs, and TEH as diesel and waste oil were not detected in groundwater above laboratory detection limits. Metals were also not found above typical background levels.

Following completion of the limited investigation, the results were forwarded to the IDNR for review. The IDNR responded by indicating that the Leach Bed site did not warrant attention as a high priority site, and the department did not require or encourage any further efforts at the time (Ref. 62). Since 1993, no further action has occurred at the Leach Bed site.

The source of the effluent to the former Leach Bed is not known conclusively. It is suspected that the Leach Bed may have received effluent from a former vehicle wash rack located approximately 300 feet to the east. The wash rack was constructed without any pretreatment and is now abandoned.

Waste Characteristics

The Leach Bed would be considered contaminated soil as the type of waste source present at the site. The dimensions of the Leach Bed have not been established but it is estimated to be approximately 30 feet square and 6 feet in depth. The total volume of the Leach Bed waste source is, therefore, estimated to be approximately 200 cu yd.

Contaminants present at the former Leach Bed site consist of various petroleum hydrocarbons, including BTEX, gasoline, Fuel Oil #1, Fuel Oil #2 and waste oil. These contaminants point to a source located in the vehicle maintenance area, possibly including the wash rack. Concentrations of hydrocarbons were detected in soil and groundwater at elevated levels at soil boring B-1, and significantly lower at B-2 and MW-1. The high concentrations of hydrocarbons found at B-1 suggest that the Leach Bed was used in historic time to disperse liquids containing hydrocarbon. The black greasy material encountered during the initial construction activities may be associated with concentrated hydrocarbon sludge from wastewater, or possible residual free product staining. The horizontal and vertical extent of hydrocarbon impacts to soil and groundwater at the Leach Bed have not been determined.

Likelihood to Release

Groundwater. Previous sampling efforts at the Leach Bed have established that a release to groundwater has occurred. Groundwater has been impacted by petroleum hydrocarbons, including gasoline, Fuel Oil #2 and waste oil, at concentrations 6,000 µg/L, 100,000 µg/L and 90,000 µg/L, respectively. The areal extent of contamination has not been determined.

Depth to groundwater at the site was measured in MW-1 to be about 8 feet below ground surface. The geology of the Leach Bed area consists of variably thick sandy lean clay (5 to 15 feet) overlying fine to coarse sand and gravel (Ref. 61). Hydrocarbons would tend to be retained in the clayey material and migrate quickly in the coarse sand and gravel. Because most of the fuel-related hydrocarbons detected at the Leach Bed are heavier molecular weight contaminants, these hydrocarbons would tend to bind to site soils more than BTEX constituents. Only small concentrations of BTEX were detected in soil and groundwater samples at the Leach Bed. Although petroleum constituents can be mobile in groundwater and migrate over large distances, these contaminants are also highly biodegraded in aerobic aquifer settings and can be rapidly naturally attenuated. Most of the Leach Bed is covered by the concrete road which would prevent significant infiltration from leaching contaminants.

Surface Water. Contaminants detected at the Leach Bed are located at depths greater than 8 feet below the ground surface. The area has also been covered by construction of a new road. This would effectively prevent surface water infiltration and further leaching of contaminants to groundwater. Surface water drainage in the Leach Bed area slopes gently to the southwest.

Soil and Air. Because the contaminants at the Leach Bed are found below the ground surface in soil and groundwater, there would not be potential for soil exposure or air impacts to occur. Also the area is covered with concrete which would prevent soil or air direct contact access to the contamination.

SECTION 8

WASTE CHARACTERISTICS AND LIKELIHOOD OF RELEASE: FARM ACQUISITION SITES

This section presents the location, background, waste characteristics and likelihood of release for four Farm Acquisition sites acquired by IA ARNG in the early 1990s. Initially, background information is presented regarding the land acquisition process and the identification of the four Farm Acquisition sites requiring this PA assessment. This is followed by a more complete description of the Farm Acquisition sites and a discussion of the waste characteristics and likelihood of contaminant releases at each site.

ENVIRONMENTAL BASELINE SURVEYS

In 1990, the IA ARNG began the process to acquire additional acres of land adjacent to Camp Dodge. At the request of the IA ARNG, the U.S. Army Corps of Engineers, Omaha District (CEMRO) conducted two phases (scope definition phase and survey phase) of an Environmental Baseline Study (EBS), which was intended to develop the minimum amount of information required to assess the potential environmental liabilities associated with the property transaction. As a result of the survey phase, five properties were identified as Type II properties (properties where there is potential for environmental contamination or disruption from past, present or proposed activities) warranting further investigation. The five properties, comprising approximately 10 acres, were owned by several private owners and were used for agricultural, rural residential, suburban, commercial, and woodland/creek bottom concerns (Ref. 15).

Field investigations were conducted at the five properties (Betz, Stifel, Herrold, Grief and Melos farms) in 1991. Based on results of the field sampling program, no contaminants of concern were detected at the Stifel site and no additional sampling or remedial work was performed at this site. At the remaining four sites (Betz, Grief, Herrold, and Melos), localized surface soils with varying levels of chemical contamination were detected. Because contaminants were detected in surface soils at these four properties (Betz, Grief, Herrold, and Melos), these sites are included in this PA. The locations of these properties are shown in Figure 3-1. The Stifel property will not be discussed in this report because contamination was not detected on the property (the site was screened out in Section 3).

BETZ FARM SITE

Location and Setting

The Betz farm site is located along the southern boundary of the Camp Dodge reservation in the SE 1/4 of Section 35, T 80 N, R 25 W. A layout map of the Betz farm is presented in Figure 8-1. The farmstead is situated on a narrow ridge of land that is nearly surrounded by lower-lying areas. Much of the surrounding area was originally wetland but was drained during the active farming years for crop land. Today, much of the surrounding land is being returned to wetland status by the IA ARNG. A photograph of the Betz farm site surroundings is presented in Appendix B.

The farm is currently accessed from the east across an open construction area associated with Camp Dodge expansion. Formerly, the site was accessed from a north-south gravel lane that

intersected the east-west trending NW 70th Avenue approximately 1.2 mile west of the entrance to Camp Dodge. The former entrance to the farm is currently blocked by a chain link fence. The farm site consists of an abandoned farmhouse, three larger barns, and several smaller outbuildings and grain storage units (Figure 8-1).

Site History

In March 1992, U.S. Army Corps of Engineer's representatives conducted field sampling activities at the Betz farm. Potential contaminant sources investigated included two overhead storage tanks, an automotive battery pile, a sludge-filled drum, and a heavy equipment storage shed (Ref. 51). Five sampling locations were identified at the site (Figure 8-1):

CAM1-SB-01 and SB-02	Located near dispensing points for (ASTs).
CAM1-SB-03	Located at automotive battery pile.
CAM1-SB-04	Release point of sludge-filled drum.
CAM1-SB-05	Located near soil staining in heavy equipment storage shed.

All soil samples were collected from depths of 0.5 to 2.5 feet below ground surface. Samples from SB-01, SB-02, SB-4, and SB-05 were analyzed for TPH; SB-05 was also analyzed for pesticides and herbicides. SB-03 was analyzed for lead. In addition, one surface water sample and sediment sample was obtained from the former stock pond at the front of the property. A residential well water sample, and a background soil boring/monitoring well was also sampled during the investigation (Ref. 15).

Results of the 1992 sampling effort showed TPH detectable in SB-01 and SB-04 at concentrations of 142 mg/kg and 1,496 mg/kg, respectively. SB-03 had a lead concentration of 151 mg/kg. No other analytes were detected in the soil or water samples above action levels or above background concentrations (Ref. 15).

In July 1992, soil removal activities were undertaken at the three soil boring locations where contaminants were detected (SB-01, SB-04, SB-03). At SB-01, a 3- by 3-foot area was excavated to a depth of 12 inches and transported to the Camp Dodge land farm area for treatment and disposal. This action reduced the TPH concentration in soils to less than 50 mg/kg, significantly below the action level. At SB-04, soils in a 3- by 3-foot area were excavated to a depth of 14 inches and transported to the land farm. The drum was also removed from the site by the landowner. The excavation activity reduced the TPH concentration from 1,496 mg/kg to 430 mg/kg. In November 1992, additional soils were removed from the area and a confirmation sample from the base of the excavation showed TPH at less than 3 mg/kg. No further action was required at these two sites (Ref. 15)

At the SB-03 site, a 3- by 3-foot area under the automotive battery pile was excavated to a depth of 14 inches. The excavated soil was shipped off site in two 55-gallon drums and labeled as a hazardous waste by Safety Kleen Corporation in Denton, Texas (US EPA ID Number ILD051060408) (Ref. 63). From the excavation activities, the concentration of lead in soils was reduced from 151 mg/kg to 15.9 mg/kg. No further action was required at this location (Ref. 15).

In January 1997, soil samples were collected from various areas of the site where herbicide contamination was suspected (Ref. 64). Seven soil borings were advanced at six identified areas of concern (Figure 8-1). TEH was detected at boring B-1E at 39 mg/kg and detectable concentrations of herbicides were found at the garage (boring B-1L) and in a soil sample

collected near a dumping area southeast of the pole barn (boring B-1O). Concentrations of metolachlor and chloramben were detected at 56 mg/kg and 36 mg/kg, respectively (Ref. 80). Other activities completed in January 1997 included collection of containers and spilled materials into a centralized location on the farm site for inventory and disposal (Ref. 64).

In March 1997 additional soil sampling was completed at the garage (building L) and Area O, to define the extent of herbicide impacts (Figure 8-1). Contamination was not detected in the perimeter soil borings or in deeper soil samples. The extent of impacted soil was determined to be approximately 70 cu yd (Ref. 65). In September 1997, an application to the IDNR was submitted for disposal of 110 cu yd of soil from the two areas at a land application site (E-Farm) (Ref. 66). Permission from the IDNR was granted for disposal of the soils in accordance with the agronomic rate specified by the manufacturer (Ref. 67). Soil disposal was completed on September 29, 1997 (Ref. 68).

Waste Characteristics

Wastes at the Betz farm site are present in the form of residual soil contamination located near the former AST, drum, automotive battery pile, and ag-chem storage areas. Impacted soils in these areas were removed by excavation activities conducted in 1992 and 1997.

Visibly stained soils and soils exhibiting petroleum or lead contamination in excess of state or federal action levels were removed during the 1992 excavation activities. Sampling results from the base of the three excavations indicated that hydrocarbons and lead were not present above laboratory detection limits or appropriate action levels. Petroleum contamination remains at the former AST at concentrations near 39 mg/kg (Ref. 64).

It is likely that some localized hydrocarbon or lead residuals remain in soils in the 1992 excavation areas. The concentrations and volumes of residual contaminants would likely be significantly less than the concentrations previously detected at the site. For purposes of this PA, it is estimated that the area of impacted soils remaining at the Betz farm is approximately 10 sq ft in both the AST and drum area (total of 20 sq ft). Concentrations of TPH in these area are probably less than 50 parts per million [ppm] (confirmation samples showed TPH levels at less than 50 ppm). Other contaminants possibly present as contaminant residuals in the two areas would include BTEX constituents and other hydrocarbon fractions. At the former location of the automotive battery pile, residual lead contamination would probably be less than 20 mg/kg in a similar size area (10 sq ft).

Little, if any, herbicide contamination remains at the garage building or Area O. The extent of contamination was determined by investigations and the entire extent was removed for off-site disposal (Refs. 64-68). All other herbicide containers and materials observed at the site were containerized and removed.

Likelihood to Release

Groundwater. One background monitoring well was installed to a depth of 18 feet at the Betz site (Figure 8-1). Soil materials encountered in the boring consisted of 3 feet of sandy lean clay overlying 15 feet of brown medium to fine sand. Groundwater was encountered in the

monitoring well at a depth of approximately 9 feet below ground surface. A water sample collected from this well did not detect any contamination above federal MCLs (Ref. 15). However, lead was detected in the well at a background concentration of 138 µg/L. The validity of this analytical result was subsequently questioned due to excessive turbidity in the water sample.

Although MW-01 was designated a background location, the well was installed in the productive sand layer underlying the farm site less than 150 feet from the potential source areas. If wide-spread groundwater contamination were evident at the Betz farm site, it is likely that some contaminant evidence would have appeared in the monitoring well sample. Petroleum hydrocarbons, including benzene and ethylbenzene, and pesticides/herbicides would be the most likely contaminants to observe in groundwater at the Betz site. Both of these products were used and handled during the period of farm operation and may have leached into groundwater. Petroleum contaminants, including BTEX, are highly susceptible to natural attenuation by intrinsic biodegradation and adsorption processes.

One residential well located on the Betz farm property for drinking water and livestock purposes was also sampled in 1992 (Figure 8-1). The depth of the well is unknown but it was probably installed into the sand layer to a depth less than 50 feet. A sample from this well did not detect any contamination, although nitrate was detected at a concentration of 18.4 µg/L (Ref. 15). This residential well was subsequently abandoned in accordance with Iowa regulations.

Surface Water. Surface water drainage at the Betz farm is generally in a radial fashion away from the farm site (Figure 8-1). Low areas exist in all directions, many of which are currently being restored to wetland status. Portions of the farm site are located within the 100-year floodplain of Beaver Creek.

In 1992, one surface water sample was collected from the former stock pond located south of the farm and analyzed for metals, pesticides/herbicides and nitrate/nitrite (Figure 8-1; Ref. 15). No contaminants were detected above federal standards in the surface water or sediment sample.

Soil. In the March 1992 investigation, susceptible areas of possible soil contamination were targeted for sampling and analysis. Based on this investigation, soil in three areas of the site were excavated until the soils did not contain contaminants above IDNR action levels. Although it is possible that other localized areas of contaminated soils remain at the ground surface at the site, the investigation and removal activities targeted the most likely areas with contamination. Any residual concentrations remaining at the site would be significantly less than the levels previously measured at the site and would likely be less than state standards and health-based concerns.

Most of the site is covered by grassy and weedy vegetation which would limit potential for direct contact exposure. The site is abandoned and permission from Camp Dodge staff is required to enter this portion of the military reservation.

Air. Air contaminants were not detected during a site visit and no reports of air impacts have been noted at the Betz farm. The vegetative cover established over much of the site would limit generation of airborne contaminants from soils.

GRIEF FARM SITE

Location and Setting

The Henry Grief farm is located in the northern portion of the Camp Dodge reservation area and north of the town of Herrold in the NW1/4, SE 1/4 of Section 15, T 80 N, R 25 W. A layout map of the Grief farm is presented in Figure 8-2. The site is located in an upland area and is generally flat-lying with a slight slope of the land surface to the south. The farmstead is situated approximately 200 feet from a north-south trending gravel road and is accessed by a driveway off of the road. The farmstead is surrounded by cropland.

Most of the original farmstead buildings no longer exist at the site. The farmhouse, barn and heavy equipment storage buildings were torn down and removed. One barn, small shed and several grain bins and silos remain at the farm site (Appendix B; Figure 8-2).

Site History

In March 1992, U.S. Army Corps of Engineer's representatives conducted field sampling activities at the Grief farm. Nine sampling locations were identified (Figure 8-2):

Sample ID	Rationale for Collection	Soil Sample Analysis
CAM4-SB01	Located near open trench (debris and burn pit).	Metals
CAM4-SB02	Located near open trench (debris and burn pit).	Metals
CAM4-SB03	Near ASTs and oil drums exhibiting soil staining.	TPH
CAM4-SB04	Near ASTs and oil drums exhibiting soil staining.	TPH
CAM4-SB05	Located inside heavy equipment storage building-soil staining evident.	TPH, Pesticides/Herbicides
CAM4-SB06	Located inside heavy equipment storage building-soil staining evident.	TPH, Pesticides/Herbicides
CAM4-SB07	Located behind storage building in surface runoff area-soil staining.	TPH, Pesticides/Herbicides
CAM4-SB08	Concrete wash area.	TPH, Pesticides/Herbicides
CAM4-SB09	Background sample.	Metals, TPH, Pesticides/Herbicides

Soil borings SB-01 and SB-02 were drilled to 10 feet; all others were drilled to a depth of 5 to 7 feet. Soil samples collected from various borings were analyzed for metals, TPH and pesticides/herbicides. In addition, one existing residential well located at the Grief farm was sampled.

Based on the sample results, three areas of petroleum contamination were identified in areas exhibiting visibly stained soil. Soil samples collected at SB-04 and SB-05 contained TPH concentrations of 156 mg/kg and 903 mg/kg, respectively, whereas SB-07 exhibited TPH concentrations of 1,700 mg/kg (Ref. 15). Results of all other soil analyses were less than detection limits or within typical background concentrations (Ref. 51).

In July 1992, an area in front of the fuel tanks (near SB-04 and SB-05) was excavated to a depth of 4 feet in the southern end and 12 feet in the northern end. The length of the excavation was 20 feet. Soil samples collected at the base of the excavation showed that TPH concentrations increased from 156 ppm to 564 ppm at a depth of 4 feet (SB-04) and decreased from 903 ppm to 610 ppm at a depth of 12 feet (SB-05) (Ref. 15). All excavated soils were transported to the Camp Dodge land farm area for treatment and disposal. Based on results of the excavation activities, further investigation work was recommended.

In September 1992, additional soil excavation activities were conducted near the AST area (SB-04, SB-05) and soils in the oil stained area of the heavy equipment storage building (SB-07) were excavated (Ref. 69). In addition, two shallow monitoring wells were installed downgradient of the areas to determine if groundwater had been impacted from the ASTs. Following additional excavation, soils sampled at the base of the excavations at both sites did not show any detectable levels of contamination. Groundwater samples collected from the two wells did not indicate any hydrocarbon contamination (Ref. 69). Based on these results, the IDNR recommended no further action at the Grief farm site (Ref. 70).

Waste Characteristics

Wastes at the Grief farm site are present in the form of residual soil contamination located near the former ASTs and heavy equipment storage building. Most impacted soils in these areas were removed by excavation activities conducted in 1992. Visibly stained soils and soils exhibiting petroleum contamination in excess of IDNR action levels were removed during the excavation activities. Sampling results from the base of the two excavations indicated that hydrocarbons were not present above laboratory detection limits.

However, it is likely that some localized hydrocarbon residuals remain in soils in the two excavation areas. The concentrations and volumes of residual contaminants would likely be significantly less than the concentrations previously detected at the site. For purposes of this PA, it is estimated that the area of impacted soils remaining at the Grief farm is approximately 100 sq ft in both the former AST area and heavy equipment storage building area (total of 200 sq ft). Concentrations of TPH in the area of impacted soils are probably less than 100 ppm (IDNR cleanup level). Other contaminants possibly present as contaminant residuals in the two areas would include BTEX constituents and other hydrocarbon fractions.

Likelihood to Release

Groundwater. Groundwater was encountered in the two monitoring wells installed near the AST Area and heavy equipment storage building at a depth of approximately 8 feet below ground surface. These wells were installed immediately downgradient (i.e., down slope) from the contaminated soils and did not show the presence of any hydrocarbon contamination. This

suggests that the hydrocarbon contamination present in the soils did not leach to groundwater at the site. Mobile hydrocarbons, including benzene and ethylbenzene, were not detected in the groundwater samples (Ref. 69). Petroleum contaminants, including BTEX, are highly susceptible to natural attenuation in soils and groundwater by intrinsic biodegradation and adsorption processes.

Residual contaminants present in soils in the contaminated areas may leach into groundwater at some point in the future. However, soils in three areas consist of brown, sandy lean and fat clays which would have good retention capacity for adsorbing the hydrocarbons to the soil matrix. Moreover, the low hydraulic conductivity of the underlying clayey soils would limit possible migration of hydrocarbon constituents in groundwater.

Two water wells were located on the Grief farm property for drinking water and livestock purposes (Figure 8-2). Well #1 was approximately 40 feet deep and Well #2 was approximately 390 feet deep (Ref. 71). Sampling from the shallow well did not reveal contamination (Ref. 15). Both of the wells have been properly abandoned at the site in accordance with IDNR regulations. Therefore, there would be no potential for contaminants to migrate into the underlying aquifers at the site.

Surface Water. Surface water drainage at the Grief farm is generally to the south. There does not appear to be any identifiable drainageways or patterns established at the site which could visibly erode the site. Most of the area is covered by vegetation which would enhance infiltration and reduce potential surface water erosion. The site is located above any floodplain areas associated with Beaver Creek or tributaries.

Soil. In the March 1992 investigation, highly susceptible areas of possible soil contamination were targeted for sampling and analysis. This investigation indicated that three areas of the site contained hydrocarbon contamination. In July and September 1992, visibly stained soils and soils containing hydrocarbons greater than 100 ppm were removed from the Grief farm site. Although it is possible that other localized areas of contaminated soils remain at the ground surface at the site, the investigation and removal activities targeted the most likely areas with contamination. Any residual concentrations remaining at the site would be significantly less that the levels previously measured at the site and would likely be less than state standards and health-based concerns.

Most of the site is covered by grassy and weedy vegetation which would limit potential for direct contact exposure. The site is abandoned and permission from Camp Dodge staff is required to enter this portion of the military reservation.

Air. Air contaminants were not detected during a site visit and no reports of air impacts have been noted at the Grief farm. The vegetative cover established over much of the site would limit generation of airborne contaminants from soils.

HERROLD FARM SITE

Location and Setting

The Herrold farm site is located along the channel of Beaver Creek approximately 0.4 miles west of the town of Herrold. A layout map of the Herrold farm site is presented in Figure 8-3. The

farm site was historically known as the Herrold farm, in reference to the original settlers of the area, although the most recent owner was Margaret Beck (a Herrold family sister). For purposes of this PA, the farm site will be referred to as the Herrold farm.

The farm site encompasses an area of about 6 acres immediately adjacent to the northern bank of Beaver Creek and an oxbow channel (Figure 8-3). Several barns are located in the eastern portion of the property and a residential home is situated on the western side. This PA is primarily associated with the residential area located on the west side of the property. The residential area consists of a small house and two small sheds that sit along the steeply sloping banks of the Beaver Creek channel. The area slopes to the west toward the creek channel and is overgrown with weeds and small second growth vegetation. Much of the bank slope at the rear of the residence is strewn with debris and refuse mixed with the brushy vegetation. At the base of the slope, the channel bottom is very flat and covered with grass with several ground surface undulations exhibiting ponded surface water. Photographs of the Herrold farm are presented in Appendix B.

Site History

In March 1992, U.S. Army Corps of Engineer's representatives conducted field sampling activities at the Herrold farm. Three soil boring locations, one surface water/sediment location and the existing residential well on site were sampled (Figure 8-3):

At the Herrold farm site, no contaminants of concern were detected in soils or sediment during the investigation (Ref. 15). No contamination in the surface water or residential well sample was detected above federal drinking water standards (MCLs) (Ref. 51). Although no contamination was found, the final report for the sampling phase of the PA screening did recommend that additional debris removal be conducted on the slope behind the Herrold farm residence along the Beaver Creek channel (Ref. 15).

In 1993, cleanup of the slope behind the Herrold farm was scheduled (Ref. 72). However, following the high level of flooding that occurred in the summer of 1993, flood water from Beaver Creek washed the debris away from the Herrold farm area and scattered the materials downstream (Ref. 72). Currently, there is no evidence of the debris in the immediate site vicinity and downstream.

Waste Characteristics

During a site visit on July 25, 1997, the following items were observed as surface debris and trash along the hillslope behind the Herrold residence:

- Bricks
- Ceramic Tiles
- Sheet Metal
- Railroad Ties
- Miscellaneous Metal
- Tarp
- Hose
- Miscellaneous Plastic
- Food Containers (tin cans, cups, etc.)
- Waste Oil Containers
- Container Lids
- Wire
- Cans
- Camper Top
- Pipes

Most of the debris was observed as scattered pieces of trash; very little debris was piled up or would otherwise prevent vegetative growth from occurring. Although sampling results from 1992 did not indicate the presence of contamination at the site, the types of miscellaneous trash

and debris observed along the bank slope suggest that low levels of contamination could be present at the site in small localized areas.

For purposes of this PA, and based on the areal extent of surface trash and debris present at the site, the approximate area of potential contaminated soils would be 100 sq ft. The types of contaminants which could be present at the site include hydrocarbons, metals and pesticides, herbicides. However, previous sampling efforts did not detect the presence of any contamination at the site.

Likelihood to Release

Groundwater. A sample of the residential well at the Herrold farm site did not detect the presence of contamination in the aquifer. Most wells installed by private farms in the vicinity of Camp Dodge were installed at a depth of about 30 to 50 feet below ground surface. If the Herrold farm was similar to other farm sites (the depth of the Herrold farm well is unknown), contaminants were not detected in the uppermost aquifer at the site. This would suggest that a release to deeper groundwater has not occurred.

Depth to shallow groundwater would probably be around 5 to 15 feet near the residence and flow of shallow groundwater would, in all likelihood, be to the west toward discharge in the Beaver Creek channel. Residual contaminants which may be present in soils around the surface debris areas may leach into groundwater at some point in the future. This groundwater would then migrate to the creek channel and discharge to surface water in the area. However, sampling in the creek channel did not detect contamination in the creek sediment or water.

Sampling data from soils, surface water and sediment indicate that a release to groundwater has not occurred at the Herrold farm site in the past. Given the fact that most of the debris has been removed from the site, the potential for a new release to occur in the future at the site would be remote.

Surface Water. Beaver Creek and an oxbow tributary form the western boundary of the Herrold farm site. The residence is located approximately 20-30 feet above the base of the slope. Although the slope is heavily wooded and covered by weedy growth, ravines and rills that have formed in the slope suggest that the slope bank is eroding to some degree. In addition, surface water overflowing the present banks of Beaver Creek could possibly undercut the bank of the creek channel in the Herrold farm site vicinity. The residence is located on the cutbank side of the creek channel.

Erosion of the creek bank slope at the Herrold farm site could mobilize surface debris and possible soil contamination to surface water. This is evidently what occurred in 1993 when flood waters washed away the debris along the creek bank behind the Herrold house. In addition, if materials are buried into the creek bank, continued erosion could expose the buried materials. However, sampling data from the creek channel immediately downstream from the debris area did not indicate the presence of any contamination. Considering that this sample was collected prior to removal of debris, the lack of detections in the sampling results suggest that a likelihood to release contaminants to surface water is remote.

Soils. Most soils present at the Herrold farm residence are covered by grassy and weedy vegetation which would limit potential for direct contact exposure. Soils present along the steep slopes of the creek bank are intermittently eroded in ravines or rills. Because most of the debris at the site is located on top of the ground surface, it is possible that areas of possible soil contamination could be exposed.

The site is abandoned and permission from Camp Dodge staff is required to enter this portion of the military reservation.

Air. Air contaminants were not detected during a site visit and no reports of air impacts have been noted at the Herrold farm. The vegetative cover established over much of the site would limit generation of airborne contaminants from soils.

MELOS FARM SITE

Location and Setting

The Melos farm site is located at 10186 NW Beaver Drive in the northern portion of the Camp Dodge reservation (NE 1/4 of Section 15, T 80 N, R 25 W). A layout map of the Melos farm is presented in Figure 8-4. The former farm site consists of two principal buildings on the property, a ranch-style farmhouse, and a garage building (Figure 8-4). The entire property is approximately 300 feet wide (east-west) by 400 feet long (north-south) encompassing about 2.75 acres. Most of the site is relatively flat-lying and covered with grassy vegetation. The southeast corner of the property is plowed for crops. A photograph of the Melos farm area is presented in Appendix B.

Two piles of debris were observed during a site visit in July 1997. The piles consisted primarily of brush and assorted vegetation, although in the southern pile, several 5-gallon containers, tires, hoses and miscellaneous materials were observed. Around the entire site, scattered small cans, metal and wood pieces and other materials were also observed.

Site History

In March 1992, U.S. Army Corps of Engineer's representatives conducted field sampling activities at the Melos farm site. Four shallow soil borings and one background sampling location (CAM5-SB05) were identified (Figure 8-4). In addition, one monitoring well and the existing site residential well were sampled. One shallow soil sample was collected from each soil boring interval and analyzed for TPH, herbicides and pesticides (Ref.15).

Petroleum contamination was detected in visibly-stained surface soils below two leaking drums of waste oil (CAM5-SB03 and CAM5-SB06; Figure 8-4). Shallow soils at SB-03 contained TPH at 2,653 mg/kg, whereas soil sampled at SB-06 detected TPH at 800 mg/kg. No herbicides and pesticides were detected in soils, and no contaminants were found in the monitoring or residential well samples (Ref. 15).

In July 1992, a small (3-foot by 3-foot) area beneath both drums was excavated to a depth of approximately 3 feet. Drums encountered at both sites were removed and disposed of

accordingly. Excavated soils were transported to the Camp Dodge land farm area and the excavation was backfilled with clean soil. At the SB-03 location, the base of the excavation still contained TPH at 2,655 mg/kg. A confirmation sample obtained from the base of the excavation at SB-06 showed TPH levels less than 5 mg/kg (Ref. 15).

In November 1992, a larger area of contaminated soil at SB-03 was excavated (75 cu yd) and transported to the Camp Dodge landfarm area (Ref. 73). A confirmation sample collected at the base of the excavation showed TPH concentrations less than 3 mg/kg (Ref. 74).

Waste Characteristics

Residual contaminants present at the Melos farm site are associated with soil contamination located near the two small drum areas. Most impacted soils in these areas were removed by excavation activities conducted in 1992. Visibly stained soils and soils exhibiting petroleum contamination in excess of IDNR action levels were removed during the excavation activities. Sampling results from the base of the two excavations indicated that hydrocarbons were not present above laboratory detection limits. Any residual petroleum contamination remaining in these two areas of the site would not be present at concentrations representing health-based risks.

Other miscellaneous debris observed at the Melos farm site during a 1997 site visit included various empty containers and tanks which could have released contaminants to the environment. Several of these containers were scattered throughout the property. Observed containers and tanks included:

- A 1,000-gallon propane tank located behind the southeast corner of the house.
- A 30-gallon empty fuel tank located behind the garage building.
- A 30-pound freon tank located southwest of the building.
- Miscellaneous 5- and 10-gallon containers located in the brush/debris pile along the south property line.

Based on the scattered nature of these items, it is not likely that these items are currently located in their original place of disposal. Therefore, the detection of any contaminant releases beneath the containers would not be suspected. If contaminants were found, the contamination would be localized to a very small area at each location (less than 1 cu yd). Based on the limited areas of potential impacts, the total volume of contaminated soils at the Melos farm would probably be less than 10 cu yd.

Likelihood to Release

Groundwater. One background monitoring well was installed at the Melos site (Figure 8-4). Groundwater was encountered in the monitoring well at a depth of approximately 4 feet below ground surface. Soil materials encountered in the boring consisted of sandy lean clay to the bottom of the boring at 13 feet. A water sample collected from this well did not detect any contamination (Ref. 15).

Petroleum hydrocarbons, including benzene and ethylbenzene, would be the most likely contaminants to observe in groundwater at the Melos site. Petroleum contaminants, including

BTEX, are highly susceptible to natural attenuation in soils and groundwater by intrinsic biodegradation and adsorption processes. Moreover, the low hydraulic conductivity of the underlying clayey soils would limit possible migration of hydrocarbon constituents to groundwater.

One residential well located on the Melos farm property for drinking water and livestock purposes was also sampled in 1992 (pump house; Figure 8-4). The depth of the well is unknown but is probably less than 50 feet, as are the other private wells in the area. Unlike the other farm sites, this residential well has not been abandoned. Therefore, if contaminants were present in groundwater at the site, there would be potential for contaminants to migrate into the underlying aquifer through the well casing of the existing well.

Surface Water. The topography of the Melos farm site is exceptionally flat with no real slope to the land surface. There does not appear to be any identifiable drainageways or patterns established at the site which could visibly erode the site. Surface water drainage at the Melos farm would be primarily in the form of infiltration. In localized ground surface depressions or undulations, surface water may pond at the site during larger precipitation events. Most of the area is covered by vegetation which would enhance infiltration and reduce potential surface water erosion. The site is located above any floodplain areas associated with Beaver Creek or tributaries.

Soil. In the March 1992 investigation, highly susceptible areas of possible soil contamination were targeted for sampling and analysis. This investigation indicated that two areas of the site contained hydrocarbon contamination. In July and November 1992, visibly stained soils and soils containing hydrocarbons were removed from the Melos farm site. Although it is possible that other localized areas of contaminated soils remain at the ground surface at the site, the investigation and removal activities targeted the most likely areas with contamination. Any residual concentrations remaining at the site would be significantly less than the levels previously measured at the site and would likely be less than state standards and health based concerns.

Most of the site is covered by grassy and weedy vegetation which would limit potential for direct contact exposure. The site is abandoned and permission from Camp Dodge staff is required to enter this portion of the military reservation.

Air. Air contaminants were not detected during a site visit and no reports of air impacts have been noted at the Melos farm. The vegetative cover established over much of the site would limit generation of airborne contaminants from soils.

SECTION 9

GROUNDWATER PATHWAY AND TARGETS

This section describes the groundwater resources and groundwater migration pathways for contaminants to migrate from the various Camp Dodge sites to potential target populations. A relative ranking system of each PA site is provided in terms of aquifer susceptibility, potential contaminant migration to groundwater, and the distance from each site to potential target populations. At the conclusion of this section, the overall groundwater pathways threat for each site is qualitatively ranked and evaluated.

GROUNDWATER RESURCES AT CAMP DODGE AREA

As described in Section 2 of this PA, aquifers present in the Camp Dodge area can be divided into two principal sources: the unconsolidated materials near the land surface (surficial aquifer), and the bedrock aquifers. The surficial aquifer consists of three main water bearing units:

1. **Drift Aquifer** - The drift aquifer is commonly utilized in the upland areas around Camp Dodge and consists of water bearing deposits (lenses or beds of sand and gravel) variably distributed within low permeable nonwater bearing deposits (Wisconsinan or pre-Illinoian glacial till). Residential wells abandoned at the Farm Acquisition sites and town of Herrold were likely installed in this aquifer. Wells penetrating this aquifer in the Camp Dodge area generally range from 40 to 60 feet deep (Ref. 49).

2. **Alluvial Aquifer** - The alluvial aquifer is found near the land surface in floodplains and terraces in major stream valleys and generally consists of stratified bodies of clay, silt, sand and gravel. The alluvial aquifer in the Camp Dodge area is located along the Beaver Creek and Little Beaver Creek floodplains. Although the hydraulic conductivity of the aquifer is high, the aquifer is typically very shallow (less than 20 feet) and seldom utilized for water supply in the area.

3. **Buried Channel Aquifer** - Buried channel aquifers are found in preglacial valleys that were filled with alluvial sand and gravel and are buried by glacial drift. In the valley of Beaver Creek, a thick and productive sand and gravel deposit (greater than 100 feet thick) is separated from the overlying alluvial aquifer by Wisconsinan glacial drift deposits. The thickness of the Wisconsinan drift aquitard is not known but may range up to 20 feet thick. It is possible that this confining unit may be breached along the incised channel of Beaver Creek (Ref. 75). Most wells in the Beaver Creek valley penetrate into this aquifer and range in depth from about 30 feet to 120 feet deep (Ref. 76).

The uppermost bedrock aquifer utilized in the vicinity of Camp Dodge is the Mississippian aquifer which consists chiefly of limestones and dolomite (Ref. 76). This aquifer is found at depths ranging from 500 to 600 feet and is separated from the overlying surficial aquifers by major sequences of Pennsylvanian shales. The Pennsylvanian strata are considered a regional confining unit in the area (Ref. 13).

GROUNDWATER PATHWAY EVALUATION

A summary of the hydrogeological setting of the various Camp Dodge PA sites is provided in Table 9-1. Because the groundwater pathway and likelihood to release evaluations for each site were provided in Sections 4 through 8 of this report, they are not explained in detail in this section. Instead, Table 9-1 compares the hydrogeological setting of various PA sites based on their landscape position, dominant soil type, relative permeability, and the type and depth to aquifer found at each site. Based on these criteria, the relative susceptibility of the aquifers at each PA site is evaluated.

Evaluation Criteria

The criteria used to evaluate the hydrogeological setting of the PA sites is as follows:

Landscape Setting - PA sites at Camp Dodge are located in either upland settings or along the floodplain or floodplain terraces of Beaver Creek. The surficial geology of the upland settings is dominated by glacial drift deposits, whereas the floodplains settings are underlain primarily by alluvial deposits and buried glacial drift.

Dominant Soil Type - Soils in the upland areas consist primarily of glacial till, an unsorted mixture of densely compacted clay, silt, sand and gravel. In the floodplain or floodplain terraces of Beaver Creek, soils consist primarily of stratified and sorted alluvial deposits.

Relative Permeability of Soils - The permeability of the soils in the glaciated upland areas is considerably lower than the permeability of the alluvial deposits. The hydraulic conductivity of the upper glacial drift deposits ranges from 10^{-4} cm/sec to 10^{-6} cm/sec, whereas the hydraulic conductivity of the upper alluvial soils ranges from 10^{-2} cm/sec to 10^{-1} cm/sec (Ref. 27).

Type and Depth of Aquifer - This criteria considers which type of aquifer is routinely used in the upland areas (drift aquifer) versus the type of aquifer used in the floodplain areas (alluvial or buried channel). In upland glaciated settings, drift aquifers are used which range in depth from 40 to 50 feet. In floodplain areas, alluvial or buried channel aquifers can be useable at depths less than 20 feet.

Aquifer Susceptibility - The relative susceptibility of the aquifer at each PA site can be evaluated based on the hydrogeological setting of the site. Sites located in floodplain areas, underlain by permeable sand and gravel deposits, are more susceptible to potential contamination of aquifers than sites located in upland areas. In upland areas, the drift aquifers are typically overlain by 40 to 50 feet of dense, low permeable glacial till.

PA Site Evaluation

Most of the landfill sites, with the exception of the Cemetery Landfill and Gravel Pit Dump, are located in floodplain areas with potentially high aquifer susceptibility. The Cemetery Landfill was excavated out of the upland slopes of the Beaver Creek valley and is primarily underlain by glacial drift. However, at the toe of the Cemetery Landfill, alluvial deposits were encountered in

one geotechnical soil boring (Ref. 24). The Gravel Pit Dump, although located in an upland setting, is underlain by sand and gravel deposits.

Other sites located in floodplain areas include the Betz Farm site, Gas Instruction House, Demo Pit, former WWTP and the Leach Bed (Table 9-1). The Incinerator Area is located both on an upland area and along the floodplain of Beaver Creek. For purposes of this PA, the Incinerator Area is considered in a floodplain.

The Grief, Melos and Herrold farm sites and the town of Herrold are all located in upland areas underlain by glacial drift deposits (Table 9-1). Each of these Farm Acquisition sites had a well on their property which tapped the drift aquifer at a depth of approximately 40 to 50 feet. Residential wells abandoned in the town of Herrold were also of similar depth (Ref. 49). Other sites located in upland areas included the Horse Dip Tank facility and monitoring well P-10. The low permeability of the upland deposits was demonstrated by the slow recovery of water into monitoring well P-10 after the well was purged (see Section 6).

The Fuel Product Pipeline and Container Storage Area are ranked as medium susceptibility (Table 9-1). Although these sites are located in flood plain terrace areas, in both areas, soils were observed during sampling activities which indicated a considerable amount of silt and clay contained in the upper soils (see Section 7).

CONTAMINANT MIGRATION TO GROUNDWATER

A second criteria to evaluate potential contaminant migration to groundwater is to consider the source characteristics at each PA site. Sites with large quantities of wastes or highly mobile contaminants would be more likely to impact groundwater than sites with small quantities of wastes and low mobility of contaminants. A summary of the contaminant migration characteristics at each PA site is provided in Table 9-2.

Evaluation Criteria

Table 9-2 includes the categories of source type, waste quantity, potential contaminants, and contaminant mobility. Source type refers to how the wastes were disposed at a site, including as a landfill, contaminated soil, leaking UST, or as a groundwater plume (actual source unknown). An estimate of waste quantity provides a basis to evaluate the potential for contaminant leaching from the source. Larger waste quantities can provide more surface area and volume of contaminants leaching into groundwater. The types of contaminants and their mobility can be used to assess the potential for leaching contaminants to migrate through soils and groundwater. Metals and PAHs, for example, do not tend to be very mobile, while VOCs, including benzene and acetone, tend to be relatively highly mobile. Hydrocarbons can vary in mobility from highly mobile (BTEX constituents) to relatively immobile (waste oils).

The last column in Table 9-2, Contaminant Migration Potential, is a relative ranking of the potential for contaminants to migrate from the various PA sites. Sites with high contaminant migration potential contain either larger quantities of wastes or highly mobile contaminants, or both. Sites with low contaminant migration potential are characterized by low quantities of residual waste, or by contaminants with relatively low mobility through soil or groundwater.

PA Site Evaluation

Based on the quantities and types of wastes disposed, the Cemetery Landfill and Scrap Iron Landfill are considered to have relatively high potential for contaminants to migrate to groundwater (Table 9-2). Both landfill sites potentially contain large quantities of wastes with a variety of contaminants exhibiting a range of mobilities. Other landfill sites are considered to have medium potential (LAW Range Landfill, Range Dump, Gravel Pit Dump) for contaminant migration, while the remaining two landfills do not contain appreciable quantities of mobile groundwater contaminants for significant contaminant migration.

Other medium ranked sites include the Incinerator Area, town of Herrold, monitoring well P-10, and the two South Cantonment Area sites (Fuel Product Pipeline, Leach Bed) (Table 9-2). Although the Incinerator Area potentially has a significant volume of wastes disposed at that location, the contaminants would consist primarily of metals, which are not particularly mobile. At the town of Herrold, contamination could be possible at the buried UST or the former grain elevator. At UST sites, contamination from leaking tanks is often very limited in extent and highly subject to intrinsic biodegradation in soils. At other sites where tanks have been removed at Camp Dodge, total quantities of excavated soils have typically been less than 10 cu yd.

Groundwater contamination was observed at monitoring well P-10. Acetone detected in groundwater is highly mobile and may indicate the leading edge of a larger groundwater plume. However, the source of this contamination is unknown. At the Fuel Product Pipeline and Leach Bed sites, although the volumes of contaminants are generally low at both sites, contaminants were detected in soils or groundwater which suggest that a release to groundwater may have occurred. At both sites; however, the contaminants were petroleum hydrocarbons (TEH) which would not be particularly mobile in groundwater.

Sites considered with low contaminant migration potential to groundwater include those sites with low source volumes or relatively immobile contaminants (Table 9-2). Removal actions at the Farm Acquisition sites and Container Storage Area have significantly reduced the amount of wastes present at each site which could impact groundwater. At other sites, the amount of materials disposed are known to be small (Kitchen and Pond Landfills, Gas Instruction House, Horse Dip Tank facility) or the contaminants relatively immobile (Demo Pit, WWTP) (Table 9-2).

GROUNDWATER TARGETS

According to PA Guidance, groundwater pathway targets are drinking water supply wells within 4 miles of the site (Ref. 1). A map showing the location of private and municipal wells within 4 miles of Camp Dodge is shown in Figure 9-1. This map was compiled from the IDNR well information database and includes all known wells, including municipal, private residential wells, and irrigation wells (Ref. 76. For the purpose of this PA, no attempt was made to identify which wells were currently being utilized for drinking water supply purposes versus other uses. The depths of the wells have been identified as either being completed in the surficial aquifer or bedrock aquifer (Figure 9-1). The center of the 4-mile radius around Camp Dodge is located at the corner of Sections 25, 26, 35 and 36 of T80N and R25W.

Most wells installed within the area around Camp Dodge are completed in the Beaver Creek aquifer (Figure 9-1). Well depths for wells completed in the Beaver Creek aquifer range from about 30 to 120 feet deep (Ref. 76). Wells identified in upland areas may utilize the local drift aquifer for water supply. These wells are typically 40 to 50 feet deep. In areas east and west of Camp Dodge and the Beaver Creek valley, the Mississippian aquifer is more heavily utilized (Figure 9-1). The City of Grimes maintains two production wells installed in the Mississippian aquifer located approximately 3.8 miles west of the Camp Dodge facility (Figure 9-1). These wells are 500 to 610 feet deep, respectively (Ref. 76). East of Camp Dodge, and east of Saylorville Reservoir, several Mississippian wells have been identified. The depths of these wells range from 500 to 600 feet deep (Ref. 76).

The nearest drinking water wells to Camp Dodge are the two production wells located in the southwestern portion of the Camp Dodge cantonment area (Figure 9-2). These two wells, Wells #7 and #8, are approximately 70 feet deep and screened in the Beaver Creek buried channel aquifer (Ref. 76). The entire Camp Dodge facility, including people living on base and the worker population, is served by water derived from the two wells. Groundwater extracted from Wells #7 and #8 is pumped to an on-site treatment facility and then pumped to a large water holding tank located on NW Beaver Avenue (Ref. 77).

Currently, there are 13 households located on Camp Dodge property and 7 households off Camp Dodge that use water supplied by Camp Dodge Wells #7 and #8 (Ref. 78). Assuming a population of 3.8 persons per household, the resident population using the two Camp Dodge wells is estimated to be 78 people. In addition, Camp Dodge employs 517 people on a full-time basis at the facility. The worker population would also utilize water withdrawn from Wells #7 and #8 (Ref. 16). It should also be noted that in 1996, 11,200 people participated in organized training activities at the base (Ref. 16). Based on the resident and worker populations, the total population of the Camp Dodge facility served by Wells #7 and #8 is estimated to be approximately 595 people.

In the area around Camp Dodge, most water used for residential purposes comes from either the City of Johnston or the Xenia Rural Water District. The boundaries of the two water districts are shown in Figure 9-3. The City of Johnston drinking water is purchased from the City of Des Moines and is transported by pipeline to the Johnston population (Ref. 79). The City of Des Moines obtains its water from a surface water intake on the Des Moines River (see Section 10) and several production wells located in central and southwestern Des Moines. The Xenia Rural Water District obtains its water primarily from the Beaver Creek aquifer southwest of the town of Woodward. The rural water district also maintains a tie in with the City of Des Moines near the Jester park area for emergency backup purposes (Ref. 80).

There are no federal or state wellhead protection areas within 4 miles of Camp Dodge (Ref. 26).

Target Population Areas for PA Sites

Because the location of the various PA sites in the Camp Dodge area ranges over a large area, the target population served by drinking water wells within 4 miles of each PA site can vary considerably. Therefore, the target population around each PA site has been summarized and is presented in Table 9-3. Target populations can be evaluated as primary targets (wells suspected of being impacted by contaminants) or secondary targets (wells having a low likelihood of

exposure to contaminants). Based on the location of the PA sites in relation to identified water supplies, no primary target populations have been identified for any of the PA sites.

Secondary target population totals are divided according to various distances around each site: less than 1/4 mile, 1/4 to 1/2 mile, 1/2 mile to 1 mile, 1 to 2 miles, 2 to 3 miles, and 3 to 4 miles. From the distance categories, more weight is applied to populations closer to the site than those located further away. For purposes of this PA, all wells identified within 4 miles of each PA site, shown in Figure 9-1, have been considered regardless of the aquifer utilized or their use. A residential population was assigned to each well based on the average number of persons per household in Polk County (assumed to be 3.8 persons per household; actual 1990 census data for Polk County indicates an average of 2.47 persons per household and 3.03 persons per family, Ref. 81). A higher average number was utilized for this PA to account for wells/persons not identified in Figure 9-1.

The distance to the nearest well for each PA site is also provided in Table 9-3. For sites in the southern portion of the Camp Dodge area, the distance was calculated by measuring the distance on a map between the PA site and Camp Dodge Wells #7 or #8. In the northern areas, the distances were determined by measuring between the PA site and the nearest well identified in Figure 9-1.

The last column in Table 9-3 is the relative ranking of the location of the PA site to secondary target populations and nearest well. Sites identified as high were those sites located nearest to wells with sizable drinking water populations (less than 1/4 mile between the PA site and the well). Those considered as medium risk were sites located between 1/4 mile and 1 mile of sizable populations, and sites designated as low are located greater than 1 mile from the nearest well and drinking water population.

Based on the ranking criteria, two PA sites, the former WWTP, and the Leach Bed, are considered as a high target risk relative to the other PA sites. Most other sites were identified as medium or low relative risk to drinking water populations (Table 9-3).

SUMMARY OF GROUNDWATER PATHWAY AND TARGETS

Table 9-4 presents a summary of the relative ranking of the PA sites according to aquifer susceptibility, contaminant migration potential, and distance to targets risk. For this comparison, the last column in Tables 9-1, 9-2, and 9-3, respectively, were carried forward to Table 9-4 for an evaluation of the overall groundwater pathway threat. The overall ranking of the groundwater pathway threat was considered based on the hydrogeological setting of the site, the volume and migration characteristics of potential contaminants, and the distance of the site to target populations. Although the overall evaluation is based on side-by-side comparisons, there was some professional judgment applied to give some criteria more weight than others. An explanation for the overall ranking is provided in Table 9-4.

Based on the relative ranking criteria, two sites were classified as "high" in terms of an overall groundwater pathway threat, the Scrap Iron Landfill, and the Leach Bed (Table 9-4). The Scrap Iron Landfill was classified as high because of its location on the Beaver Creek floodplain, the large quantities of mixed wastes, and the distance of the site to the Camp Dodge wells (less than

1 mile). The Leach Bed was considered a threat due primarily to its location near the Camp Dodge wells, and the fact that contaminants are known to exist in groundwater at the Leach Bed.

Several other landfill sites (Cemetery Landfill, LAW Range Landfill, Range Dump, Gravel Pit Dump) have been classified as a medium threat to groundwater (Table 9-4). Although the Cemetery Landfill and Gravel Pit Dump are located considerable distances from major aquifers and wells, both sites have received large quantities of mixed waste materials. Although contamination is not likely suspected at the Range Dump and LAW Range Landfill due to the types of materials disposed at each location, both sites are located on the Beaver Creek floodplain in relatively close proximity to Camp Dodge wells (less than 1 mile).

The Incinerator Area, Demo Pit and Fuel Product Pipeline have also been designated as a medium threat to groundwater (Table 9-4). At the Incinerator Area, large quantities of relatively immobile contaminants (primarily metals) are in close proximity to the Beaver Creek aquifer. Similarly, the contaminants suspected at the Demo Pit would not be particularly mobile; however, the site is located on the flood plain near the Camp Dodge wells. Petroleum contamination is known to exist in soils at the Fuel Product Pipeline area, and its location to the wells, and the lack of information regarding the magnitude of impacts to the area make this site classified as a medium threat.

All other sites were designated as a low threat to groundwater (Table 9-4). Low quantities of wastes were disposed at the Kitchen and Pond Landfills. At the four Farm Acquisition sites, little or no residual contamination remains following soil and waste removal actions at each site. Low quantities of wastes in a upland glacial till setting characterize the low ranking of the Horse Dip Tank, town of Herrold and monitoring well P-10. However, even though the three sites were given a lower relative ranking, each site has possible groundwater issues to address. Pesticide containers littered in the area and the historical use of the Horse Dip Tank suggest possible groundwater impacts in this area. At the town of Herrold, a leaking UST may be located in the vicinity of the former gas station and pesticide residues may have been mobilized from the fire that destroyed the grain elevator.

At monitoring well P-10, acetone was detected in groundwater at this location, possibly signaling a larger groundwater impact nearby.

Low classifications were also given to the WWTP and the Container Storage Area. At the WWTP, any residual contaminants (metals) would be highly immobile, and most soil contaminants would be covered by concrete, gravel, or grass in the area. At the Container Storage Area, RCRA removal actions and UST closure actions have reduced the volume of residual contaminants remaining at this location.

SECTION 10

SURFACE WATER PATHWAY AND TARGETS

This section describes the surface water pathway from various PA sites to potential targets. A relative ranking of each PA site is provided in terms of likelihood to release and threat to targets. At the conclusion of this section, the overall surface water pathway threat is qualitatively evaluated and ranked.

SURFACE WATER PATHWAY

Camp Dodge lies entirely within the Beaver Creek valley (Figure 2-1). Beaver Creek flows southward through the Camp Dodge area where it joins the Des Moines River approximately 3 miles downstream of the site. Little Beaver Creek flows into Beaver Creek in the southwestern portion of the reservation and several smaller creeks and tributary streams discharge into either Beaver Creek or Little Beaver Creek within the Camp Dodge reservation. East of Camp Dodge, Saylorville Reservoir is maintained on the Des Moines River (Figure 10-1).

In the northern section of Camp Dodge, the topography is characterized by numerous swales and closed depressions in between saddle-like ridges and knobs (Figure 2-1). This separates portions of the northern area into smaller closed drainage basins with no clear discernible surface water outlet.

The surface water pathway from Camp Dodge encompasses sections of the Beaver Creek and the Des Moines River. The pathway extends from the southern boundary of the Camp Dodge reservation to a point 15 miles downstream at a railroad bridge across the Des Moines River located approximately 1 mile east of U.S. Highway 65/69 (Figure 10-2). The mean flow rate of Beaver Creek is approximately 200 cubic feet per second (cfs) measured at a USGS gauging station located on NW 70th Street (Ref. 82). The mean flow rate of the Des Moines River is approximately 2,500 cfs above and 4,900 cfs below the confluence of the Des Moines and Raccoon Rivers (Ref. 82).

Portions of the Camp Dodge site lie within the 100-year and 500-year floodplains of either Beaver Creek or Little Beaver Creek (Refs. 26, 83, 89, 85). Both of these floodplain boundaries are nearly identical within the site boundaries (the 500-year floodplain is slightly larger in some areas); therefore, only the 100-year floodplain is shown in Figure 10-1. In the central portion of the Camp Dodge site, west of the cantonment area, there is a gap in the coverage of the floodplain maps provided by FEMA. The reason for this appears to be related to the boundaries of the corporate limits for the City of Johnston (i.e., the area not covered by the maps is not located within the corporate limits). The 100-year floodplain boundaries were subsequently interpolated in this area of the site.

SURFACE WATER PATHWAY EVALUATION

Evaluation Criteria

A summary of the surface water pathway at each PA site and the likelihood for contaminants to release from each site is provided in Table 10-1. This table considers such factors as the distance

from the site to the nearest surface water body, the flood frequency at each site, the type of cover material present (i.e., is the site covered by grass, concrete, bare ground, etc.), and the general topography and relative infiltration rate of the soils at each site.

The distance to surface water was determined by measuring the overland distance from each site to the probable point of entry (PPE) to the nearest surface water body. The surface water body could be Beaver Creek, or some other unnamed drainage channels that discharge into Beaver Creek. Other potential surface water bodies receiving discharge from sites would be Camp Dodge Pond, located east of Beaver Creek (Figure 10-1), and Saylorville Reservoir.

Based on the cover material, topography of the site and the type of soils present, the relative amount of run-off generated at each site can be compared. Sites covered with sandy soils on relatively flat ground will not generate the amount of run-off that a site characterized by steeply sloping ground and hard clayey soils will create. Similarly, sites with a thick cover material, including vegetation or road materials, will not provide access for possible runoff to mobilize surface soil contaminants. Sites with limited cover (i.e., bare ground or dirt) would provide a means for surface water run-off to potentially mobilize contaminants.

PA Site Evaluation

PA sites located nearest to surface water bodies include the Range Dump, the Betz and Herrold farms, and the Gas Instruction House sites (Table 10-1). Each of these sites are located in 100-year floodplain areas. A waste quantity was not suspected at the Gas Instruction House site; therefore, there would be no likelihood to release to surface water in this case (Camp Dodge Pond). The northern boundary of the Range Dump site appeared to be located next to an intermittent drainage channel, although the edge of the dump was not immediately discernible during the site visit (see Section 4). The Range Dump appeared to show evidence for possible mobilization of surface waste materials during a flood event. At the Herrold farm site, dumping of waste materials had occurred on the bank of oxbow lake of Beaver Creek. Although much of the waste materials were removed from the site during 1993 flooding, some evidence of dumping remains at the farm site. The Betz farm site is also located near a former oxbow lake of Beaver Creek. It should be noted that at both the Herrold and Betz farm sites, sampling activities in 1992 did not detect the presence of contaminants in surface water or sediment (see Section 8).

Other sites located in 100-year floodplain areas include Scrap Iron Landfill, LAW Range Landfill, the Demo Pit and the former WWTP (Table 10-1). The Scrap Iron Landfill is located near a low area and approximately 200 feet south of an unnamed drainage channel to Beaver Creek. Several areas of bare ground and distressed vegetation were also observed at the Scrap Iron Landfill site. The LAW Range Landfill and the Demo Pit sites are located several hundred feet east of Beaver Creek on flat ground with potentially high infiltration rates. The Demo Pit site is bermed by more than 6 feet of soil which would actually place the pit above the 500-year floodplain. The former WWTP is located near an unnamed drainage channel on the 100-year floodplain. A portion of the site is covered by gravel and concrete associated with a vehicle cannibalization point (see Section 6).

The Incinerator Area is located partially within the 100-year floodplain and appears to show evidence for possible flooding of the area. Waste materials were scattered considerable distance downstream of the site along the width of the floodplain.

Sites located in the upland areas above the 500-year floodplain are generally located at considerable distance from the nearest surface water body. These sites include the Cemetery Landfill, Gravel Pit Dump, Grief and Melos farms, the Horse Dip Tank, the town of Herrold and monitoring well P-10 (Table 10-1). With the exceptions of Melos farm and monitoring well P-10 sites, all of the sites are located more than 1,000 feet away from the nearest surface water.

The three south cantonment area sites do not pose a surface water release potential. These sites are located more than 4,000 feet away from the nearest surface water, are located above the 500-year floodplain, and are covered by concrete materials (Table 10-1).

Based on the relative likelihood to release ranking, five sites are considered to have medium potential to release contaminants to surface water: Scrap Iron Landfill, Range Dump, Herrold farm, Incinerator Area, and the former WWTP (Table 10-1). Both the Range Dump and Incinerator Area sites show evidence for possible flooding and mobilization of waste materials. At the Herrold farm, although previous sampling did not detect contamination in surface water or sediment, residual contaminants remaining at the site could become mobilized during run-off events. Areas of bare ground and the close proximity of possible contaminants to the ground surface at the Scrap Iron Landfill and WWTP sites may result in possible contaminant migration to surface water at these two sites. Both of these sites are located in the 100-year floodplain of Beaver Creek.

All other PA sites are believed to have a low potential to release to surface water.

SURFACE WATER TARGETS

One drinking water intake is located along the 15-mile surface water pathway. (Ref. 86) The drinking water intake is located on the Des Moines River, approximately 9 miles downstream from the south property boundary of the Camp Dodge reservation (Figure 10-2; Ref. 87) The drinking water intake provides approximately 40 percent of incoming water to the Des Moines Water Works (DMWW) (Ref. 88), which services a population of approximately 320,000. The DMWW service population is considered a secondary surface water target for this PA.

Beaver Creek is classified as a Class B (LR) stream under IAC Chapter 61. Class B (LR) means limited resource warm waters designated for wildlife, aquatic life and secondary body contact uses (Ref. 89). The Des Moines River is designated as both Class A for primary body contact recreation, and Class B (WW) for significant warm water resource (Ref. 89).

Two distinct fisheries are located along the 15-mile surface water pathway in the Beaver Creek and the Des Moines River. The fisheries are classified based on the surface water flow characteristics as a moderate to large stream and a large stream to river, respectively. (Ref. 1) Identified species within the Beaver Creek fishery include several species of minnow, suckers, sunfish and perch. A list of species collected from Beaver Creek in 1992 is included in Table 10-2 (Ref. 90). Literature identifying fish species in the Des Moines River was not

reviewed although similar species to Beaver Creek would be expected. The fisheries are considered secondary surface water targets for the various PA sites.

Sensitive environments in or adjacent to the 15-mile in-water segment consist primarily of wetland areas. Near the Camp Dodge site, wetland areas identified in the National Wetland inventory are shown in Figure 10-1. Total wetland frontage along the entire surface water pathway (15 miles) was not estimated. Within the Camp Dodge reservation, the total wetland frontage is estimated to be approximately 3 miles (Figure 10-1). No threatened or endangered species have been identified along the 15-mile surface water pathway (Ref. 91).

Surface Water Targets for PA Sites

The threat to surface water targets from the various PA sites was evaluated using two criteria: 1) distance to the surface water intake on the Des Moines River; and 2) the distance from the site to a sensitive environment (wetland). A summary of the surface water targets for the PA sites is provided in Table 10-3.

All of the PA sites are located more than 9 miles upstream from the drinking water intake located on the Des Moines River (Table 10-3). The closest site to the intake would be the Betz farm site located in the southern portion of the Camp Dodge reservation. The Melos Farm and Gravel Pit Dump are located more than 15 miles upstream from the surface water intake. Based on the distance of the sites to the nearest intake, all of the sites would be considered a low threat to a surface water target.

The distance from sites to sensitive environments ranges from 0 at several sites to approximately 4,200 feet at the Grief farm site (Table 10-3). Sites located on or immediately adjacent to wetland areas, as designated by the National Wetland Inventory maps, include the Range Dump, Pond Landfill, Herrold farm, and Gas Instruction House sites. Other sites located less than 200 feet from a wetland include the Scrap Iron Landfill, Betz farm, Incinerator Area and Demo Pit sites. For relative ranking purposes, sites within 200 feet of wetland areas were ranked as a medium threat, and all sites located beyond 200 feet were considered a low threat to surface water targets.

SUMMARY OF SURFACE WATER PATHWAY AND TARGETS

Table 10-4 presents a summary of the relative ranking of the PA sites according to their likelihood to release and distance to targets. For this table, the last columns of Tables 10-1 and 10-3 were carried forward to Table 10-4, and an overall ranking of the sites was determined. As discussed in Section 9, the overall evaluation is based on side-by-side comparisons, so professional judgment was applied in some cases to give some criteria more weight than others. An explanation of the overall ranking is provided in Table 10-4.

Based on the relative ranking criteria, four sites have been ranked as a medium risk to surface water: 1) Scrap Iron Landfill, 2) Range Dump, 3) Herrold farm, and 4) Incinerator Area. The Scrap Iron Landfill was classified as a medium risk due to its location near surface water and wetland areas, and because the landfill area exhibited areas of bare ground and discolored soils. Although the site is predominantly flat, there is some slope to the west and north toward surface

water targets. The Range Dump and Incinerator Area sites were also considered medium risks due primarily to their locations on the Beaver Creek 100-year floodplain and close proximity to surface water and wetland areas. Both areas showed evidence for recent flooding. Regarding the Herrold farm, any residual wastes located on the steeply sloping banks of an oxbow lake may migrate, erode downslope and be deposited in the surface water and sediment of the oxbow.

The remaining PA sites were classified as a low priority for potential surface water impacts. Most of these sites were either located considerable distances away from the nearest targets, or were located in areas with flat topography and substantial soil cover.

SECTION 11

SOIL EXPOSURE PATHWAY AND TARGETS

From PA guidance (Ref. 1), surficial soil contamination is assumed to be present at all sites unless the site is covered by an impermeable cover, or more than 2 feet of cover material. Therefore, for this PA, soil exposure pathways at each PA site were qualitatively evaluated to provide a relative ranking of the likelihood for exposure to contaminated soils.

SOIL EXPOSURE PATHWAY

Table 11-1 summaries the likelihood of exposure to soils at the various PA sites. Two factors were considered in the soil exposure evaluation: type and thickness of cover, and access to the site. The last two columns of Table 11-1 provide an overall ranking of the relative likelihood of exposure to soils at each site and an explanation of the relative ranking.

At the various Camp Dodge PA sites, the soil cover consists mainly of soil and vegetation, most of which is less than 2 feet thick. Only the Cemetery Landfill is covered by soils greater than 2 feet thick. An impermeable cover of concrete has been placed over the three Container Storage area sites (Table 11-1). All other sites, with the exception of the four Farm Acquisition sites, do not have a cover thickness greater than 2 feet.

At the Betz, Grief and Melos farm sites, soil removal activities completed at these sites have effectively removed residual surface soil contamination. The upper layer of soil at each of the three sites was removed and verified by soil sampling results. Noncontaminated backfill materials placed in the excavations serve to provide a substantial cover between any residual soil contamination remaining at each site and the ground surface. At the Herrold farm, residual contaminants may remain in the upper soils in the vicinity of the exposed creek bank.

A second factor which could impact possible exposure to surface soil contamination would be how access to the site is permitted. In other words, sites with unlimited access would have greater potential for surface soil exposure to populations than sites fully enclosed by a fence and locked gate. Three types of access restrictions have been considered for the PA sites (Table 11-1):

1. Permission must be obtained from security prior to entering the site area.

2. Permission and a key must be obtained from security to enter the site area. Access to the site is through a locked gate.

3. Permission and a key must be obtained from security prior to entering the site area. Access to the site is through a locked gate. A fence and locked gate completely encloses the site.

The highest level of security was observed at the Demo Pit and Melos farm sites. The demo pit and associated berm were completely surrounded by tall fence and locked gate (see Section 6).

At the Melos farm site, access to the farm is restricted by a locked gate at the front of the farmstead, and the entire farm is surrounded by a fence.

Several other PA sites required a key to enter the area in which the site is located. Most of these areas are associated with surface danger areas and training points. These sites included two sites west of Beaver Creek (Incinerator Area, Horse Dip Tank), three sites located on the gravel road in the vicinity of Camp Dodge Pond (Gas Instruction House, Pond Landfill, Range Dump) and one site located off of the former railroad right of way (Scrap Iron Landfill).

All other sites required either obtaining permission from the Camp Dodge security office or were unrestricted.

Based on the likelihood of exposure evaluation, two sites (Scrap Iron Landfill and the former WWTP) probably exhibit a greater likelihood of exposure than the remaining sites. Although primary access to the Scrap Iron Landfill was restricted by a locked gate, the area can be accessed by other means. Also this site showed evidence of surface soil impacts, bare ground and discolored soils. At the former WWTP, access to the site is unrestricted and some bare ground was noted during a site visit. It is possible that contaminants remaining from the sludge drying beds may reside at or near the ground surface in this area.

All other sites were considered to have a relatively low potential for exposure to surface soil contamination.

SOIL EXPOSURE TARGETS

Resident populations in the Camp Dodge area include residences located on the base, full time workers and seasonal personnel at the site for training exercises. Within the limits of the Camp Dodge reservation, 13 households were identified with a population estimated at 40 individuals (Ref. 78). Camp Dodge employs 517 full time staff and in 1996, 11,200 people participated in organized training activities at Camp Dodge (Ref. 16).

The resident population within 1 mile of Camp Dodge, including the base households, is estimated to be approximately 96 people (Ref. 92). Population counts were compiled from 1990 census data. Within 1 to 2 miles and 2 to 3 miles, 832 and 4,431 individuals, respectively, were identified. At distances greater than 3 miles, population totals would be greater than 10,000.

Based on available information, there are no known terrestrial sensitive environments on site. Additional information regarding terrestrial sensitive environments is currently being compiled by the IA ARNG in their conservation management program (Ref. 16).

SECTION 12

AIR PATHWAY AND TARGETS

This section describes the air pathway from PA sites to potential targets.

AIR PATHWAY

No releases to the air pathway were detected during site visits at any of the PA sites. There are no known reports of odors, citizen complaints, or ill health effects resulting from the migration of contaminants along the air pathway from sources at the Camp Dodge site. Most of the sites are heavily vegetated or covered with soil cover and/or concrete which would limit the creation of airborne dust or vapors.

Historical burning of waste materials was known to have occurred at the Incinerator Area and Scrap Iron Landfill. During their periods of operation, both of these sites would have released vapors to the environment. At the present time, both sites are covered with vegetation, and prevailing winds from the north and west are blocked by trees forming the northern and western site boundaries to the sites. Areas of bare ground at the Scrap Iron Landfill would be more susceptible to generation of airborne dust. During the site visit to the Gravel Pit Dump, smoldering wood materials were observed. There is evidence at the dump site that burning of combustible waste materials has occasionally occurred in this area.

AIR TARGETS

There are no primary targets of the air pathway at the Camp Dodge site. The nearest residences to the various sites would be located within the cantonment area where 13 household have been identified (Ref. 78). The nearest PA sites to these households would be three Container Storage Area sites located in the southwestern portion of the cantonment area. These sites are covered with concrete and would not pose a threat to release to air.

Known secondary targets of the air pathway would include wetlands and more than 5,930 people living or working within 3 miles of the Camp Dodge facility (Ref. 93). A 4-mile radius around the facility would include northern Des Moines and southern Johnston populations. Adding these populations to the total would likely increase the population count, within 4 miles of Camp Dodge to more than 10,000 people. A summary of the population apportionment of a 0-1, 1-2 and 2-3 mile radius of Camp Dodge is provided below:

Radial Distance	Population
0-1 mile	667 *
1-2 mile	832
2-3 mile	4,431

* Population includes 78 resident individuals and 517 full-time workers at Camp Dodge.

Because of the widespread locations of the various PA sites around the Camp Dodge reservation, smaller radial populations (i.e., 0 to 1/4 mile, 1/4 to 1/2 mile, etc.) were not determined for each site.

Within the Camp Dodge reservation, secondary targets of the air pathway include approximately 10 acres of wetlands. A wetland delineation map for the Camp Dodge area is provided in Section 10 (Figure 10-1). No threatened or endangered species have been identified along the surface water pathway (Ref. 92).

SECTION 13

SUMMARY AND RECOMMENDATIONS

This section summarizes the findings of PA activities at the various Camp Dodge sites and provides recommendations for additional work, where necessary.

SUMMARY AND RECOMMENDATIONS OF THE CAMP DODGE PA

PA Summary

The site identification and selection process was initially conducted to identify sites eligible for PA consideration. This was performed by working with IA ARNG personnel to identify all possible locations at Camp Dodge where hazardous substances, pollutants and contaminants are known to have been in use, or have been used in the past. Potential sites which are currently being addressed under another environmental statute, or sites which are currently active and under the supervision of trained personnel, were not included in this PA evaluation.

Twenty-one sites were retained from the screening process in Section 3 for evaluation in this PA. The sites were broken down into five categories based on their historical use or location at Camp Dodge (Sections 4 through 8, respectively): 1) Landfill Sites, 2) Historical Sites (pre-WWII), 3) Historical Sites (post-WWII), 4) South Cantonment Area Sites, and 5) Farm Acquisition sites. For each PA site, the location and setting, site history, waste characteristics, and likelihood to release to groundwater, surface water, soil and air were described and evaluated.

In Sections 9 through 12, the groundwater, surface water, soil exposure and air pathways from the various PA sites to potential targets at Camp Dodge were characterized. At the conclusion of each section, the relative threat of each PA site to pathway targets was qualitatively evaluated and ranked.

Summary of Overall Risk

Table 13-1 presents a summary of the relative ranking of the PA sites according to their summary ranking from Sections 9 through 12. For Table 13-1, the overall ranking from each pathway (groundwater, surface water, soil exposure and air) was carried forward and the overall risk from each PA site was qualitatively determined. Sites were ranked based on their relative risk for contaminants to migrate along each pathway to potential target populations. Sites identified with a high overall risk were considered to be a greater risk to groundwater, surface water, soil exposure or air targets than sites determined to be a medium risk. Likewise, sites identified with a low risk were less likely to provide a pathway for contaminants to migrate to potential targets.

Based on the summary evaluation, two sites were identified as a high relative risk: 1) Scrap Iron Landfill; and 2) Leach Bed (Table 13-1). Both of these sites were considered a high risk due primarily to potential contaminant migration in groundwater, although the Scrap Iron Landfill was also considered a medium risk via the surface water and soil pathways. Eight sites were identified as a medium risk (Cemetery Landfill, LAW Range Landfill, Range Dump and Gravel Pit Dump, Incinerator Area, Demo Pit, former WWTP, and Fuel Product Pipeline areas)

(Table 13-1). The remainder of the PA sites were considered to be a relatively low risk compared to the other sites.

Overall Recommendations

Recommendations for additional action at the various PA sites are provided in Table 13-1. Two categories for additional action are proposed: limited action, and no action. Sites with proposed limited action would be primarily focused on investigating the groundwater, surface water and soil pathways at various sites to determine whether a release has occurred, and whether the release constitutes a threat to the pathway targets.

Limited action is proposed at 13 sites from the Camp Dodge PA (Table 13-1). The primary pathway threat at all but one of the PA sites is to groundwater (the lone exception is the former WWTP site). Surface water action is proposed at three sites (Scrap Iron Landfill, Range Dump, Incinerator Area), and soil action is proposed at three sites, (Scrap Iron Landfill, Horse Dip Tank facility, former WWTP).

At three of the sites, action is proposed even though the overall ranking of the site was considered low (Horse Dip Tank facility, town of Herrold, monitoring well P-10). At each of these sites, although there is a low risk for contaminants to migrate to potential targets, a release to the environment is suspected. Additional action is proposed at these three sites to characterize the nature of the release and verify that the release will not impact potential targets.

SUMMARY AND RECOMMENDATIONS OF INDIVIDUAL PA SITES

A summary of the findings and recommendations for further action at the individual PA sites is provided below. The sites are listed in the order of appearance in which they appear in Table 13-1.

Cemetery Landfill

Summary. The Cemetery Landfill is located approximately 2,500 feet north of the cantonment area along Des Moines Avenue along the eastern bluffs of the Beaver Creek floodplain. The landfill was the main post disposal location from the 1970s to 1985 for a wide variety of wastes and consists of approximately 10 acres of land. The total volume of solid wastes disposed at the Cemetery Landfill may range up to 263,000 cu yd. Because the landfill is unlined, VOCs (including fuel hydrocarbons), SVOCs and metals contaminants may have released to groundwater. The site is capped with more than 3 feet of cover material which would prevent releases from occurring to surface water, soil and air.

Recommendations. A limited groundwater investigation is recommended to determine whether a release to groundwater has occurred.

Scrap Iron Landfill

Summary. The Scrap Iron Landfill is located northwest of the cantonment area along the former Interurban railroad line, midway between the cantonment area and the town of Herrold. The Scrap Iron Landfill was used by Camp Dodge from approximately 1958 to the early 1970s for disposal of a wide range of materials. Wastes were typically burned with fires being maintained at all times. If a 15-foot thickness is assumed over the entire landfill area (maximum area of

450,000 sq ft), then the volume of wastes disposed at the Scrap Iron Landfill could be as high as 250,000 cu yd. Contaminants present at the landfill may include VOCs, SVOCs, and metals. These contaminants may have been released to groundwater, surface water and soils.

Recommendations. A screening investigation is recommended to determine whether contaminant releases have occurred to groundwater, surface water and soils.

Range Dump

Summary. The Range Dump is located approximately 1,500 feet west of the cantonment area and northwest of the firing ranges, and is accessed via a dirt road from Camp Dodge Pond to the west. The Range Dump was used as a disposal area for a variety of construction and demolition wastes, yard wastes, brush and stumps until approximately 1987. Based on the dimensions of the site and the suspected depth of burial (average of 10 feet), it is estimated that approximately 32,500 cu yd of materials were landfilled. Contaminants present at the Range Dump may include weathering residuals associated with various inert materials, including hydrocarbons, SVOCs and metals. Because the site is located on the Beaver Creek floodplain and borders a low drainage area, a release to shallow groundwater or surface water may have occurred.

Recommendations. Limited groundwater and surface water sampling is recommended to determine whether a release to groundwater or surface water has occurred.

LAW Range Landfill

Summary. The LAW Range Landfill is located approximately 2,500 feet west of the cantonment area in the southwestern portion of the Camp Dodge facility, between Beaver Creek to the east and the firing ranges to the west. The LAW Range Landfill was operated for a brief period in the early 1970s for disposal of a variety of materials, including old cars and other vehicles, trees, brush, broken concrete and other C&D materials. Waste materials were disposed at the LAW Range Landfill by filling in naturally-occurring low swampy areas with vehicles and other debris. Based on the estimated dimensions of the dump, and the approximate depth of burial (5 feet), approximately 18,300 cu yd of materials were disposed at the landfill. Potential contaminants at the LAW Range Landfill would be associated with the burial of vehicles. Because wastes were placed in direct contact with groundwater or standing surface water with no subsurface containment, a release to groundwater is possible. The flat topography of the site and the highly permeable soil cover would limit surface water runoff and soil/air exposure releases.

Recommendations. A screening level EM survey is recommended to delineate the boundaries of the landfill and the location of the buried vehicles. Based on this activity, limited groundwater investigation is recommended to determine whether a release to groundwater has occurred.

Gravel Pit Dump

Summary. The Gravel Pit Dump occupies a 9-acre area located approximately 1.5 miles north of the cantonment area and 3/4 mile northeast of the town of Herrold. Although little information was obtained regarding the period of operation of the Gravel Pit Dump, it is suspected that most dumping occurred after the mid-1970s. Waste materials were disposed by filling in the gravel pit excavations with a variety of materials, including C&D materials, trees, buildings, beds, mattresses and other general debris. Based on the estimated dimensions of the

dump and the approximate depth of burial (15 feet), approximately 222,000 cu yd of materials may have been disposed at the Gravel Pit Dump. Potential contaminants at the dump may include weathering residuals associated with buried materials, including hydrocarbons, waste oils, asbestos, and metals. Although the site is located in an upland glacial setting, potential contaminants could migrate to groundwater contained within the sand and gravel. The site area is predominantly flat and heavily vegetated which would limit surface water runoff. Abundant surface debris and C&D materials on the land surface, and evidence for recent burning, suggest that the dump area remains active today.

Recommendations. Limited groundwater sampling is recommended to determine whether a release to groundwater has occurred.

Kitchen Landfill

Summary. The Kitchen Landfill is located in the northern portion of the cantonment area and north of the new ammunition storage area. The landfill was used for a brief period (two to three years) in the late 1960s to early 1970s for disposal of household trash and wet garbage. Based on the approximate dimensions of the Kitchen Landfill (150 feet long, 40 feet wide and 15 feet deep), approximately 3,300 cu yd (90,000 cu ft) of waste materials were placed in the landfill. Wastes disposed at the landfill consisted primarily of household trash and garbage which would typically not contain hazardous substances. Potential contaminants at the Kitchen Landfill would consist predominantly of dissolved solids or other nontoxic constituents. Migration of potentially hazardous substances from the landfill would not be expected.

Recommendations. No further action is recommended for the Kitchen Landfill site.

Pond Landfill

Summary. The Pond Landfill is located west of the cantonment area along the north side of a dirt road from Camp Dodge Pond to the west and the Range Dump to the east. The Pond Landfill was used for a 1- to 2-month period prior to starting the Kitchen Landfill. The landfill was constructed by excavating into the soil with a bulldozer and filling the excavation with wet garbage and household trash. Based on the maximum suspected dimensions of the Pond Landfill (60 feet long, 12 feet wide and 10 feet deep), approximately 267 cu yd (7,200 cu ft) of waste materials were placed in the landfill. Waste materials would consist primarily of household trash and garbage and would not be expected to contain hazardous substances.

Recommendations. No further action is recommended for the Pond Landfill site.

Incinerator Area

Summary. The Incinerator Area is located on the west side of Beaver Creek and is accessed through a locked gate and dirt road east of NW 86th Street. The Incinerator Area was probably constructed around 1917 and was used as the primary waste disposal area for the camp during the WWI era. The site today consists of several partially intact buildings including a concrete loading platform, incinerator foundation and two brick manholes. Wastes in the Incinerator Area would consist primarily of ash, and partially burned or melted materials from the incineration process. Based on the location of the scattered surface debris and the burned materials, it is speculated that much of the hillslope behind the incinerator is composed of waste materials. The

estimated quantity of wastes at the Incinerator Area is approximately 3,000 cu yd. The types of contaminants present would consist primarily of metals, including heavy metals such as arsenic, lead, copper, cadmium, chromium and zinc. Metal contaminants are not mobile in groundwater; however the site is located next to the Beaver Creek floodplain and the depth to groundwater is less than 10 feet. There is evidence to suggest that the scattered debris present along the edge of the floodplain and the lower hillslope were mobilized by flooding surface water from Beaver Creek. The remote location of the site and vegetative cover would limit soil or air exposure pathways.

Recommendations. Limited groundwater and surface water sampling is recommended to determine whether a release to these media has occurred.

Horse Dip Tank

Summary. The Horse Dip Tank is located west of Beaver Creek and situated between Beaver Creek to the east and NW 86th Street to the west. The site consists of two main structures, an old wooden building and a long and narrow concrete trough. The Horse Dip Tank area was located in the former Remount Station area of Camp Dodge. Although little specific information is known about how the Horse Dip Tank was used at the remount station, it is hypothesized that horses or other livestock were walked down through the concrete trough which was filled with some form of disinfectant solution. Three types of products were most likely used for livestock dipping in the early 1900s: lime sulfur, chrysilics, and arsenicals. Potential site contaminants from its historical use would include coal tar derivatives and metals. Other potential contaminants would include various residual materials from numerous insecticide cans and oil cans scattered around the site area today. The Horse Dip Tank area is located on an upland terrace above the floodplain of Beaver Creek and is likely underlain by low permeable soils. The site area is generally flat and covered by vegetation with no drainage patterns evident. The concrete trough is not covered and various cans and other debris are located in the bottom of the trough.

Recommendations. Limited soil and groundwater sampling is recommended to determine whether a release to soils or groundwater has occurred. Additional removal of the scattered cans and debris at the site is also suggested.

Gas Instruction House

Summary. The Gas Instruction House was located in the west-central portion of Camp Dodge on the west side of Camp Dodge Pond. Currently, there is no evidence of the Gas Instruction House on the Camp Dodge grounds. The Gas Instruction House was constructed for WWI combat training in the use of gas masks and simulated gas attacks. Chemical warfare materials listed in the records as being shipped to Camp Dodge for training purposes included the following materials: HC smoke candles, CN smoke candles, CN grenades (hand and rifle), and WP grenades (hand and rifle). In 1989, one gas identification set was recovered by the Technical Escort Unit at Camp Dodge. However, this gas identification set originated off site, was brought to Camp Dodge by an individual, and was unrelated to past training practices at Camp Dodge. Based on the available information regarding the types and uses of chemical warfare materials at Camp Dodge, there is no basis to conclude that hazardous substances associated with these materials are present in the vicinity of the Gas Instruction House.

Recommendations. No further action is recommended at the Gas Instruction House.

Demolition Pit

Summary. The Demo Pit is located approximately 225 feet north of the LAW Range Landfill in the southwestern portion of the Camp Dodge facility. The Demo Pit was constructed in the early 1970s by initially excavating a large hole and then building berms around the area. The Demo Pit was used primarily by IA ARNG personnel for explosives training, although the City of Des Moines Police Department also used the area to detonate bombs gathered by the bomb squad. It was estimated that the Demo Pit was used a maximum of 20 times per year. The estimated volume of contaminated material at the bottom of the Demo Pit is approximately 474 cu yd. Potential contaminants associated with explosives materials include nitroaromatics and nitroamines. The Demo Pit site is located on the Beaver Creek floodplain and the base of the pit is less than 5 feet from groundwater. Because the site is bermed and surrounded by a locked fence, surface water and soil pathways would be limited.

Recommendations. Limited groundwater investigation is recommended to determine whether a release to groundwater has occurred.

Former WWTP

Summary. The WWTP for the Camp Dodge facility was located in the southwestern portion of installation, approximately 1,500 feet west of the cantonment area. In 1989 the WWTP was dismantled and there is currently no evidence of the former plant at the site. Currently, the grounds of the former WWTP are used for a vehicle storage and cannibalization area. The former WWTP was constructed in the 1930s and consisted of five main structures: 1) pump station, 2) primary clarifier, 3) filters, 4) sludge digester, and 5) sludge drying beds. Wastes remaining at the former WWTP were probably associated with the digester or sludge drying beds. Potential contaminants would be associated with the burial of residual WWTP sludge, including heavy metals and other inorganics. Although depth to groundwater is less than 10 feet, metals are not typically mobile in groundwater. The site area is very flat and there would be little potential to generate runoff. Soils at the site are not covered and the manner in which the contaminants were disposed suggests that soil exposure in the unrestricted area could occur.

Recommendations. Limited soil investigation is recommended to determine whether a soil exposure risk is present at the site.

Monitoring Well P-10

Summary. Monitoring well P-10 is located in the northwestern area of the Camp Dodge training grounds, approximately 3/4 mile northwest of the town of Herrold. The well was installed in October 1996 by the IDNR-GSB as part of their detailed mapping study at Camp Dodge. The well was installed to a depth of 21.2 feet and screened from 18.5 feet to 20.5 feet. After it was installed, a "paint-like" odor was noted in the head space of the well during subsequent water level measurement activities. A water sample from the well detected the presence of acetone at a concentration of 624 μg/L.

Recommendations. A groundwater release has occurred in the area of monitoring well P-10. Limited groundwater investigation is recommended to determine the source of the acetone and delineate the nature and extent of groundwater impacts.

Town of Herrold

Summary. The 5.9-acre, unincorporated town of Herrold is located approximately 1.2 miles northwest of the Camp Dodge cantonment area. Currently, the town of Herrold is completely abandoned and used for National Guard training or training by the Iowa Law Enforcement Academy. All of the buildings remaining in town are boarded up to prevent unauthorized access. During the 1920s, 30s and 40s, the town of Herrold was centered around a railroad, mining and agriculture economy. After the 1940s and up until the town was acquired by Army Corps of Engineers in the late 1980s, the town of Herrold was home to a small number of people and few businesses, including a gas station, grain elevator, and county maintenance shop. Wastes disposed at the town of Herrold include miscellaneous spills, tanks or debris left behind after the town was purchased by the USACE. At the town of Herrold, which would include the former gas station, the county garage, the grain elevator, and the ordnance building (powder house), there is potential for contaminants to release to shallow groundwater at the former gas station location and the grain elevator. An EM31 survey conducted in the vicinity of the former gas station detected a subsurface anomaly believed to be a former UST. Potential contaminants in the area of the former gas station would include primarily hydrocarbons. Herbicides or grain fumigants may have been released from the grain elevator area after it burned down in 1979.

Recommendations. Excavation of the subsurface anomaly at the former gas station is recommended to determine if the anomaly is a UST. If a leak is detected, a traditional UST investigation is recommended. A limited soil and groundwater investigation is also recommended at the former grain elevator to determine whether a release of herbicides or other agricultural chemicals has occurred in this area of the town.

Container Storage Area

Summary. The Container Storage Area is located in an alleyway between buildings S-3 and S-4 in the south-central portion of the cantonment area. The alleyway between S-3 and S-4 is comprised of three separate sites that have been grouped together for purposes of this PA. Each "subsite" has been the subject of individual investigation and remediation activities since 1992. The three sites contained in the Container Storage Area consist of 1) Container Storage Area; 2) USTs; and 3) north S-3, S-4 alley. All three sites have undergone soil removal activities to reduce concentrations of lead and various VOCs in soils. Potential contaminants in the Container Storage Area would include low concentrations of residual contaminants remaining in soil and shallow groundwater including VOCs, fuel-related hydrocarbons, and metals. Soils in the area are covered by new concrete which would prevent surface water contact and potential soil exposure.

Recommendations. No further action is recommended at the Container Storage Area.

Fuel Product Pipeline

Summary. An abandoned Fuel Product Pipeline was encountered during excavation activities associated with a retaining wall construction project adjacent to Building S-3. The abandoned

pipeline was located approximately 15 feet south of Building S-3 and appeared to be trending in a east-west orientation. The depth of the pipeline was approximately 3 feet below grade. A soil sample from the excavation showed the presence of TEH at a concentration of 1,100 mg/kg. The source of the release at the time of notification was unknown, although was believed to be associated with an abandoned fuel line from a historical aboveground fuel storage tank that was located approximately 600 feet east of the excavation. The contaminated soil area appeared to be localized and limited to approximately 50 sq ft. Potential contaminants associated with the pipeline would be fuel-related hydrocarbons, including BTEX, TEH, or TPH constituents. Based on the detection of elevated TEH levels in soils, a release to groundwater may have occurred in the area. Soils in the area are covered by new concrete which would prevent potential surface water and soil exposure.

Recommendations. Limited groundwater sampling is recommended to determine whether a release to groundwater has occurred. Soil sampling from the borings should be conducted to evaluate the possible extent of fuel-related impacts to soils in the area.

Leach Bed

Summary. The Leach Bed site is located west of Building S-25 in the western portion of the cantonment area. The site was discovered during construction of a concrete road (Maintenance Drive) and storm sewer collection system. Two soil borings installed in the Leach Bed indicated the presence of elevated concentrations of gasoline and waste oil in soil and groundwater. The source of the effluent to the former Leach Bed is not known conclusively but is suspected to have received effluent from a former vehicle wash rack located approximately 300 feet to the east. The dimensions of the Leach Bed have not been established but it is estimated to be approximately 30 feet square and six feet in depth. Contaminants present at the former Leach Bed site consist of various petroleum hydrocarbons, including BTEX, gasoline, Fuel Oil #1, Fuel Oil #2 and waste oil.

Recommendations. A limited subsurface soil and groundwater investigation is recommended to determine the magnitude and extent of hydrocarbon contamination in the Leach Bed area.

Betz Farm

Summary. The Betz farm site is located along the southern boundary of the Camp Dodge reservation. Soil, groundwater and surface water sampling activities conducted in 1992 showed localized soil contamination near a former AST, sludge-filled drum, and automotive battery pile. Soils from each area of impact were excavated and disposed off site. In 1997, contaminated soils from two agricultural chemical storage areas at the farm were discovered. These herbicides impacted soils were excavated and removed. Contaminants remaining at the Betz farm site would be present as residual soil contamination located near the former AST, drum, automotive battery pile, and ag-chem storage areas. However, because of the soil excavation activities implemented in these areas, any residual contamination would be very minimal.

Recommendations. No further action is recommended at the Betz farm site.

Grief Farm Site

Summary. The Henry Grief farm is located in the northern portion of the Camp Dodge reservation and north of the town of Herrold. In 1992, soil sampling activities identified

petroleum contamination of soils near two former fuel tanks and a storage building. Soils in all of the areas were excavated and transported to the Camp Dodge landfarm treatment area. Groundwater samples from two wells installed near the soil-impacted areas did not indicate any hydrocarbon contamination. Contaminants remaining at the Grief farm would be associated with residual petroleum products remaining in the excavation areas. However, any residual contamination would be expected to be less than State of Iowa action levels.

Recommendations. No further action is recommended at the Grief farm site.

Herrold Farm Site

Summary. The Herrold farm site is located along the channel of Beaver Creek approximately 0.4 miles west of the town of Herrold. In 1992, soil, surface water and sediment sampling at the site did not detect contaminants of concern at the Herrold farm. The investigation did recommend debris removal be conducted on the slope behind the Herrold farm residence along the Beaver Creek channel. During a site visit in 1997, scattered debris was still evident along the hillslope behind the Herrold residence. Although low levels of contaminants could be present in small localized areas, including hydrocarbons, metals and herbicides, previous sampling efforts did not detect any contamination.

Recommendations. No further action is recommended at the Herrold farm site.

Melos Farm Site

Summary. The Melos farm site is located at 10186 NW Beaver Drive in the northern portion of the Camp Dodge reservation. Field sampling activities conducted in 1992 found petroleum contamination below two leaking drums of waste oil. Soils below both areas of the site were excavated in 1992 and backfilled with clean soil. Sampling results from the base of the two excavations indicated that hydrocarbons were not present above laboratory detection limits. Therefore, any residual petroleum contamination remaining in these two areas of the site would not be present at concentrations representing health-based risks.

Recommendations. No further action is recommended at the Melos farm site.

SECTION 14

ADDITIONAL PA CHARACTERIZATION ACTIVITIES AND RECOMMENDATIONS

This section summarizes the findings of additional PA characterization activities conducted at the various Camp Dodge sites and provides recommendations for each site. The IA ARNG elected to conduct these additional characterization activities as part of the PA in an effort to further screen the identified sites. The recommendations for each of the sites where further evaluation was conducted are summarized in Table 14-1.

CHARACTERIZATION METHODOLOGIES

Piezometer Installation and Groundwater Sampling

On June 15-17, 1998, Montgomery Watson directed the installation of a total of 24 piezometers at selected PA sites. The piezometers were installed using a truck-mounted Geoprobe® operated by Hydro-Logic, Inc. of Eudora, Kansas. The piezometers were constructed of 1-inch inner diameter PVC screen and risers. Screen length on each piezometer was 10 feet. Soil samples were not collected during installation of the piezometers.

Following installation, the piezometers were developed using a peristaltic pump with dedicated tubing, or dedicated Waterra tubing and foot valves. After development, groundwater samples were collected for analysis for the constituents identified in Table 14-2. Keystone performed the laboratory analyses for samples collected as part of the additional PA characterization activities.

Upon completion of the groundwater sampling, piezometer materials were removed from the ground and the holes were plugged with granular bentonite. Two piezometers installed at the Gravel Pit Dump Site were destroyed by grading and disposal activities prior to sampling and plugging.

Surface Water Sampling

Surface water sampling was conducted at up- and downgradient locations at the three PA sites indicated in Table 14-2. The surface water samples were collected by filling the laboratory supplied sample containers directly from the surface water body.

Sediment and Soil Sampling

Sediment or surface soil samples were collected from the 0- to 6-inch depth interval at the six PA sites as indicated in Table 14-2. These sediment/soil samples were collected, using stainless steel spoons or a hand auger, and transferred directly to the sample containers. The sampling equipment was decontaminated prior to use at the site and between subsequent sampling locations.

BASIS FOR EVALUATION

Groundwater

In order to evaluate site groundwater quality, a comparison was made to the IDNR Action Levels established by Chapter 133 of the IAC. IDNR Action Levels establish specific chemical and exposure numbers for lifetime exposure, cancer risks, and drinking water exposure over a 70-year period. These IDNR Action Levels are presented in the PA Report for use as screening levels only and are not being proposed for use as potential cleanup goals. The following are definitions of various terms used in Rule 567-133.2 (455B, 455E), IAC.

IDNR Action Level. The IDNR Action Level for any contaminant is as follows: the EPA Health Advisory Level (HAL) if one exists; if there is no HAL, then the EPA Negligible Risk Level (NRL); if there is no HAL or NRL, then the EPA Maximum Contaminant Level (MCL), Secondary Maximum Contaminant Level (SMCL), or Maximum Contaminant Level Goal (MCLG). If there is no HAL, NRL, MCL, SMCL, or MCLG, an action level may be established on a case-by-case basis by the IDNR based on current technical literature and recommended guidelines of the EPA and recognized experts.

HAL. A lifetime HAL for a contaminant established by EPA. Health advisories represent the concentration of a single contaminant, based on current toxicological information, in drinking water which is not expected to cause adverse health effects over lifetime exposure.

NRL. The NRL for carcinogens established by EPA, which is an estimate of the concentration of a contaminant that would cause one additional cancer case per million people exposed over a lifetime to the contaminant (1×10^{-6} cancer risk).

MCL. The enforceable MCL established by EPA pursuant to the Safe Drinking Water Act.

SMCL. An SMCL exists for some parameters that do not have HALs, NRLs, or MCLs. This number is usually based on the aesthetic qualities of the parameter and are generally not enforceable limits pursuant to the Safe Drinking Water Act.

MCLG. An MCLG is a nonenforceable concentration of a drinking water contaminant that is protective of adverse human health effects and allows an adequate margin of safety.

The IDNR Action Levels are provided alongside the groundwater analytical results for comparative purpose.

Surface Water

In order to evaluate surface water quality at Camp Dodge, a comparison was made to the IDNR Water Quality Standards established by Chapter 61 of the IAC. IDNR Water Quality Standards establish specific numeric and nonnumeric standards for surface water based on the designated use of the stream segment in question. The IDNR Water Quality Standards are presented in the

PA Report for use as screening levels only and are not being proposed for use as potential cleanup goals.

Beaver Creek and its tributaries at the site are identified as a Limited Resource Warm Water (Class B(LR)) in Chapter 61 of the IAC. Chapter 61 of the IAC defines a Limited Resource Warm Water as "waters in which flow or other physical characteristics limit the ability of the water body to maintain a balanced warm water community. Such waters support only populations composed of species able to survive and reproduce in a wide range of physical and chemical conditions, and are not generally harvested for human consumption."

The IDNR Water Quality Standards are provided alongside the surface water analytical results for comparative purpose.

Surface Soil

In order to evaluate surface soil quality at Camp Dodge, a comparison was made to the EPA Preliminary Remediation Goals (PRGs). The PRGs combine current EPA toxicity values with generic exposure factors to estimate contaminant concentrations in surface soil that are protective of humans, including sensitive groups, over a lifetime. Because of the current site use and controlled access industrial PRGs are used for comparison to surface soil concentrations at Camp Dodge. The PRGs have been calculated to be protective of human exposure in an industrial setting and are not necessarily protective of groundwater. The PRGs are presented here for use as screening levels only and are not being proposed for use as potential cleanup goals.

The PRGs for industrial soil are provided alongside the surface soil analytical results for comparative purpose.

ADDITIONAL CHARACTERIZATION AND RECOMMENDATIONS FOR INDIVIDUAL PA SITES

A summary of the findings and recommendations for the individual PA sites is provided below. The sites are listed in the order in which they appear in Table 14-2. Copies of the analytical reports generated during the additional characterization are contained in Appendix E.

Cemetery Landfill

Additional Characterization. Three piezometers (PZ-16, PZ-17, and PZ-18; Figure 14-1) were installed at locations expected to be hydraulically downgradient of the Cemetery Landfill site. Piezometers PZ-17 and PZ-18 were installed to depths of approximately 15 feet below ground surface (bgs); piezometer PZ-16 was installed at a depth of approximately 10.5 feet bgs after several attempts to advance deeper at the location were unsuccessful. Piezometers PZ-17 and PZ-18 were sampled following development and purging; however, PZ-16 did not contain sufficient water to allow the collection of a groundwater sample. Analytical results from the groundwater sampling of PZ-17 and PZ-18 are provided in Table 14-3.

No organic compounds were detected above the analytical reporting limits in the groundwater samples collected at the Cemetery Landfill. Six metals (arsenic, barium, cadmium, chromium,

lead, and mercury) were detected above the applicable IDNR Action Level at levels that are above typical background levels.

Recommendations. Additional assessment of the Cemetery Landfill site is recommended because of the exceedences of several IDNR Action Levels for metals.

Scrap Iron Landfill

Additional Characterization. Sampling at the Scrap Iron Landfill consisted of the collection and analysis of three surface soil samples, two surface water samples, and four groundwater samples (PZ-21 through PZ-24) at the locations illustrated in Figure 14-2. The sampling locations were selected based on the locations of observed disposal areas at the site. The piezometers were installed at depths ranging from 15 to 20 feet bgs. Analytical results from the groundwater, surface water, and surface soil sampling are summarized in Tables 14-4, 14-5, and 14-6, respectively.

Several constituents were detected above the IDNR Action Levels in groundwater at levels above typical background conditions, indicating a release from the site. Of particular note, is the presence of chlorinated compounds (trichloroethylene) and metals (arsenic, chromium, lead, and mercury). No parameters were detected at the site above the applicable water quality standards for a Class B(LR) water. Arsenic in surface soil was detected slightly above the PRG of 3.1 mg/kg; no other parameter exceeded the applicable PRG at the site.

Recommendations. Additional assessment of the groundwater pathway at the Scrap Iron Landfill is recommended based on the aquifer susceptibility and the likelihood for contaminant migration. The surface water and soil pathways are recommended for closure.

Range Dump

Additional Characterization. Sampling at the Range Dump was limited to the collection and analysis of surface water and sediment sampling from the drainage ditch that drains the area. Initially, groundwater sampling was also scoped for the site, but high water from Beaver Creek made the site inaccessible during the time of piezometer installation. The surface water sampling locations, sediment sampling locations, and results are provided in Figure 14-3 and Table 14-7, respectively.

Extractable hydrocarbons were detected in the upstream sediment sampling location at the site and three metals were also detected in sediment at both the up and downstream locations. It is noted that the upstream sampling location has the higher concentrations of all detected constituents; this appears to be a result of the fact that the upstream location is not upgradient of the site, but rather is the location where surface water runoff becomes channelized prior to discharge to Beaver Creek. No constituents were detected above the applicable surface water criteria.

Recommendations. Assessment of the groundwater conditions at the Range Dump are recommended based on the detections in surface water and location of waste in the flood plain.

LAW Range Landfill

Additional Characterization. Three piezometers (PZ-3 through PZ-5) were installed and sampled at the LAW Range Landfill at the locations illustrated in Figure 14-4. The three piezometers are located inside the suspected disposal area at the site. The groundwater samples were analyzed for BTEX and TEH (Table 14-8). The sole constituent detected in site groundwater was TEH as waste oil at the most downgradient location, yet located within the waste disposal area.

Recommendations. Based on the analytical results, the LAW Range Landfill is recommended for closure.

Gravel Pit Dump

Additional Characterization: Three piezometers were installed at the Gravel Pit Dump at the locations illustrated in Figure 14-5; however, two of the piezometers (PZ-14 and PZ-15) were destroyed during grading and burning activities at the site before groundwater samples were collected. Piezometer PZ-13 was installed at an expected hydraulically upgradient location, while PZ-14 and PZ-15 were installed in hydraulically downgradient locations. The analytical results from PZ-13 are provided in Table 14-9. No contaminants were detected in the groundwater sample, which was analyzed for BTEX and TEH (Table 14-9).

Recommendations. Limited groundwater sampling is recommended downgradient of the primary disposal area at the Gravel Pit Dump to determine whether a release to groundwater has occurred. Active dumping and burning continue at the site.

Incinerator Area

Additional Characterization. Five surface soil samples and two surface water samples from Beaver Creek were collected for analysis from the locations indicated in Figure 14-6. Piezometers originally proposed for the incinerator area were not installed because flooding prevented access to the site during the time of piezometer installation. Summaries of the surface soil and surface water analytical results are provided in Tables 14-10 and 14-11, respectively.

Soil samples were analyzed for petroleum hydrocarbons, base/neutral acids (BNAs), and metals. Of these constituents, only two compounds, benzo(a)pyrene and arsenic at IN-2, were detected above the industrial PRGs for soil. The IN-2 location, located adjacent to the former incinerator structure, is also the only sampling location at the incinerator area where other PAH compounds were detected in surface soil, though at concentrations below the industrial PRG.

Surface water samples were collected from Beaver Creek up and downstream of the incinerator area (Table 14-11). No organic constituents were detected in the surface water samples and the detected metals were below the applicable water quality criteria.

Recommendations. The Incinerator Area is recommended for closure based on the surface water and surface soil analytical results. The groundwater pathway is also recommended for

closure based on the relative immobility of the suspected contaminants, lack of impact to surface water, and distance to the nearest water well.

Horse Dip Tank

Additional Characterization. Three surface soil samples (HD-1, HD-3, and HD-4) and one sediment sample (HD-2) were collected from the Horse Dip Tank area as shown in Figure 14-7. The samples were analyzed for petroleum hydrocarbons, pesticides, and metals. Results of the analyses are summarized in Table 14-12. Of all of the analytical parameters, only the concentration of arsenic detected in the sample collected from HD-2 (3.7 mg/kg) exceeded its respective industrial PRG (3 mg/kg). Groundwater samples from the area were not collected because localized flooding prevented access to the area at the time of piezometer construction.

Recommendations. With removal and disposal of debris and sediment in the Horse Dip Tank, the surface soil pathway for the Horse Dip Tank area is recommended for closure. Based on the analytical results of the soil samples, limited potential for groundwater impacts, and distance to the nearest water well, the groundwater pathway for the Horse Dip Tank area is also recommended for closure. Although not necessary for closure activities, removal of additional debris in the area is also recommended for general safety and aesthetics.

Demolition Pit

Additional Characterization. Piezometers were installed outside the northern and western berms of the Demo Pit (Figure 14-8) for collection of groundwater samples. The samples were analyzed for various explosives indicator compounds. As shown in Table 14-13, RDX (Royal Demolition Explosive; Hexahydro-1,3,5-Trinitro-1,3,5-Triazine) was detected in the sample collected from PZ-1 at 14 µg/L. This concentration is greater than the 2 µg/L Action Level established by IAC Chapter 133. None of the other compounds were detected at or above their respective analytical method detection limits.

Because of the potential for unexploded ordnance or other explosives, Human Factors Applications, Inc. (HFA) of Waldorf, Maryland, a firm specializing in ordnance and explosive wastes, was retained to complete soil sampling inside the demo pit. HFA advanced hand auger borings to a depth of 3 feet at four locations inside the demo pit shown in Figure 14-8. Based on observations made by HFA, Montgomery Watson selected the two sample intervals for laboratory analysis suspected of the highest potential levels of contamination.

The samples submitted for laboratory analysis were collected from approximately 1 foot below grade. These samples were submitted for laboratory analysis of explosives and VOCs. As shown in Table 14-14, only benzene was detected above its analytical method detection limit. However, the concentration of benzene was significantly less than the industrial PRG.

Recommendations. Based on the concentration of RDX detected at PZ-1, additional investigation is recommended for the groundwater to verify the presence and define the extent of potential impacts from the Demo Pit. Based on the analytical results of the soil samples, closure of the soil pathway is recommended for the Demo Pit. It is also recommended the Demo Pit be cleared of any unexploded ordnance and graded.

Former Wastewater Treatment Plant

Additional Characterization. Surface soil samples were collected from the three locations shown in Figure 14-9. The samples were analyzed for several metals as summarized in Table 14-15. At each location, the concentration of arsenic detected was greater than the industrial PRG. None of the other metals were detected at concentrations greater than the industrial PRG levels.

Recommendations. Since the concentrations of arsenic were relatively constant in all three samples, they may be indicative of natural concentrations in the area or be related to fill material that may have been transported to the site after the demolition of the wastewater treatment plant. Collection of two additional surface samples in the area of the former wastewater treatment plant facilities and one sample south of the fenced vehicle storage area is recommended to determine whether the distribution of arsenic appears to be related to the wastewater treatment operations or is naturally occurring.

Monitoring Well P-10

Additional Characterization. As shown in Figure 14-10, four piezometers were installed around monitoring well P-10. These locations were selected in an attempt to identify the source and extent of the apparent acetone contamination. No VOCs were detected in any of the groundwater samples collected from the piezometers. This indicates the contamination is localized near P-10 and is not migrating to surface or groundwater receptors. The results of the recent sampling and the previous sampling of P-10 are summarized in Table 14-16. IAC Chapter 133 does not specify an Action Level for acetone.

Recommendations. Resampling of P-10 is recommended to document current concentration of acetone in the well However, since no acetone or other VOCs were detected in the surrounding piezometers, no additional investigation of the P-10 site is recommended at this time. If the concentration of acetone detected during the resampling is similar or less than the previous sampling event, closure of the P-10 site is recommended. If the concentration of acetone is significantly increased, or other compounds are now present, additional investigation would be recommended.

Fuel Product Pipeline

Additional Characterization. In order to investigate potential groundwater contamination associated with the fuel product pipeline, three piezometers were installed and sampled. The locations of the piezometers relative to the pipeline and retaining wall excavation are shown in Figure 14-11. Results of the sample analysis are presented in Table 14-17 along with the Action Levels established in IAC Chapter 133 and the Tier 1 Look-Up Values for groundwater set forth in IAC Chapter 135 for USTs. The Tier 1 values are contaminant concentrations in groundwater applicable to UST sites. The concentration of benzene detected in PZ-12 is greater than the Action Level and the Tier 1 value for an actual receptor but less than the Tier 1 value for a

potential receptor. None of the other compounds were detected at concentrations greater than the regulatory limits.

Recommendations. Due to the nature of the contamination and suspected source, the IDNR Risk Based Corrective Action (RBCA) process and Tier 1 values may be applicable to the area. Therefore, Montgomery Watson's recommendations consist of petitioning IDNR to apply the RBCA process and completing a Tier 1 evaluation.

Leach Bed

Additional Characterization. To assess potential groundwater impacts from the former leach bed, two piezometers were installed at the locations shown in Figure 14-12. Groundwater samples were collected and analyzed for petroleum hydrocarbon compounds. As shown in Table 14-18, none of the analytical parameters were detected at or above their respective analytical method detection limit.

Although total extractable hydrocarbon concentrations previously detected within the leach bed appear to be elevated, there are no Action Levels for extractable hydrocarbons established in IAC Chapter 133. The concentrations of toluene, ethylbenzene, and xylenes detected within the leach bed are well below their respective Action Levels.. The piezometer sample results, combined with the groundwater sample results from MW-1 suggest the extent of groundwater contamination is likely limited to the leach bed itself.

Recommendations. Based on the analytical results and limited potential for potential exposure, closure of the leach bed area is recommended.

SECTION 15

REFERENCES

1. Environmental Protection Agency (USEPA). Guidance for Performing Preliminary Assessments Under CERCLA. September 1991. EPA/540/G-91/013.

2. Camp Dodge, Headquarters Iowa National Guard, Johnston, Iowa. Introductory Pamphlet Regarding Units, Agencies and Activities Located at Camp Dodge. No Date.

3. Topographic Map, Des Moines Northwest Quadrangle. Revised 1976.

4. Topographic Map, Grimes Quadrangle. Revised 1976.

5. Camp Dodge, Iowa, Camp Utilities Historical Record, 1917. Iowa Army National Guard Gold Star Museum.

6. History of Camp Dodge. Provided by the Iowa Army National Guard Facilities and Construction Office, October 28, 1997.

7. "Camp Dodge." Article by Tim Grover. Provided by the Iowa Army National Guard Gold Star Museum. No date.

8. A Description of the Region About Camp Dodge. James H. Lees. Iowa Geological Survey, 1918.

9. Water Resources of Southeast Iowa. Iowa Geological Survey Water Atlas No. 4 by R.W. Coble, 1971.

10. Landforms of Iowa, J.C. Prior, 1991. University of Iowa Press, Iowa City, Iowa.154 p.

11. Soil Survey of Polk County. U.S. Department of Agriculture.

12. Unpublished Soil Boring Logs for the Camp Dodge area from the Iowa Department of Natural Resources-Geological Survey Bureau.

13. Groundwater Resources of Polk County by Carol A. Thompson. Iowa Geological Survey Open File Report 82-77 WRD.

14. Abandoned Underground Coal Mines of Des Moines, Iowa and Vicinity by M.R. Howes, M.A. Culp and H. Greenburg. Iowa Department of Natural Resources-Geological Survey Bureau Technical Paper No. 8. December 1989.

15. Final Report for the Sampling Phase of the Preliminary Assessment Screening at the Proposed Additional Training Areas. Iowa Army National Guard, Camp Dodge, Iowa. June 1992. U.S. Army Corps of Engineers, Omaha District.

16. Natural Resource Conservation Award Small Installation Nomination, Iowa Army National Guard, Camp Dodge Military Reservation 1995-1997.

17. Iowa Army National Guard Environmental Assessment for 650 Acre Training Area Land Acquisition at Johnston, Iowa. February 26, 1990.

18. Proposal to Inventory and Monitor Amphibians and Reptiles Associated with Three Wetland Areas in Camp Dodge. Report Submitted by Eugenia Farrar and Linda Gucciardo, Iowa State University, December 11, 1996.

19. Progress Report #2. R.W. Cruden and Bud Gode. Ondonate Survey of Camp Dodge. 1996.

20. Interview and site visit with Fred Sheeks, Iowa Army National Guard Building and Grounds, July 17, 1997.

21. Inspection Report regarding PA sites by Francis Colters. Date unknown. Iowa Army National Guard Facilities and Construction Office.

22. Aerial Photograph of the Camp Dodge vicinity, 1967. Polk County Engineering Department.

23. Aerial Photograph of the Camp Dodge vicinity, 1974. Polk County Engineering Department.

24. Army Environmental Hygiene Agency, Aberdeen Proving Ground, MD. Solid Waste Disposal Study No. 38-26-0317-84 Camp Dodge, Iowa, September 12-23, 1984.

25. Aerial Photograph of the Camp Dodge vicinity, 1961 (approximate). Iowa Army National Guard Facilities and Construction Office.

26. EDR-Radius Map with Geocheck. Camp Dodge, 7700 NW Beaver Drive, Johnston, Iowa. November 11, 1997.

27. Telephone conversation with Dr. Chuck Rovey, Southwest Missouri State University, July 22, 1997.

28. Interview and site visit with Fred Sheeks, Iowa Army National Guard Building and Grounds, December 12, 1997.

29. Telephone conversation with Dr. Nolan Hartwig, State of Iowa Extension Office, Beef Veterinarian, September 25, 1997.

30. Fax from Mark Lohafer, Pesticide Bureau, Iowa Department of Natural Resources. Excerpts from the Insecticide Dictionary regarding early insecticides.

31. Management of Manufactured Gas Plant Sites, Vol. 2. Hayes et al., 1996.

32. Letter from Robert E. Hilliard, Colonel, Chemical Corps, Project Manager for Non-Stockpile Chemical Material to Honorable Terry E. Branstad, Governor, State of Iowa, October 31, 1996.

33. Various monthly reports from headquarters, 7th Corps Area to The Chief, Chemical Warfare Service, Washington, D.C. Period between September 24, 1924 to May 6, 1938.

34. Treatment of Chemical Agent Casualties and Conventional Military Chemical Injuries. FM-285/NAVMED P-5041/AFM160-11. February 28, 1990.

35. Smoke Operations. FM 3-50. December 4, 1990.

36. Merck Index, Tenth Edition. 1993. Merck & Co., Inc. Rathway, N.J.

37. Telephone conversation with Lieutenant Leonard Murray, Des Moines Police Bomb Squad Unit, September 15, 1997.

38. Quanterra Incorporated Analytical Parameter List-Nitroaromatics and Nitroamines by HPLC. September 4, 1997.

39. Bradley, Chappelle, et al., 1997. Potential for Intrinsic Bioremediation of a DNT-Contaminated Aquifer. Ground Water. Vol. 35, No.1. pp.12-18.

40. Survey of Camp Dodge - Herrold, Iowa to Determine the Present Condition of the Premises for Transfer From the State of Iowa to the USA. May 23, 1942. Iowa Army National Guard Gold Star Museum.

41. Telephone conversation with Jim Fulton, Iowa Army National Guard Facilities and Construction Office, December 29, 1997.

42. Telephone conversation with Art Bettis, Iowa Department of Natural Resources-Geological Survey Bureau. June 16, 1997.

43. Laboratory analytical report, Camp Dodge PA, Piezometer P-10, July 31, 1997.

44. Manahan, S.E. 1989 Toxicological Chemistry-A Guide to Toxic Substances in Chemistry. Lewis Publishers, Inc., Chelsea, MI.

45. Lake County Tribune newspaper article "Herrold: A Community," August 4-5, 1982.

46. Des Moines Register newspaper article "Tiny Herrold Nears Extinction," January 15, 1986.

47. Letter from R.E. Van Gundy, Polk County Engineer to Major Michael Snowden, Facilities Manager, Camp Dodge, June 7, 1991.

48. Letter report from Terracon to Curt Madsen, Camp Dodge, regarding borehole soil and groundwater sampling at the former county shed. September 23, 1991.

49. Veenstra and Kimm, Inc. Report for Facility Inventory, Herrold, Iowa, August 1993.

50. Letter from Curt Madsen, Camp Dodge, to Iowa Department of Natural Resources-Water Supply Section regarding well closure records at Herrold, December 2, 1993.

51. Closure Certification Report for Iowa Army National Guard, Camp Dodge, Iowa. CDM-Federal Programs Corporation, September 1993.

52. Letter from Mary Kay Rogge, Terracon Environmental Inc., to Curt Madsen, Camp Dodge, November 18, 1993.

53. Letter report from Environmental Operations, Inc. to Curt Madsen, Camp Dodge, October 3, 1993.

54. Letter from Shellie Ferguson, IDNR, to Curt Madsen, Camp Dodge, February 3, 1994, regarding no further action at the UST sites near Building S-4.

55. Letter from Curt Madsen, Camp Dodge, to Kathleen Lee, IDNR, June 25, 1996.

56. Letter report from Terracon Environmental Inc. to Curt Madsen, Camp Dodge, June 10, 1996, regarding soil and groundwater sampling at former vehicle maintenance facility.

57. Letter from Curt Madsen, Camp Dodge, to Bill Gross, IDNR Field Office 5, August 22, 1996.

58. Letter from Curt Madsen, Camp Dodge, to Jim Stricker, IDNR Field Office 5, regarding notification of application to landfarm soils.

59. Letter from Curt Madsen, Camp Dodge, to John Vedder, IDNR Solid Waste Section regarding leach bed site discovery, April 3, 1992.

60. Letter from Dennis Applehons, Terracon Environmental Inc. to John Vedder, IDNR Solid Waste Section, April 25, 1992.

61. Terracon Environmental Inc. Letter Report to Curt Madsen, Camp Dodge, March 27, 1992, regarding borehole soil and groundwater sampling data transmittal.

62. Letter from John Vedder, IDNR Solid Waste Section to Curt Madsen, Camp Dodge, February 3, 1992, response to contamination at Camp Dodge former leach bed site.

63. Hazardous Waste Manifest No. 22066 issued to Curt Madsen, Camp Dodge from USEPA. 1992.

64. Terracon Environmental Inc. Letter Report to Curt Madsen, Camp Dodge, March 7, 1997, regarding engineering services for the Betz farm site.

65. Terracon Environmental Inc. Letter Report to Curt Madsen, Camp Dodge, May 30, 1997, regarding engineering services for the Betz farm site.

66. Letter from Terracon Environmental Inc. to Lavoy Haage, IDNR Solid Waste Section, September 23, 1997, regarding soil land application.

67. Letter from Paul Lundy, IDNR Solid Waste Section, to E-Farm, September 29, 1997, regarding land application of ag-chemical contaminated soil at the E-Farm in Nevada, Iowa.

68. Letter from Terracon Environmental Inc. to Curt Madsen, Camp Dodge, October 7, 1997, regarding soil disposal at Betz farmstead.

69. Letter from Curt Madsen, Camp Dodge, to Ron Kozel, IDNR-Emergency Response Section, October 2, 1992, regarding submittal of Grief farm results.

70. Letter from Ron Kozel, IDNR-Emergency Response Section to Curt Madsen, Camp Dodge, October 20, 1992, regarding no further action at the Grief farm site.

71. Grief farm miscellaneous file information, October 30, 1991, Iowa Army National Guard Facilities and Construction Office.

72. Interview with Jim Rinell, Camp Dodge Building and Grounds, December 30, 1997.

73. Letter from Curt Madsen, Camp Dodge to Ron Kozel, IDNR-Emergency Response Section, November 4, 1992, updating land application form for Melos farm site.

74. Memorandum from Curt Madsen, Camp Dodge for USACE-Omaha District, December 16, 1992, regarding Melos site sampling results.

75. Telephone conversation with Art Bettis, Iowa Department of Natural Resources-Geological Survey Bureau, December 4, 1997.

76. Geographic Information System database information for a four-mile radius around Camp Dodge, Iowa Department of Natural Resources, December 9, 1997.

77. Site visit with Curt Madsen, Camp Dodge, September 4, 1997.

78. Correspondence from Mary Jones, Camp Dodge, to Keith Schilling, Montgomery Watson, December 4, 1997.

79. Telephone conversation with City of Johnston, December 3, 1997.

80. Telephone conversation with Xenia Rural Water District, December 4, 1997.

81. Census Data for Polk County, State of Iowa Historical Library.

82. United States Geological Survey streamflow data for Beaver Creek and the Des Moines River, September 30, 1996, Information available at the USGS Web site: http://h2o.usgs/nwis-w/IA.

83. Flood Hazard Boundary Map, 1979, U.S. Housing and Urban Development, Map series 190744 0001B.

84. Flood Boundary and Floodway Map, City of Johnston, May 3, 1982, Federal Emergency Management Agency map series, 190745 0003.

85. Flood Insurance Rate Map, City of Johnston, November 18, 1992, Federal Emergency Management Agency map series, 190901 0085C.

86. Telephone conversation with Diane Molls, Iowa Department of Natural Resources, August 13, 1997.

87. Telephone conversation with Des Moines Water Works, August 11, 1997.

88. Des Moines Water Works pumpage records for 1997 (January through July).

89. Iowa Administrative Code - Chapter 61.

90. Letter from John Olson, Iowa Department of Natural Resources, Water Resources Section, to Keith Schilling, Montgomery Watson, September 3, 1997.

91. Letter from Larry Wilson, Iowa Department of Natural Resources, to Keith Schilling, Montgomery Watson, September 15, 1997.

92. Census data for Polk County, State of Iowa Historical Library.

TABLE 2-1

GEOLOGIC AND HYDROGEOLOGIC UNITS IN POLK COUNTY

Age	Rock Unit	Description	Thickness Range (feet)	Hydrogeologic Unit	Water-Bearing Characteristics
Quaternary	Alluvium	Sand, Gravel, Silt and Clay	0-295	Surficial Aquifer	Fair to Large Yields (10 to 500 gpm)
	Glacial Drift (undifferentiated)	Predominantly Till Containing Scattered Irregular Bodies of Sand and Gravel			Low yields (less than 10 gpm)
	Buried Channel	Sand, Gravel, Silt And Clay			Small to Large Yields
Pennsylvanian	Marmaton Group	Alternating Shale and Limestone; Thin Coal and Sandstone	0-500	Aquiclude	Low yields only from Limestone and Sandstone
	Cherokee Group	Shale, Clay, Siltstone, Sandstone and Coal Beds; Mostly Thin			
Mississippian	Meramac Series	Sandy Limestone	285-450	Mississippian Aquifer	Fair to Low Yields
	Osage Series	Limestone and Dolostone, Cherty; Shale			
	Kinderhook Series	Limestone, Oolitic, and Dolostone, Cherty			
Devonian	Maple Mill Shale Sheffield Formation Lime Creek Formation	Shale, Limestone in Lower	150-250	Devonian Aquiclude	Does Not Yield Water
	Cedar Valley Limestone Wapsipinicon Formation	Limestone and Dolostone Contains Evaporites (gypsum) in Southern Half of Iowa	500-550	Devonian Aquifer*	Fair to Low Yields
Silurian	Undifferentiated	Chert and limestone	50-100	Silurian Aquifer	Low yields from limestone
Ordovician	Maquoketa Formation	Shale and Dolostone	950-1050	Maquoketa Aquiclude	Does Not Yield Water
	Galena Formation	Dolostone and Chert		Minor Aquifer	Low Yields
	Decorah Formation Platteville Formation	Limestone, Dolostone and Thin Shale, Includes Sandstone in SE Iowa		Aquiclude	Does Not Yield Water
	St. Peter Sandstone	Sandstone		Cambro-Ordovician Aquifer	Fair Yields
	Prairie du Chien Formation	Dolostone, Sandy and Cherty			High Yields (over 500 gpm)
Cambrian	Jordan Sandstone	Sandstone			
	St. Lawrence Formation	Dolostone		Aquitard	Low Yields
	Franconia Sandstone	Sandstone and Shale			
	Dresbach Group	Sandstone		Dresbach Aquifer*	High to Low Yields
Precambrian	Undifferentiated	Coarse Sandstone: Crystalline Rocks		Base of Groundwater Reservoir	Not Known to Yield Water

* Not significant in Polk County owing to highly mineralized water contained.

Source: Ground Water Resources of Polk County, Iowa Geological Survey Open File Report 82-77 WRD.

TABLE 2-2

SPECIES OF TREES AND SHRUBS FOUND IN THE UPLAND AND FLOODPLAIN AREAS[a]

Upland		Floodplain	
Common Name	**Scientific Name**	**Common Name**	**Scientific Name**
Black Maple	Acer Nigrum	Boxelder	Acer Negundo
Sugar Maple	Acer Saccharum	Silver Maple	Acer Saccharinum
Ohio Buckeye	Aesculas Glabra	River Birch	Betula Nigra
Horse Chestnut	Aesculas Hippocastanum	Hackberry	Celtis Occidentalis
Paper Birch	Betula Papyrifera	White Ash	Fraxinus Americana
Bitternut Hickory	Carya Cordiformis	Black Ash	Fraxinus Nigra
Shagbark Hickory	Caryā Ovata	Green Ash	Fraxinus Pennsylvania
Butternut	Juglans Cinerea	Honeylocust	Gleditsia Triacanthos
Black Walnut	Juglans Nigra	Hop Hornbeam	Ostrya Virginiana
Red Mulberry	Morus Rubra	Sycamore	Platanus Occidentalis
Big Tooth Aspen	Populus Grandidentata	Eastern Cottonwood	Populus Deltoides
Quaking Aspen	Populus Tremuloides	Swamp White Oak	Quercus Bicolor
Black Cherry	Prunus Serotina	Bur Oak	Quercus Macrocarpa
White Oak	Quercus Alba	Black Willow	Salix Negra
North Pin Oak	Quercus Ellepsoidalis	Weeping Willow[b]	Salix Babylonica
Chinkapin Oak	Quercus Muehlenbergii	American Elm	Ulmus Americana
Northern Red Oak	Quercus Rubra	Kentucky Coffeetree	Gymnocladus Diocus
Black Oak	Quercus Velutina	Osage Orange[b]	Maclura Pomifera
Babylon Weeping Willow[b]	Salix Babylonica	America Elder	Sambucus Canadensis
Basswood	Tilia Americana	Poison Ivy	Toxicodendron Radicans
American Elm	Ulmus Americana	Poison Oak	Toxicodendron Diversiloba
Slippery Elm	Ulmus Rubra	Trumpet Vine	Campsis Radicans
Rock Elm	Ulmus Thorasii	Virginia Creeper	Parthenocissus Quinquefolia
Black Locust	Robinia Pseudoacacia	Wild Cucumber	Sicyos Angulatus
Osage Orange	Maclura Pomifera	American Hornbeam	Carpinus Caroliniana
Southern Catalpa	Catalpa Bignonioides	Red Mulberry	Morus Rubra
Eastern Redbud	Cercis Canadensis	Common Greenbrier	Smilax Rotundifolia
Lombardy Poplar[b]	Populus Nigra		
Wild Plum	Prunus Americana		
Sumac	Rhus spp.		
Tree of Heaven[b]	Ailanthus Altissima		
Dogwood	Cornus spp.		
Hawthorn (Haw)	Crataegus spp.		
Buckthorn	Fhamnus spp.		
Flowering Pear	Pyrus Idensis		
Wild Privet	Lugustrum spp.		

[a] Saylorville Lake Flood Control Project; Final Environmental Assessment - 1974; U.S. Army Corps of Engineers, Rock Island District, IL

[b] Introduced Species

TABLE 2-3

LIST OF GRASSES FOUND IN CAMP DODGE AREA[a]

Common Name	Scientific Name
Bullrush	Scipus spp.
Bluegrass	Poa spp.
Timothy	Phleum spp.
Cheats	Bromus Tectorum
Nodding Fescue	Festuca spp.
Wild Rye	Elymus spp.
Wild Barley	Hordeum spp.
Blue Joint	Calamagrostis spp.
Mannagrass	Glyceris spp.
Wild Oat Grass	Dauthonia Spicata
Sough Grass	Spartina Pectinata
June Grass	Koeleria Cristata
Drop Seed Grass	Sporebolus spp.
Needle Grass	Stipa spp.
Beardgrass (blue stem)	Andropogon spp.

[a] Saylorville Lake Flood Control Project; Final Environmental Assessment - 1974; U.S. Army Corps of Engineers, Rock Island District, IL

TABLE 2-4

LIST OF ANIMAL SPECIES EXPECTED TO OCCUR IN CAMP DODGE AREA[a]

Whitetail Deer	Silver-Haired Bat
Raccoon	Eastern Pipestrel
Eastern Fox Squirrel	Big Brown Bat
Eastern Gray Squirrel	Red Bat
Red Squirrel	Hoary Bat
Thirteen-Lined Ground Squirrel	Western Harvest Mouse
Franklin Ground Squirrel	Deere Mouse
Opossum	White-Footed Mouse
Spotted Skunk	House Mouse
Striped Skunk	Meadow Jumping Mouse
Red Fox	Plains Pocket Mouse
Gray Fox	Prairie Vole
Mink	Pine Vole
Longtail Weasel	Meadow Vole
Least Weasel	Masked Shrew
Whitetail Jackrabbit	Least Shrew
Eastern Cottontail	Shorttail Shrew
Badger	Muskrat
Coyote	Beaver
Little Brown Myotis	Eastern Chipmunk
Keen Myotis	Ground Hog (Woodchuck)
Small-Footed Myotis	Eastern Mole
Big Freetail Bat	

[a] Saylorville Lake Flood Control Project; Final Environmental Assessment - 1974; U.S. Army Corps of Engineers, Rock Island District, IL

TABLE 3-1

POTENTIAL CONTAMINANTS
SITE SELECTION SUMMARY
CAMP DODGE PRELIMINARY ASSESSMENT

Site Name	Potential Contaminants	Status	Included In PA	Reason
Organizational Maintenance Shop #1 (including Fuel Point)	Acids, Metals, Petroleum Products	Active	No	Site currently under supervision of trained personnel, no known indications of impact to environment
Organizational Maintenance Shop #1A	Acids, Metals, Petroleum Products	Active	No	Site currently under supervision of trained personnel, no known indications of impact to environment
Equipment Maintenance Center - CONUS - General Support	Acids, Metals, Petroleum Products, Paints	Active	No	Site currently under supervision of trained personnel, no known indications of impact to environment
Equipment Maintenance Center - CONUS - Direct Support	Acids, Metals, Petroleum Products	Active	No	Site currently under supervision of trained personnel, no known indications of impact to environment
Combined Support Maintenance Shop	Acids, Metals, Petroleum Products, Paints	Active	No	Site currently under supervision of trained personnel, no known indications of impact to environment
USPFO Warehouse	Acids, Metals, Petroleum Products, Paints	Active	No	Site currently under supervision of trained personnel, no known indications of impact to environment
Boiler Facilities	Petroleum Products, Water Treatment Chemicals	Active	No	Site currently under supervision of trained personnel, no known indications of impact to environment
Regional Training Center - Maintenance	Acids, Metals, Petroleum Products	Active	No	Site currently under supervision of trained personnel, no known indications of impact to environment
State of Iowa Warehouse	Acids, Metals, Petroleum Products, Paints	Active	No	Site currently under supervision of trained personnel, no known indications of impact to environment
1034th Quartermaster Company (including POL Compound)	Petroleum Products, Acids	Active	No	Site currently under supervision of trained personnel, no known indications of impact to environment
State Buildings and Grounds Compound	Acids, Metals, Petroleum Products, Paints, Herbicides, Pesticides, PCBs	Active	No	Site currently under supervision of trained personnel, no known indications of impact to environment
Cemetery Landfill	VOCs, SVOCs, Metals	Inactive	Yes	Impact on environment unknown.
Scrap Iron Landfill	VOCs, SVOCs, Metals	Inactive	Yes	Impact on environment unknown.

TABLE 3-1 (CONTINUED)

POTENTIAL CONTAMINANTS
SITE SELECTION SUMMARY
CAMP DODGE PRELIMINARY ASSESSMENT

Site Name	Potential Contaminants	Status	Included In PA	Reason
Kitchen Landfill	Inorganics, Organics	Inactive	Yes	Impact on environment unknown.
LAW Range Landfill	Hydrocarbons, Metals	Inactive	Yes	Impact on environment unknown.
Range Dump	Hydrocarbons, Metals	Inactive	Yes	Impact on environment unknown.
Gravel Pit Dump	Hydrocarbons, Metals	Active	Yes	Impact on environment unknown.
Pond Landfill	Inorganics, Organics	Inactive	Yes	Impact on environment unknown.
Betz Farm	Hydrocarbons, Herbicides	Inactive	Yes	Recent acquisition, limited information indicating past practices may impact environment.
Greif Farm	Hydrocarbons	Inactive	Yes	Recent acquisition, limited information indicating past practices may impact environment.
Herrold Farm	Hydrocarbons, Metals, Herbicides	Inactive	Yes	Recent acquisition, limited information indicating past practices may impact environment.
Melos Farm	Hydrocarbons	Inactive	Yes	Recent acquisition, limited information indicating past practices may impact environment.
Gas Instruction House	Phosphorus, CN, HC	Inactive	Yes	Impact on environment unknown.
Horse Dip Facility	Herbicides, Metals, SVOCs	Inactive	Yes	Impact on environment unknown.
Incinerator	Metals	Inactive	Yes	Impact on environment unknown.
Demolition Pit	Explosives Residues	Inactive	Yes	Impact on environment unknown.
Former Wastewater Treatment Plant	Metals	Inactive	Yes	Impact on environment unknown.
Town of Herrold	Hydrocarbons, Herbicides	Inactive	Yes	Impact on environment unknown.
Monitoring Well P-10	Acetone	Inactive	Yes	Odor identified during geomorphologic well installation.

TABLE 3-1 (CONTINUED)

POTENTIAL CONTAMINANTS
SITE SELECTION SUMMARY
CAMP DODGE PRELIMINARY ASSESSMENT

Site Name	Potential Contaminants	Status	Included In PA	Reason
Fuel Product Pipeline	Hydrocarbons	Inactive	Yes	Removed in 1988, residual contamination may be present.
Building W-12 UST	Hydrocarbons	Inactive	No	Closed through State regulatory agency.
Building M-12 UST	Hydrocarbons	Inactive	No	Closed through State regulatory agency.
Building W-46 UST	Hydrocarbons	Inactive	No	Closed through State regulatory agency.
Building S-2 UST	Hydrocarbons	Inactive	No	Closed through State regulatory agency.
Building W-12 AST	Hydrocarbons	Inactive	No	Removed in 1987, no evidence of release.
Building W-1 AST	Hydrocarbons	Inactive	No	Removed in 1988, no evidence of release.
Sand Blasting Area	Metals	Inactive	No	Area ceased operation, analytical data indicates no leachable metals above RCRA limits.
Building S-3 Battery Room	Acids, Metals	Inactive	No	Closed through federal RCRA program.
Power Substations	PCBs, hydrocarbons	Inactive	No	No evidence of historical releases.
Sludge Disposal	Metals	Inactive	No	Land applied on site.
Landfarms	Hydrocarbons	Inactive	No	Landfarming conducted in accordance with State Regulatory Guidance.
Building S-3 Container Storage Area	Caustic Soda, Lead	Inactive	Yes	Closed through federal RCRA program, no impact on groundwater evaluated.
Leach Bed	Metals, Hydrocarbons	Inactive	Yes	Limited analytical indicating presence of contamination in groundwater.
Former Hospital	Unknown	Inactive	No	No known record of any potential to impact environment.
WW I Firing Ranges	Metals	Inactive	No	Action pending DOD Range Rule.
Existing Firing Ranges	Metals	Active	No	Action pending DOD Range Rule.

TABLE 9-1

AQUIFER SUSCEPTIBILITY
CAMP DODGE PRELIMINARY ASSESSMENT

Type of Site	Site ID	Landscape Setting	Dominant Soil Type	Relative Permeability of Soils	Type of Aquifer	Depth to Useable Aquifer (ft)	Aquifer Susceptibility
Landfill Sites	Cemetery Landfill	Upland Slope	Glacial Till	Low	Drift	>50	Medium
	Scrap Iron Landfill	Floodplain Terrace	Sand and Gravel	High	Alluvial/Buried	<20	High
	Range Dump	Floodplain Terrace	Sand and Gravel	High	Alluvial/Buried	<20	High
	LAW Range Landfill	Floodplain Terrace	Sand and Gravel	High	Alluvial/Buried	<20	High
	Gravel Pit	Upland	Sand and Gravel	High	Drift	<20	High
	Kitchen Landfill	Floodplain Terrace	Sand and Gravel	High	Alluvial/Buried	<20	High
	Pond Landfill	Floodplain Terrace	Sand and Gravel	High	Alluvial/Buried	<20	High
Historical Sites (pre-WWII)	Incinerator	Upland/Terrace	Glacial Till/Alluvium	Low to Medium	Alluvial/Buried	<20	High
	Horse Dip Facility	Upland	Glacial Till	Low	Drift		Low
	Gas Instruction House	Floodplain Terrace	Sand and Gravel	High	Alluvial/Buried	<20	High
Historical Sites (post-WWII)	Demolition Pit	Floodplain Terrace	Sand and Gravel	High	Alluvial/Buried	<20	High
	WWTP	Floodplain Terrace	Sand and Gravel	High	Alluvial/Buried	<20	High
	Monitoring Well P-10	Upland	Glacial Till	Low	Drift	>50	Low
	Town of Herrold	Upland	Glacial Till	Low	Drift	40-50	Low
South Cantonment Area Sites	Container Storage Area	Upland/Terrace	Sand and Gravel	Medium	Alluvial/Buried	20-50	Medium
	Fuel Product Pipeline	Upland/Terrace	Sand and Gravel	Medium	Alluvial/Buried	20-50	Medium
	Leach Bed	Upland/Terrace	Sand and Gravel	High	Alluvial/Buried	20-50	High
Farm Acquisition Sites	Betz Farm	Floodplain Terrace	Sand and Gravel	High	Alluvial/Buried	40-50	High
	Greif Farm	Upland	Glacial Till	Low	Drift/Pennsylvanian	40, 390	Low
	Herrold Farm	Upland/Terrace	Glacial Till	Low	Drift	40-50	Low
	Melos Farm	Upland	Glacial Till	Low	Drift	40-50	Low

TABLE 9-2

CONTAMINANT MIGRATION CHARACTERISTICS
CAMP DODGE PRELIMINARY ASSESSMENT

Site ID	Source Type	Estimated Waste Quantity (yd^3 or ft^2)	Potential Contaminants	Contaminant Mobility	Contaminant Migration Potential
Cemetery Landfill	Landfill	250,000 to 7,100,000 yd^3	VOCs, SVOCs, Metals	Medium	High
Scrap Iron Landfill	Landfill	250,000 yd^3	VOCs, SVOCs, Metals	Medium	High
Range Dump	Landfill	32,500 yd^3	Hydrocarbons, Metals	Medium	Medium
LAW Range Landfill	Landfill	18,300 yd^3	Hydrocarbons, Metals	Medium	Medium
Gravel Pit Dump	Landfill	222,000 yd^3	Hydrocarbons, Metals	Medium	Medium
Kitchen Landfill	Landfill	3,300 yd^3	Inorganics, Organics	Low	Low
Pond Landfill	Landfill	267 yd^3	Inorganics, Organics	Low	Low
Incinerator	Landfill	3,000 yd^3	Metals	Low	Medium
Horse Dip Facility	Contaminated Soil	50 yd^3	Herbicides, Metals, SVOCs	Medium	Low
Gas Instruction House	None Identified	Unknown	Phosphorus, CN, HC	Low	Low
Demolition Pit	Contaminated Soil	474 yd^3	Explosives Residues	Low	Low
WWTP	Contaminated Soil	485 yd^3	Metals	Low	Low
Monitoring Well P-10	Groundwater Plume	Unknown	Acetone	High	Medium
Town of Herrold	UST, Soil	10yd^3 (UST), 500 ft^2 Elevator)	Hydrocarbons, Herbicides	Medium	Medium
Container Storage Area	Contaminated Soil	50 ft^2	Hydrocarbons	Medium	Low
Fuel Product Pipeline	Contaminated Soil	<10 yd^3	Hydrocarbons	Medium	Medium
Leach Bed	Contaminated Soil	200 yd^3	Hydrocarbons	Medium	Medium
Betz Farm	Contaminated Soil	50 ft^2	Hydrocarbons, Herbicides	Medium	Low
Greif Farm	Contaminated Soil	200 ft^2	Hydrocarbons	Medium	Low
Herrold Farm	Contaminated Soil	100 ft^2	Hydrocarbons, Metals, Herbicides	Medium	Low
Melos Farm	Contaminated Soil	<10 yd^3	Hydrocarbons	Medium	Low

TABLE 9-3

DISTANCE TO GROUNDWATER TARGETS
CAMP DODGE PRELIMINARY ASSESSMENT

Type of Site	Site ID	Distance to Nearest Well (ft)	Primary Targets	Secondary Targets (Distance Categories)						Distance to Targets Risk
				1/4-Mile	1/4-1/2-Mile	1/2-1-Mile	1-2 Mile	2-3 Mile	3-4 Mile	
Landfill Sites	Cemetery Landfill	5900	0	0	0	0	605	76	126	Low
	Scrap Iron Landfill	5000	0	0	0	595	15	76	126	Medium
	Range Dump	2700	0	0	0	608	23	57	103	Medium
	LAW Range Landfill	1800	0	0	595	8	23	57	103	Medium
	Gravel Pit Dump	5200	0	0	0	4	599	65	ND	Low
	Kitchen Landfill	3800	0	0	0	595	15	76	126	Medium
	Pond Landfill	2800	0	0	0	595	23	57	103	Medium
Historical Sites (pre-WWII)	Incinerator	3600	0	0	0	603	23	57	103	Medium
	Horse Dip Facility	3800	0	0	0	603	23	57	103	Medium
	Gas Instruction House	2600	0	0	0	603	23	57	103	Medium
Historical Sites (post-WWII)	Demolition Pit	1700	0	0	595	8	23	57	103	Medium
	WWTP	800	0	595	0	4	28	76	68	High
	Monitoring Well P-10	4000	0	0	0	0	618	84	ND	Low
	Town of Herrold	6300	0	0	0	0	618	84	ND	Low
South Cantonment Area Sites	Container Storage Area	1700	0	0	595		34	72	84	Medium
	Fuel Product Pipeline	1900	0	0	595	0	34	72	84	Medium
	Leach Bed	1000	0	595	0	0	34	72	84	High
Farm Acquisition Sites	Betz Farm	2800	0	0	0	595	47	68	47	Medium
	Greif Farm	4500	0	0	0	0	23	679	ND	Low
	Herrold Farm	5000	0	0	0	0	618	84	ND	Low
	Melos Farm	4200	0	0	0	8	34	27	656	Low

ND = Not determined, distance category beyond limits of map boundaries (Figure 9-1).

TABLE 9-4

SUMMARY OF GROUNDWATER PATHWAY
CAMP DODGE PRELIMINARY ASSESSMENT

Type of Site	Site ID.	Aquifer Susceptibly	Likelihood for Contaminants to Migrate	Distance to Targets Risk	Overall Groundwater Pathway Threat	Rationale
Landfill Sites	Cemetery Landfill	Medium	High	Low	Medium	Large quantities of waste located on upland slope more than 1 mile from nearest well.
	Scrap Iron Landfill	High	High	Medium	High	Large quantity of waste located on floodplain less than 1 mile from wells.
	Range Dump	High	Medium	Medium	Medium	Few contaminants suspected-located on floodplain near wells.
	LAW Range Landfill	High	Medium	Medium	Medium	Few contaminants suspected-located on floodplain near wells.
	Gravel Pit Dump	High	Medium	Low	Medium	Large quantity of wastes disposed on upland sand and gravel.
	Kitchen Landfill	High	Low	Medium	Low	Low quantity of innocuous waste.
	Pond Landfill	High	Low	Medium	Low	Low quantity of wastes disposed
Historical Sites (pre-WWII)	Incinerator	Medium	Medium	Medium	Medium	Large quantity of wastes near Beaver Creek alluvium.
	Horse Dip Facility	Low	Low	Medium	Low	Low quantity of contaminants located on upland till.
	Gas Instruction House	High	Low	Medium	Low	No contamination identified.
Historical Sites (post-WWII)	Demolition Pit	High	Low	Medium	Medium	Explosives residuals located on floodplain.
	WWTP	High	Low	High	Low	Limited migration potential for metal contaminants.
	Monitoring Well P-10	Low	Medium	Low	Low	No targets nearby source of observed groundwater contamination unknown.
	Town of Herrold	Low	Medium	Low	Low	No targets nearby- possible release to groundwater from UST.
South Cantonment Area Sites	Container Storage Area	Medium	Low	High	Low	Little or no contamination remaining after removal activities.
	Fuel Product Pipeline	Medium	Medium	High	Medium	Located near Camp Dodge wells-source and magnitude of contamination unknown.
	Leach Bed	High	Medium	High	High	Observed release of groundwater contaminants near wells.
Farm Acquisition Sites	Betz Farm	High	Low	Medium	Low	Little or no contamination remaining after removal activities.
	Greif Farm	Low	Low	Low	Low	Little or no contamination remaining after removal activities.
	Herrold Farm	Low	Low	Low	Low	Little or no contamination remaining after removal activities.
	Melos Farm	Low	Low	Low	Low	Little or no contamination remaining after removal activities.

TABLE 10-1

SUMMARY OF SURFACE WATER RELEASE CHARACTERISTICS
CAMP DODGE PRELIMINARY ASSESSMENT

Type of Site	Site ID	Distance to Surface Water	Surface Water Body	Flood Frequency	Cover Material	Topography	Infiltration Rate	Likelihood to Release
Landfill Sites	Cemetery Landfill	2300	Beaver Creek	>500 Year	Grassy Vegetation	Gradual Slope to West, Culvert Directs Surface Water Beneath Road	High	Low
	Scrap Iron Landfill	200	Unnamed Drainage	100 Year	Vegetation, Concrete, Dirt	Flat, Drainage to Low Area and Culvert to North	High	Medium
	Range Dump	80	Unnamed Drainage	100 Year	Thick Grassy Vegetation	Flat, Steep Dropoff on North Side Down to Beaver Creek Floodplain	High	Medium
	LAW Range Landfill	950	Beaver Creek	100 Year	Vegetation, Dirt	Flat	High	Low
	Gravel Pit Dump	4100	Beaver Creek	>500 Year	Vegetation, Dirt, Piles	Flat, Slight Slope to West	High	Low
	Kitchen Landfill	1600	Beaver Creek	>500 Year	Farm Field-Row Crops	Flat	High	Low
	Pond Landfill	750	General's Pond	100 Year	Thick Vegetation	Flat	High	Low
Historical Sites (pre-WWII)	Incinerator	300	Beaver Creek	100 Year	Grass, Shallow Soils	Slight Slope to East; Steep Drop Off to Beaver Creek Floodplain	High	Medium
	Horse Dip Facility	1000	Beaver Creek	>500 Year	Farm Field, Grass	Flat, Slight Slope to East	Medium	Low
	Gas Instruction House	20	General's Pond	100 Year	Vegetation	Flat, Formerly Located Next to Camp Dodge Pond	High	Low
Historical Sites (post-WWII)	Demolition Pit	800	Beaver Creek	100 Year	Berm, Grass	Flat, Demo Pit Area Bermed	High	Low
	WWTP	3500	Unnamed Drainage	100 Year	Concrete, Grass	Flat, Minor Drainage Channel Along Northern and Western Boundary	Medium	Medium
	Monitoring Well P-10	200	Unnamed Drainage	>500 Year	Grassy Vegetation	Flat at Well Site - Area Slopes to Drainage Channel North	High	Low
	Town of Herrold	1800	Beaver Creek	>500 Year	Vegetation, Dirt, Gravel	Flat	High	Low
South Cantonment Area Sites	Container Storage Area	4800	Beaver Creek	>500 Year	Concrete	Flat	Low	Low
	Fuel Product Pipeline	5000	Beaver Creek	>500 Year	Concrete	Flat, Slight Slope of Paved Area to West	Low	Low
	Leach Bed	4100	Beaver Creek	>500 Year	Concrete	Flat	Low	Low
Farm Acquisition Sites	Betz Farm	200	Oxbow lake	100 Year	Vegetation, Dirt, Gravel	Flat, Slight Radial Slope from Central Farm Area	High	Low
	Greif Farm	2200	Beaver Creek	>500 Year	Vegetation, Dirt, Gravel	Flat	High	Low
	Herrold Farm	10	Oxbow Lake	100 Year	Vegetation, Dirt, Gravel	Steep Slope From Site to Beaver Creek Oxbow	High	Medium
	Melos Farm	300	Saylorville Reservoir	>500 Year	Vegetation, Dirt, Gravel	Flat	High	Low

TABLE 10-2

LIST OF FISH SPECIES COLLECTED IN BEAVER CREEK

Common Name	Scientific Name
MINNOWS	CYPRINIDAE
Central Stoneroller	Campostoma Anomalum
Common Carp	Cyprinus Carpio
Spotfin Shiner	Cyprinella Spilopterus
Brassy Minnow	Hybognathus Hankinsoni
Common Shiner	Luxilis Cornutus
Emerald Shiner	Notropis Atherinoides
Big Mouth Shiner	Notropis Dorsalis
Sand Shiner	Notropis Stramineus
Suckermouth Minnow	Phenacobius Mirabilis
Bluntnosed Minnow	Pimephales Notatus
Fathead Minnow	Pimephales Promelas
Blacknose Dace	Rhinichthys Atratulus
Creek Chub	Semotilus Atromaculatus
SUCKERS	CATOSTOMIDAE
White Sucker	Catostomus Commeroni
Northern Hogsucker	Hypentelium Nigricans
Golden Redhorse	Moxostoma Erthrurum
Shorthead Redhorse	Moxostoma Macrolepidotum
SUNFISH	CENTRARCHIDAE
Green Sunfish	Lepomis Cyanellus
Bluegill	Lepomis Macrochirus
Smallmouth Bass	Micropterus Dolomieu
	ICTALURIDAE
Yellow Bullhead	Ameicrus Natalis
Tadpole Madtom	Noturus Gyrinus
PERCHES	PERCIDE
Johnny Darter	Etheostoma nigrum
Slenderhead Darter	Percina phoxocephla
Walleye	Stizostedion vitreum

Source: John Olson, Water Resources Section, Iowa Department of Natural Resources (Ref. 90).

TABLE 10-3

SUMMARY OF SURFACE WATER TAGETS
CAMP DODGE PRELIMINARY ASSESSMENT

Type of Site	Site ID	Distance to Surface Water Intake (miles)	Distance to Sensitive Environments (feet)	Threat to Target
Landfill Sites	Cemetery Landfill	11.5	2300	Low
	Scrap Iron Landfill	11.2	50	Medium
	Range Dump	10.6	0	Medium
	LAW Range Landfill	9.8	500	Low
	Gravel Pit Dump	>15	3300	Low
	Kitchen Landfill	10.9	1200	Low
	Pond Landfill	10.5	0	Medium
Historical Sites (pre-WWII)	Incinerator	10.7	50	Medium
	Horse Dip Facility	10.7	800	Low
	Gas Instruction House	10.4	0	Medium
Historical Sites (post-WWII)	Demolition Pit	10	20	Medium
	WWTP	10.2	1900	Low
	Monitoring Well P-10	12.8	600	Low
	Town of Herrold	12.1	1200	Low
South Cantonment Area Sites	Container Storage Area	11.2	2600	Low
	Fuel Product Pipeline	11.3	1900	Low
	Leach Bed	11	3200	Low
Farm Acquisition Sites	Betz Farm	9	200	Medium
	Greif Farm	14	4200	Low
	Herrold Farm	12.5	0	Medium
	Melos Farm	>15	300	Low

TABLE 10-4

SUMMARY OF SURFACE WATER PATHWAY
CAMP DODGE PRELIMINARY ASSESSMENT

Type of Site	Site ID	Likelihood to Release	Threat to Target	Overall Surface Water Risk	Explanation
Landfill Sites	Cemetery Landfill	Low	Low	Low	Covered with topsoil, large distance from targets.
	Scrap Iron Landfill	Medium	Medium	Medium	Located on floodplain near wetlands.
	Range Dump	Medium	Medium	Medium	Located on floodplain adjacent to surface water and wetlands.
	LAW Range Landfill	Low	Low	Low	Flat area with grass cover, high infiltration.
	Gravel Pit Dump	Low	Low	Low	Located on flat upland, large distance from targets.
	Kitchen Landfill	Low	Low	Low	Flat area with high infiltration.
	Pond Landfill	Low	Medium	Low	Flat area with grass cover, high infiltration.
Historical Sites (pre-WWII)	Incinerator	Medium	Medium	Medium	Located on floodplain, evidence for previous surface water impacts.
	Horse Dip Facility	Low	Low	Low	Large distance from targets.
	Gas Instruction House	Low	Medium	Low	No contamination suspected.
Historical Sites (post-WWII)	Demolition Pit	Low	Medium	Low	Pit is bermed with six feet of soil.
	WWTP	Medium	Low	Low	Flat area covered with grass and road materials.
	Monitoring Well P-10	Low	Low	Low	No surface contamination at well site.
	Town of Herrold	Low	Low	Low	Flat area with substantial cover, high infiltration.
South Cantonment Area Sites	Container Storage Area	Low	Low	Low	Area covered by concrete. Large distance from targets.
	Fuel Product Pipeline	Low	Low	Low	Area covered by concrete. Large distance from targets.
	Leach Bed	Low	Low	Low	Area covered by concrete. Large distance from targets.

TABLE 10-4 (CONTINUED)

SUMMARY OF SURFACE WATER PATHWAY
CAMP DODGE PRELIMINARY ASSESSMENT

Type of Site	Site ID	Likelihood to Release	Threat to Target	Overall Surface Water Risk	Explanation
Farm Acquisition Sites	Betz Farm	Low	Medium	Low	Waste quantity removed, sampling results showed no impacts.
	Greif Farm	Low	Low	Low	Located on flat upland, large distance from targets.
	Herrold Farm	Medium	Medium	Medium	Residual contaminants possibly located next to surface water and wetlands.
	Melos Farm	Low	Low	Low	Flat area with grass cover, high infiltration.

TABLE 11-1

SUMMARY OF SOIL EXPOSURE PATHWAY
CAMP DODGE PRELIMINARY ASSESSMENT

Type Of Site	Site ID	Type Of Soil Cover	Thickness of Cover Greater Than 2 Feet Or Impermeable?	Access To Site	Likelihood Of Exposure	Explanation
Landfill Sites	Cemetery Landfill	Soil	Yes	Restricted (1)	Low	Landfill covered by 3 feet of soil.
	Scrap Iron Landfill	Soil	No	Restricted (2)	Medium	Access restricted. Bare ground observed.
	Range Dump	Soil	No	Restricted (2)	Low	Access restricted. No evidence of surface soil impacts.
	LAW Range Landfill	Soil	No	Restricted (1)	Low	Access restricted. No evidence of surface soil impacts.
	Gravel Pit Dump	Soil	No	Restricted (1)	Low	Access restricted. No evidence of surface soil impacts.
	Kitchen Landfill	Soil	No	Restricted (1)	Low	Access restricted. No evidence of surface soil impacts.
	Pond Landfill	Soil	No	Restricted (2)	Low	Access restricted. No evidence of surface soil impacts.
Historical Sites (pre-WWII)	Incinerator	Soil	No	Restricted (2)	Low	Access restricted. Located west of creek.
	Horse Dip Facility	Soil	No	Restricted (2)	Low	Access restricted. Located west of creek.
	Gas Instruction House	Soil	Yes	Restricted (2)	Low	No contamination identified.
Historical Sites (post-WWII)	Demolition Pit	Soil	No	Restricted (3)	Low	Access restricted by fence and locked gate around berms.
	WWTP	Soil, Gravel, Concrete	No	Unrestricted	Medium	Unrestricted access. Some bare ground.
	Monitoring Well P-10	Soil	No	Restricted (1)	Low	Access limited. Groundwater contamination below surface.
	Town of Herrold	Soil, gravel	No	Restricted (1)	Low	Access limited. Possible contamination below surface.
South Cantonment Area Sites	Container Storage Area	Concrete	Yes	Unrestricted	Low	Area covered by concrete.
	Fuel Product Pipeline	Concrete	Yes	Unrestricted	Low	Area covered by concrete.
	Leach Bed	Concrete	Yes	Unrestricted	Low	Area covered by concrete.
Farm Acquisition Sites	Betz Farm	Soil	Yes	Restricted (1)	Low	Access restricted. Contaminated soils removed from site.
	Greif Farm	Soil	Yes	Restricted (1)	Low	Access restricted. Contaminated soils removed from site.
	Herrold Farm	Soil	No	Restricted (1)	Low	Access restricted. Contaminated soils removed from site.
	Melos Farm	Soil	Yes	Restricted (3)	Low	Access restricted. Contaminated soils removed from site.

Notes:

1- Restricted = permission must be obtained from security
2- Restricted = Permission and keys from security required. Access to site blocked by locked gate
3- Restricted = Permission and keys from security required. Access to site blocked by locked gate. Site enclosed by fence and locked gate.

TABLE 13-1

SUMMARY OF PATHWAYS AND OVERALL RISK
CAMP DODGE PRELIMINARY ASSESSMENT

Type Of Site	Site Identification	Overall Groundwater Pathway risk	Overall Surface Water Risk	Likelihood Of Soil Exposure	Air Pathway Risk	Overall Risk	Proposed Action
Landfill Sites	Cemetery Landfill	Medium	Low	Low	Low	Medium	Limited Action: Groundwater Investigation
	Scrap Iron Landfill	High	Medium	Medium	Low	High	Limited Action: Groundwater, Surface Water/ Sediment, Soil Investigation
	Range Dump	Medium	Medium	Low	Low	Medium	Limited Action: Groundwater, Surface Water Investigation
	LAW Range Landfill	Medium	Low	Low	Low	Medium	Limited Action: Groundwater Investigation
	Gravel Pit Dump	Medium	Low	Low	Low	Medium	Limited Action: Groundwater Investigation
	Kitchen Landfill	Low	Low	Low	Low	Low	None
	Pond Landfill	Low	Low	Low	Low	Low	None
Historical Sites (pre-WWII)	Incinerator	Medium	Medium	Low	Low	Medium	Limited Action: Groundwater, Surface Water Investigation
	Horse Dip Facility	Low	Low	Low	Low	Low	Limited Action: Groundwater, Soil Investigation
	Gas Instruction House	Low	Low	Low	Low	Low	None
Historical Sites (post-WWII)	Demolition Pit	Medium	Low	Low	Low	Medium	Limited Action: Groundwater Investigation
	WWTP	Low	Low	Medium	Low	Medium	Limited Action: Soil Investigation
	Monitoring Well P-10	Low	Low	Low	Low	Low	Limited Action: Groundwater Investigation
	Town of Herrold	Low	Low	Low	Low	Low	Limited Action: Groundwater, Soil Investigation

TABLE 13-1 (CONTINUED)

SUMMARY OF PATHWAYS AND OVERALL RISK
CAMP DODGE PRELIMINARY ASSESSMENT

Type Of Site	Site Identification	Overall Groundwater Pathway risk	Overall Surface Water Risk	Likelihood Of Soil Exposure	Air Pathway Risk	Overall Risk	Proposed Action
South Cantonment Area Sites	Container Storage Area	Low	Low	Low	Low	Low	None
	Fuel Product Pipeline	Medium	Low	Low	Low	Medium	Limited Action: Groundwater Investigation
	Leach Bed	High	Low	Low	Low	High	Limited Action: Groundwater Investigation
Farm Acquisition Sites	Betz Farm	Low	Low	Low	Low	Low	None
	Greif Farm	Low	Low	Low	Low	Low	None
	Herrold Farm	Low	Medium	Low	Low	Low	None
	Melos Farm	Low	Low	Low	Low	Low	None

TABLE 14-1

SUMMARY OF RECOMMENDATIONS
CAMP DODGE PRELIMINARY ASSESSMENT

Type Of Site	Site Identification	Proposed Action
Landfill Sites	Cemetery Landfill	Limited Action: Groundwater Investigation
	Scrap Iron Landfill	Limited Action: Groundwater Investigation
	Range Dump	Limited Action: Groundwater Investigation
	LAW Range Landfill	None
	Gravel Pit Dump	Limited Action: Groundwater Investigation
	Kitchen Landfill	None
	Pond Landfill	None
Historical Sites (pre-WWII)	Incinerator	None
	Horse Dip Facility	Limited Action: Removal of Sediment and Surface Debris
	Gas Instruction House	None
Historical Sites (post-WWII)	Demolition Pit	Limited Action: Groundwater Investigation
	WWTP	Limited Action: Soil Investigation
	Monitoring Well P-10	Limited Action: Groundwater Investigation
	Town of Herrold	Limited Action: Groundwater, Soil Investigation
South Cantonment Area Sites	Container Storage Area	None
	Fuel Product Pipeline	Limited Action: RBCA Tier I
	Leach Bed	None
Farm Acquisition Sites	Betz Farm	None
	Greif Farm	None
	Herrold Farm	None
	Melos Farm	None

TABLE 14-2

PROPOSED SAMPLING
CAMP DODGE PRELIMINARY ASSESSMENT

Site Identification	Media	Analytes/Method Number						
		BTEX (Iowa OA-1)	Total Extractable Hydrocarbons (Iowa OA-2)	VOCs (EPA 8260)	BNAs (EPA 8270)	RCRA Metals (EPA 6010/7000)	Pesticides (EPA 8080)	Explosives (EPA 8330)
Cemetery Landfill	Groundwater	3	3	3	3	3		
Scrap Iron Landfill	Groundwater	4	4	4	4	4		
	Surface Water	2	2	2	2	2		
	Surface Soil	3	3	3	3	3		
Range Dump	Groundwater	3[a]	3[a]			3[a]		
	Surface Water	2	2			2		
	Sediment	2	2			2		
LAW Range Landfill	Groundwater	3	3					
Gravel Pit Dump	Groundwater	3[b]	3[b]					
Incinerator	Groundwater	5[a]	5[a]		5[a]	5[a]		
	Surface Water	2	2		2	2		
	Surface Soil	5	5		5	5		
Horse Dip Tank	Groundwater	3[a]	3[a]			3[a]	3[a]	
	Surface Soil	3	3			3	3	
Demo Pit	Groundwater							2
	Surface Soil			2				2
Former WWTP	Surface Soil					3		
Monitoring Well P-10	Groundwater			4				
Fuel Product Pipeline	Groundwater	3	3					
Leach Bed	Groundwater	2	2					

Notes:

[a] Groundwater samples not collected because site was inaccessible at time of piezometer installation.

[b] Two piezometers destroyed by grading and filling activities prior to groundwater sample collection.

TABLE 14-3

CEMETERY LANDFILL GROUNDWATER SAMPLING SUMMARY
CAMP DODGE PRELIMINARY ASSESSMENT

	Action Levels[a]	PZ-17 31-Aug-1998	PZ-18 31-Aug-1998
VOCs (µg/L)			
Acetone	-	<10	<10
Benzene	1	<1	<1
Toluene	1,000	<1	<1
Ethylbenzene	700	<1	<1
Xylenes, Total	10,000	<1	<1
Tetrachloroethylene	0.7	<1	<1
Trichloroethylene	3	<1	<1
trans-1,2-Dichloroethylene	100	<1	<1
cis-1,2-Dichloroethylene	70	<1	<1
Vinyl Chloride	0.015	<1	<1
Metals (mg/L)			
Arsenic, Total	0.00002	0.206	0.552
Barium, Total	2	5.42	3.16
Cadmium, Total	0.005	0.006	0.011
Chromium, Total	0.1	0.338	0.457
Lead, Total	0.015	0.187	0.208
Mercury, Total	0.002	<0.0005	0.003
Selenium, Total	0.05	<0.005	<0.005
Silver, Total	0.1	<0.03	<0.03

Note: Analyses for VOCs (EPA 8260) not listed, base/neutral/acid extractable organic compounds (EPA 8270), and extractable petroleum compounds (Iowa OA-2) were all nondetect.

[a] Iowa Administrative Code Chapter 133.

TABLE 14-4

SCRAP IRON LANDFILL GROUNDWATER SAMPLING SUMMARY
CAMP DODGE PRELIMINARY ASSESSMENT

	Action Levels[a]	PZ-21 1-Sep-1998	PZ-22 1-Sep-1998	PZ-23 1-Sep-1998	PZ-24 1-Sep-1998
VOCs (µg/L)					
Acetone	-	<10	<10	<10	<10
Benzene	1	<1	<1	<1	<1
Toluene	1,000	<1	<1	<1	<1
Ethylbenzene	700	<1	<1	<1	<1
Xylenes, Total	10,000	<1	<1	<1	<1
Tetrachloroethylene	0.7	<1	<1	<1	<1
Trichloroethylene	3	3.3	<1	<1	<1
trans-1,2-Dichloroethylene	100	<1	<1	<1	<1
cis-1,2-Dichloroethylene	70	2.7	<1	<1	<1
Vinyl Chloride	0.015	<1	<1	<1	<1
Metals (mg/L)					
Arsenic, Total	0.00002	0.108	0.125	0.394	0.202
Barium, Total	2	0.959	2.47	11.4	1.67
Cadmium, Total	0.005	0.002	0.005	0.023	<0.001
Chromium, Total	0.1	0.109	0.229	1.06	0.202
Lead, Total	0.015	0.103	0.208	1.36	0.252
Mercury, Total	0.002	<0.0005	0.0007	0.0008	0.0008
Selenium, Total	0.05	0.005	0.016	0.009	0.012
Silver, Total	0.1	<0.03	<0.03	<0.03	<0.03

Note: Analyses for VOCs (EPA 8260) not listed, base/neutral/acid extractable organic compounds (EPA 8270), and extractable petroleum hydrocarbons (Iowa OA-2) were all nondetect.

[a] Iowa Administrative Code Chapter 133.

TABLE 14-5

SCRAP IRON LANDFILL SURFACE WATER SAMPLING SUMMARY
CAMP DODGE PRELIMINARY ASSESSMENT

	Class B (LR) Water Quality Criteria[a]			
	Chronic	Acute	SIL-UP 1-Sep-1998	SIL-DN 1-Sep-1998
VOCs (µg/L)				
Acetone	-	-	<10	<10
Benzene	-	-	<1	<1
Toluene	150	7,500	<1	<1
Ethylbenzene	-	-	<1	<1
Xylenes, Total	-	-	<1	<1
Tetrachloroethylene	-	-	<1	<1
Trichloroethylene	80	4,000	<1	<1
trans-1,2-Dichloroethylene	-	-	<1	<1
cis-1,2-Dichloroethylene	-	-	<1	<1
Vinyl Chloride	-	-	<1	<1
Metals (mg/L)				
Arsenic, Total	1	1.8	<0.005	<0.005
Barium, Total	-	-	0.127	0.115
Cadmium, Total	0.025	0.1	0.001	<0.001
Chromium, Total	0.2	0.3	<0.03	<0.03
Lead, Total	0.08	0.75	0.006	<0.005
Mercury, Total	0.00025	0.01	<0.0005	<0.0005
Selenium, Total	0.125	0.175	<0.005	<0.005
Silver, Total	0.0085	0.1	<0.03	<0.03

Note: Analyses for VOCs (EPA 8260) not listed, base/neutral/acid extractable organic compounds (EPA 8270), and extractable petroleum hydrocarbons (Iowa OA-2) were all nondetect.

[a] Iowa Administrative Code Chapter 61.

TABLE 14-6

SCRAP IRON LANDFILL SOIL SAMPLING SUMMARY
CAMP DODGE PRELIMINARY ASSESSMENT
(all units in mg/kg)

	Industrial Preliminary Remediation Goal (PRG)	SIL-1 1-Sep-1998	SIL-2 1-Sep-1998	SIL-3 1-Sep-1998
VOCs				
Acetone	6,100	<0.01	<0.01	<0.01
Benzene	1.4	<0.001	<0.001	<0.001
Toluene	520	<0.001	0.007	0.007
Ethylbenzene	230	<0.001	<0.001	<0.001
Xylenes, Total	210	<0.001	<0.001	<0.001
Tetrachloroethylene	16	<0.001	<0.001	<0.001
Trichloroethylene	6.1	<0.001	<0.001	<0.001
trans-1,2-Dichloroethylene	150	<0.001	<0.001	<0.001
cis-1,2-Dichloroethylene	210	<0.001	<0.001	<0.001
Vinyl Chloride	0.048	<0.001	<0.001	<0.001
Petroleum Hydrocarbons				
Total Extractable Hydrocarbons	-	<5	<5	37
TEH, Waste Oil	-	<5	<5	37
Metals				
Arsenic, Total	3	2.1	3	3.1
Barium, Total	100,000	51	90	143
Cadmium, Total	930	<1	<1	1.7
Chromium, Total	450	6.5	9.6	14.1
Lead, Total	1,000	<50	<50	117
Mercury, Total	560	<0.5	<0.5	0.9
Selenium, Total	9,400	<2	<2	<2
Silver, Total	9,400	<3	<3	3.1

Note: Analyses for VOCs (EPA 8260) not listed, base/neutral/acid extractable organic compounds (EPA 8270), and extractable petroleum hydrocarbons (Iowa OA-2) were all nondetect.

[a] Generic Soil Screening Levels for residential surface soil (EPA, 1996).

TABLE 14-7

RANGE DUMP SURFACE WATER/SEDIMENT SAMPLING SUMMARY
CAMP DODGE PRELIMINARY ASSESSMENT

	Class B (LR) Water Quality Criteria[a]		Surface Water		Sediment	
	Chronic	Acute	RD-UP 24-Nov-1998	RD-DN 24-Nov-1998	RD-UP 24-Nov-1998	RD-DN 24-Nov-1998
Petroleum Hydrocarbons			<1	<1	<0.2	<0.2
Benzene	-	-	<1	<1	<0.2	<0.2
Toluene	150	7,500	<1	<1	<0.2	<0.2
Ethylbenzene	-	-	<1	<1	<0.2	<0.2
Xylenes, Total	-	-	<1	<1	<0.2	<0.2
Total Extractable Hydrocarbons	-	-	<0.1	<0.1	43	<5
Metals						
Arsenic, Total	1	1.8	0.006	<0.005	6.4	2.9
Barium, Total	-	-	0.158	0.111	179	114
Cadmium, Total	0.025	0.1	<0.001	<0.001	<1	<1
Chromium, Total	0.2	0.3	<0.03	<0.03	15	12
Lead, Total	0.08	0.75	0.011	<0.005	<50	<50
Mercury, Total	0.00025	0.01	<0.0005	<0.0005	<0.5	<0.5
Selenium, Total	0.125	0.175	<0.005	<0.005	<2	<2
Silver, Total	0.0085	0.1	<0.03	<0.03	<3	<3

[a] Iowa Administrative Code Chapter 61.

TABLE 14-8

LAW RANGE DUMP GROUNDWATER SAMPLING SUMMARY
CAMP DODGE PRELIMINARY ASSESSMENT
(all units in µg/L)

	Action Levels[a]	PZ-3 31-Aug-1998	PZ-4 31-Aug-1998	PZ-5 31-Aug-1998
Benzene	1	<1.0	<2	<1.0
Toluene	1,000	<1.0	<2	<1.0
Ethylbenzene	700	<1.0	<2	<1.0
Xylenes, Total	10,000	<1.0	<2	<1.0
Total Extractable Hydrocarbons	-	<0.1	1.3	<0.1
TEH, Gasoline	-	<0.1	<0.1	<0.1
TEH, #2 Diesel Fuel	-	<0.1	<0.1	<0.1
TEH, Waste Oil	-	<0.1	1.3	<0.1

[a] Iowa Administrative Code Chapter 133.

TABLE 14-9

GRAVEL PIT DUMP GROUNDWATER SAMPLING SUMMARY
CAMP DODGE PRELIMINARY ASSESSMENT
(all units in µg/L)

	Action Levels[a]	PZ-13 31-Aug-1998
Benzene	1	<1.0
Toluene	1,000	<1.0
Ethylbenzene	700	<1.0
Xylenes, Total	10,000	<1.0
Total Extractable Hydrocarbons	-	<0.1
TEH, Gasoline	-	<0.1
TEH, #2 Diesel Fuel	-	<0.1
TEH, Waste Oil	-	<0.1

[a] Iowa Administrative Code Chapter 133.

TABLE 14-10

INCINERATOR AREA SOIL SAMPLING SUMMARY
CAMP DODGE PRELIMINARY ASSESSMENT
(all units in mg/kg)

	Industrial Preliminary Remediation Goal (PRG)	Inhalation	IN-1 8-Oct-1998	IN-2 8-Oct-1998	IN-3 8-Oct-1998	IN-4 8-Oct-1998	IN-5 8-Oct-1998
Petroleum Hydrocarbons							
Benzene	1.4	0.5	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	520	520	<0.2	<0.2	<0.2	<0.2	<0.2
Ethylbenzene	230	260	<0.2	<0.2	<0.2	<0.2	<0.2
Xylenes, Total	210	320	<0.2	<0.2	<0.2	<0.2	<0.2
Total Extractable Hydrocarbons	-	-	15	44	8	<5	<5
Polynuclear Aromatic Hydrocarbons							
Phenanthrene	-	-	<0.33	1.12	<0.33	<0.33	<0.33
Fluoranthene	37,000	-	<0.33	1.12	<0.33	<0.33	<0.33
Pyrene	26,000	-	<0.33	1.29	<0.33	<0.33	<0.33
Benzo(a)anthracene	3.6	-	<0.33	0.52	<0.33	<0.33	<0.33
Chrysene	360	-	<0.33	0.73	<0.33	<0.33	<0.33
Benzo(b)fluoranthene	3.6	-	<0.33	1.16	<0.33	<0.33	<0.33
Benzo(k)fluoranthene	36	-	<0.33	0.39	<0.33	<0.33	<0.33
Benzo(a)pyrene	0.36	-	<0.33	0.56	<0.33	<0.33	<0.33
Metals							
Arsenic	3	380	<2	5.6	2.1	2.2	4.6
Barium	100,000	350,000	99	67	90	80	161
Cadmium	930	920	<1	2.7	<1	<1	2.2
Chromium	450	140	6.4	11.1	7	6.9	16.7
Lead	1,000	-	<50	86	<50	75	57
Mercury	560	7	<0.5	<0.5	<0.5	<0.5	<0.5
Selenium	9,400	-	<2	<2	<2	<2	<2
Silver	9,400	-	<3	<3	<3	<3	<3

Note: Analyses for base/neutral acid extractable organic compounds (EPA 8270) not listed were all nondetect.

TABLE 14-11

INCINERATOR AREA SURFACE WATER SAMPLING SUMMARY
CAMP DODGE PRELIMINARY ASSESSMENT

	Class B (LR) Water Quality Criteria		IN-UP	IN-DN
	Chronic	Acute	19-Oct-1998	19-Oct-1998
VOCs (µg/L)				
Benzene	-		<1	<1
Toluene	150	7,500	<1	<1
Ethylbenzene	-	-	<1	<1
Xylenes, Total	-	-	<1	<1
Metals (mg/L)				
Arsenic, Total	1	1.8	<0.005	<0.005
Barium, Total	-	-	0.107	0.117
Cadmium, Total	0.025	0.1	<0.001	<0.001
Chromium, Total	0.2	0.3	<0.03	<0.03
Lead, Total	0.08	0.75	0.006	<0.005
Mercury, Total	0.00025	0.01	<0.0005	<0.0005
Selenium, Total	0.0125	0.175	<0.005	<0.005
Silver, Total	0.0085	0.1	<0.03	<0.03

Note: Analyses for VOCs (EPA 8260) not listed and base/neutral/acid extractable organic compounds (EPA 8270) were all nondetect.

[a] Iowa Administrative Code Chapter 61.

TABLE 14-12

HORSE DIP TANK SOIL SAMPLING SUMMARY
CAMP DODGE PRELIMINARY ASSESSMENT
(all units in mg/kg)

	Industrial Preliminary Remediation Goal	HD-1 8-Oct-1998	HD-2 8-Oct-1998	HD-3 8-Oct-1998	HD-4 8-Oct-1998
Petroleum Hydrocarbons					
Benzene	1.4	<0.2	<0.2	<0.2	<0.2
Toluene	520	<0.2	<0.2	<0.2	<0.2
Ethylbenzene	230	<0.2	<0.2	<0.2	<0.2
Xylenes, Total	210	<0.2	<0.2	<0.2	<0.2
Total Extractable Hydrocarbons	-	<5	28	10	10
Pesticides					
4,4'-DDT	13	<0.005	0.01	<0.05	0.03
4,4'-DDD	19	<0.005	<0.005	<0.005	<0.005
4,4'-DDE	13	<0.005	<0.005	<0.005	0.006
Metals					
Arsenic	3	2.9	3.7	2.4	2.6
Barium	100,000	95	131	91	108
Cadmium	930	<1	1.5	<1	<1
Chromium	450	8.4	11.5	7.4	11.7
Lead	1,000	<50	470	<50	<50
Mercury	560	<0.5	<0.5	<0.5	<0.5
Selenium	9,400	<2	<2	<2	<2
Silver	9,400	<3	<3	<3	<3

Note: Analyses for pesticides (EPA 8080) not listed were all nondetect.

TABLE 14-13

DEMOLITION PIT GROUNDWATER SAMPLING SUMMARY
CAMP DODGE PRELIMINARY ASSESSMENT
(all units in µg/L)

	Action Levels[a]	PZ-1 31-Aug-1998	PZ-2 31-Aug-1998
1,2,3-Trinitrobenzene	-	<1	<1
1,3-Dinotrobenzene	1	<1	<1
2,4 & 2,6-Dinitrotoluene	0.05	<1	<1
2,4,6-Trinitrotoluene	2	<1	<1
2-Amino-Dinitrotoluene	-	<1	<1
2-Nitrotoluene	-	<1	<1
3-Nitrotoluene	-	<1	<1
4-Amino-Dinitrotoluene	-	<1	<1
4-Nitrotoluene	-	<1	<1
HMX	400	<1	<1
Nitrobenzene	-	<1	<1
RDX	2	14	<1
Tetryl	-	<1	<1

[a] Iowa Administrative Code Chapter 133.

TABLE 14-14

DEMOLITION PIT SOIL SAMPLING SUMMARY
CAMP DODGE PRELIMINARY ASSESSMENT
(all units in mg/kg)

	Industrial Preliminary Remediation Goals (PRGs)	DP-3 19-Oct-1998	DP-4 19-Oct-1998
Explosives			
1,3,5-Trinitrobenzene	32,000	<5	<5
1,3-Dinotrobenzene	110	<5	<5
2,4 & 2,6-Dinitrotoluene	4.4	<5	<5
2,4,6-Trinitrotoluene	-	<5	<5
2-Amino-Dinitrotoluene	-	<5	<5
2-Nitrotoluene	11,000	<5	<5
3-Nitrotoluene	11,000	<5	<5
4-Amino-Dinitrotoluene	-	<5	<5
4-Nitrotoluene	11,000	<5	<5
HMX	-	<5	<5
Nitrobenzene	100	<5	<5
RDX	27	<5	<5
Tetryl	-	<5	<5
Volatile Organic Compounds			
Acetone	6,100	<0.01	<0.01
Benzene	1.4	<0.001	0.011
Toluene	520	<0.001	<0.001
Ethylbenzene	230	<0.001	<0.001
Xylenes, Total	210	<0.001	<0.001
Tetrachloroethylene	16	<0.001	<0.001
Trichloroethylene	6.1	<0.001	<0.001
trans-1,2-Dichloroethylene	150	<0.001	<0.001
cis-1,2-Dichloroethylene	210	<0.001	<0.001
Vinyl Chloride	0.048	<0.001	<0.001

Note: Analyses for VOCs (EPA 8260) not listed were all nondetect.

TABLE 14-15

FORMER WASTEWATER TREATMENT PLANT SOIL SAMPLING SUMMARY
CAMP DODGE PRELIMINARY ASSESSMENT
(all units in mg/kg)

	Industrial Preliminary Remediation Goals (PRGs)	WWTP-1 31-Aug-1998	WWTP-2 31-Aug-1998	WWTP-3 31-Aug-1989
Arsenic	3	5.5	8.6	5.5
Barium	100,000	70	688	1,190
Cadmium	930	1.8	31	8.4
Chromium	450	17.9	284	153
Lead	1,000	<50	310	218
Mercury	560	<0.5	<0.5	<0.5
Selenium	9,400	<2	3.4	<2
Silver	9,400	<3	<3	<3

TABLE 14-16

P-10 SITE GROUNDWATER SAMPLING SUMMARY
CAMP DODGE PRELIMINARY ASSESSMENT
(all units in µg/L)

	Action Levels[a]	PZ-6 31-Aug-1998	PZ-7 31-Aug-1998	PZ-8 31-Aug-1998	PZ-9 31-Aug-1998	P-10 25-Jul-1997
Acetone	-	<10	<10	<10	<10	624
Benzene	1	<1	<1	<1	<1	<1
Toluene	1,000	<1	<1	<1	<1	<1
Ethylbenzene	700	<1	<1	<1	<1	<1
Xylenes, Total	10,000	<1	<1	<1	<1	<1
Tetrachloroethylene	0.7	<1	<1	<1	<1	<1
Trichloroethylene	3	<1	<1	<1	<1	<1
trans-1,2-Dichloroethylene	100	<1	<1	<1	<1	<1
cis-1,2-Dichloroethylene	70	<1	<1	<1	<1	<1
Vinyl Chloride	0.015	<1	<1	<1	<1	<1

Note: Analyses for VOCs (EPA 8260) not listed were all nondetect

[a] Iowa Administrative Code Chapter 133.

TABLE 14-17

FUEL PRODUCT PIPELINE GROUNDWATER SAMPLING SUMMARY
CAMP DODGE PRELIMINARY ASSESSMENT
(all units in µg/L)

	Action Levels[a]	Iowa Tier 1 Look-Up Values[b] Groundwater Ingestion		PZ-10	PZ-11	PZ-12
		Actual Receptor	Potential Receptor	17-Jun-1998	17-Jun-1998	17-Jun-1998
Benzene	1	5	290	<1.0	<1.0	188
Toluene	1,000	1,000	7,300	73	1	39
Ethylbenzene	700	700	3,700	1	<1.0	28
Xylenes, Total	10,000	10,000	73,000	3	<1.0	455
Total Extractable Hydrocarbons (TEH)	-	-	-	<0.1	<0.1	5.1
TEH, Gasoline	-	-	-	<0.1	<0.1	5.1
TEH, #2 Diesel Fuel	-	1,200	75,000	<0.1	<0.1	<0.1
TEH, Waste Oil	-	400	40,000	<0.1	<0.1	<0.1

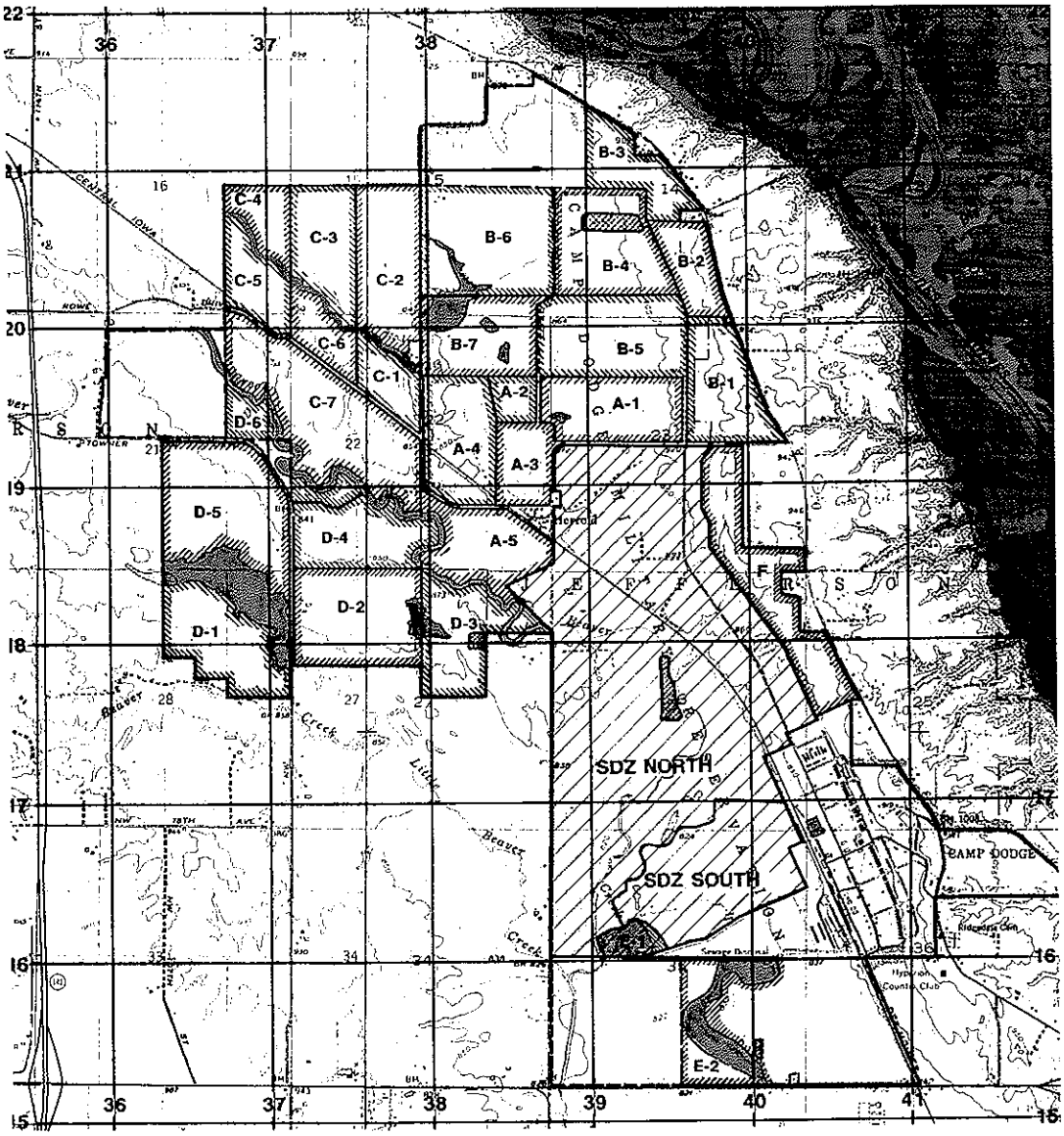
[a] Iowa Administrative Code Chapter 133.
[b] Iowa Administrative Code Chapter 135.

TABLE 14-18

LEACH BED GROUNDWATER SAMPLING SUMMARY
CAMP DODGE PRELIMINARY ASSESSMENT
(all units in µg/L)

	Action Levels[a]	PZ-19 17-Jun-1998	PZ-20 17-Jun-1998
Benzene	1	<1.0	<1.0
Toluene	1,000	<1.0	<1.0
Ethylbenzene	700	<1.0	<1.0
Xylenes, Total	10,000	<1.0	<1.0
Total Extractable Hydrocarbons	-	<0.1	<0.1
TEH, Gasoline	-	<0.1	<0.1
TEH, #2 Diesel Fuel	-	<0.1	<0.1
TEH, Waste Oil	-	<0.1	<0.1

[a] Iowa Administrative Code Chapter 133.



- OFF LIMITS
- (SDZ) SURFACE DANGER ZONE
- TRAINING AREA BOUNDARIES

CONTOUR INTERVAL 10 FEET
WITH SUPPLEMENTARY CONTOURS AT 5 FOOT INTERVALS
VERTICAL DATUM, SEA LEVEL DATUM OF 1929
TRANSVERSE MERCATOR PROJECTION
HORIZONTAL DATUM: 1927 NORTH AMERICAN DATUM

- RESTRICTED FOOT TRAFFIC ONLY NO DIGGING

N

0 4000
SCALE IN FEET

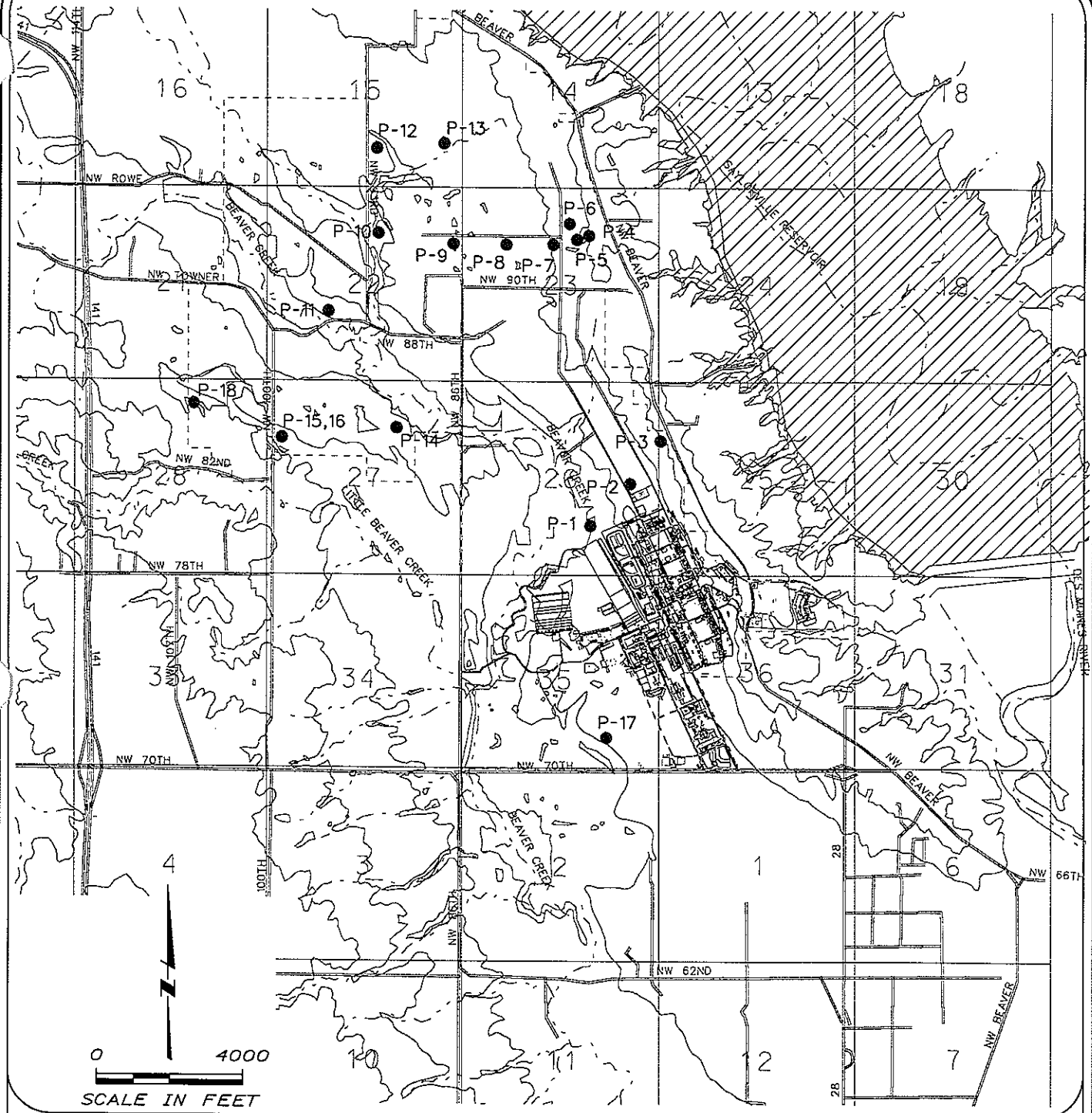
MONTGOMERY WATSON

IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

SITE LOCATION MAP

FIGURE 2-1

BDR



SOURCE: IOWA DEPARTMENT OF NATURAL RESOURCES - GEOLOGICAL SURVEY BUREAU.

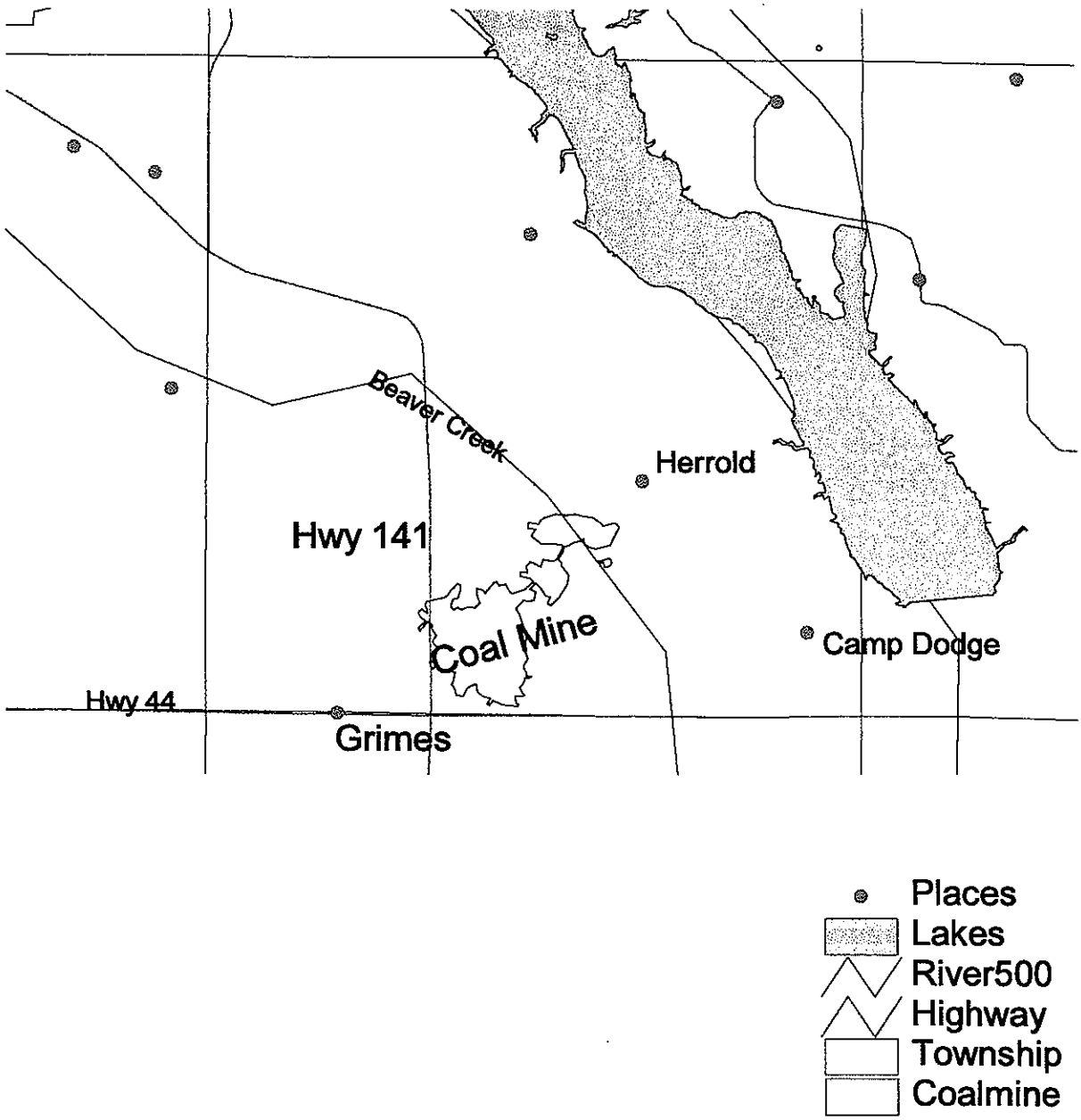
IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

LOCATION OF IDNR GSB MONITORING WELLS

FIGURE 2-4

MONTGOMERY WATSON

LOGSBWM



SOURCE: IOWA DEPARTMENT OF NATURAL RESOURCES
GEOLOGICAL SURVEY BUREAU.

N

NOT TO SCALE

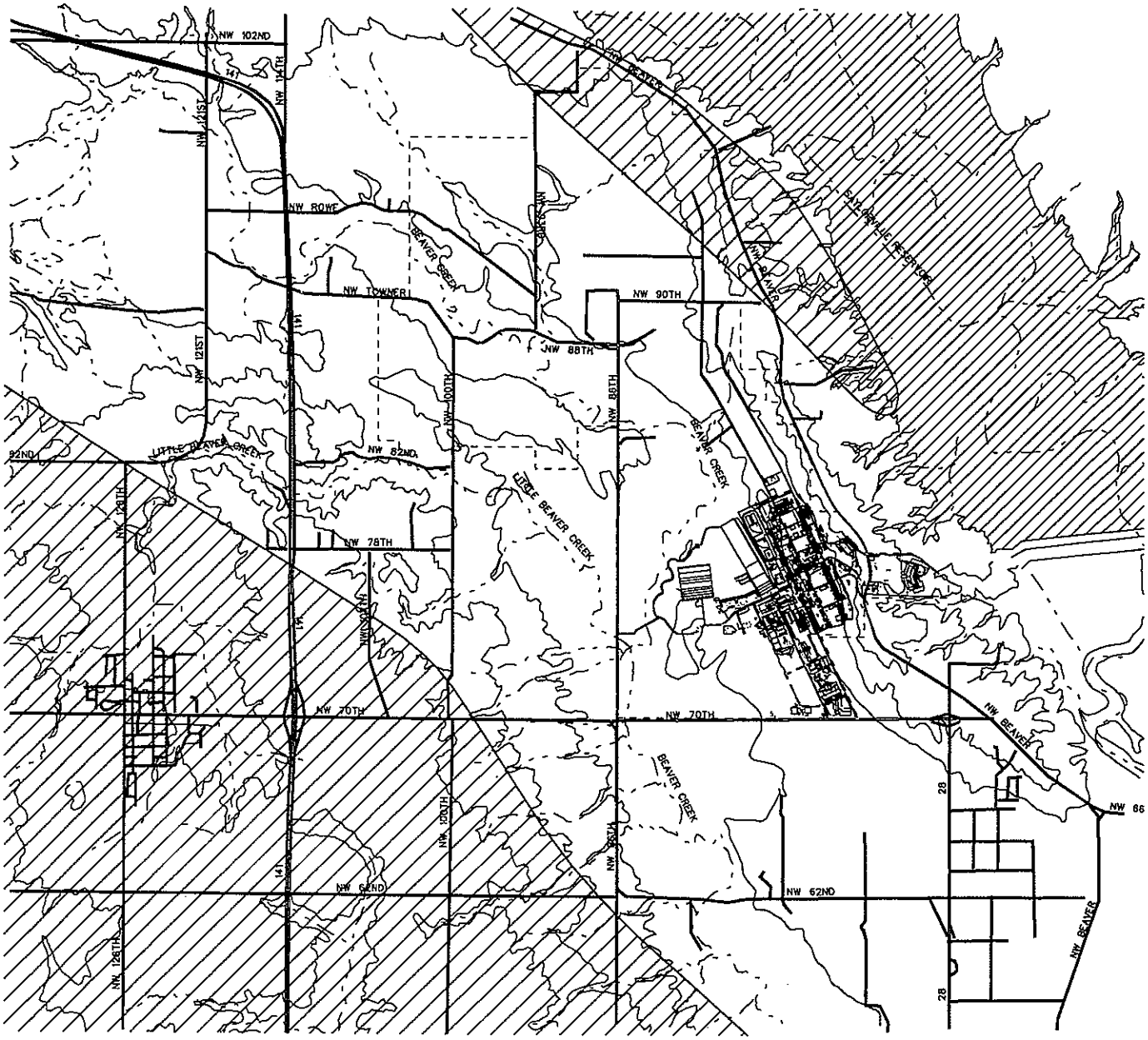
MONTGOMERY WATSON

IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

LOCATION OF COAL MINES NEAR CAMP DODGE

FIGURE 2-5

BDR



LEGEND:

GLACIAL DRIFT

APPROXIMATE EXTENT OF BURIED CHANNEL AQUIFER

SOURCE: IOWA GEOLOGICAL SURVEY, OPEN FILE REPORT 82-77 WRD

N

0 5000

SCALE IN FEET

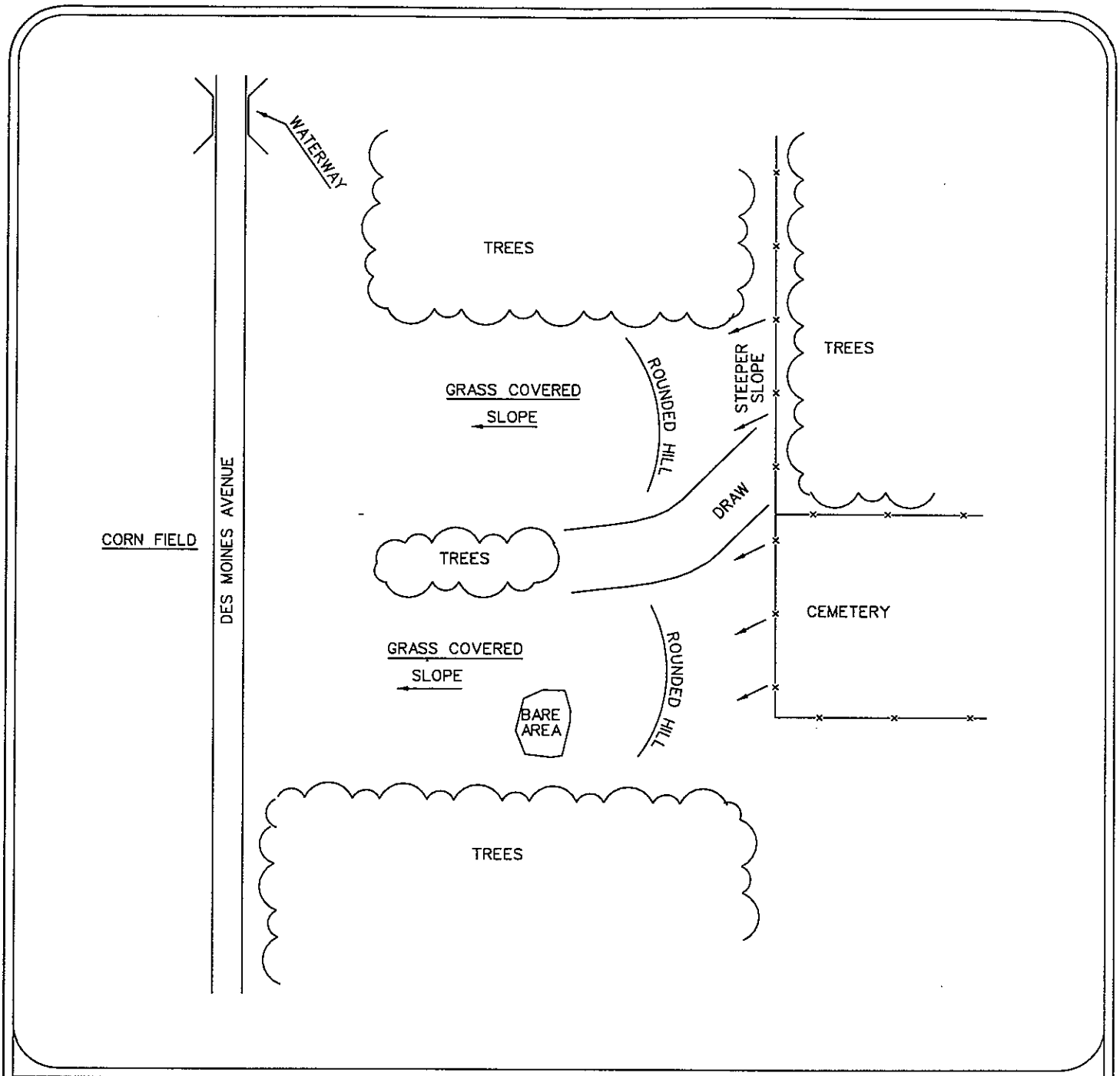
MONTGOMERY WATSON

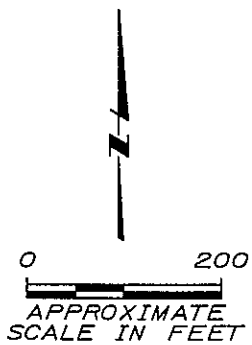
IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

APPROXIMATE EXTENT OF BEAVER CREEK CHANNEL

FIGURE 2-6

AE0BCA





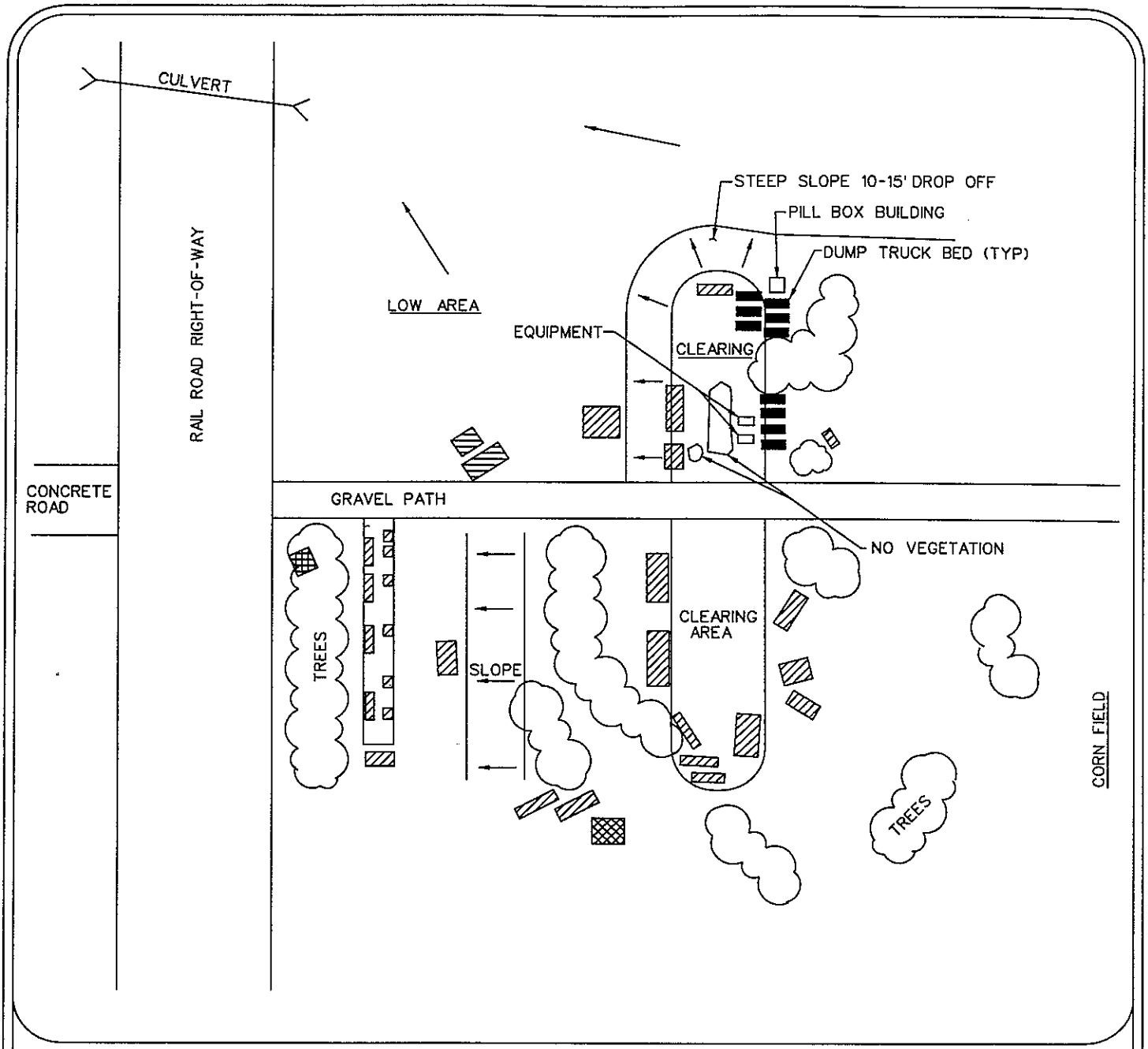
MONTGOMERY WATSON

IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

CEMETERY LANDFILL SITE PLAN

FIGURE 4-1

GLSP



LEGEND:

- DEBRIS
- DRUMS
- DUMP TRUCK BED

N

0 100

APPROXIMATE SCALE IN FEET

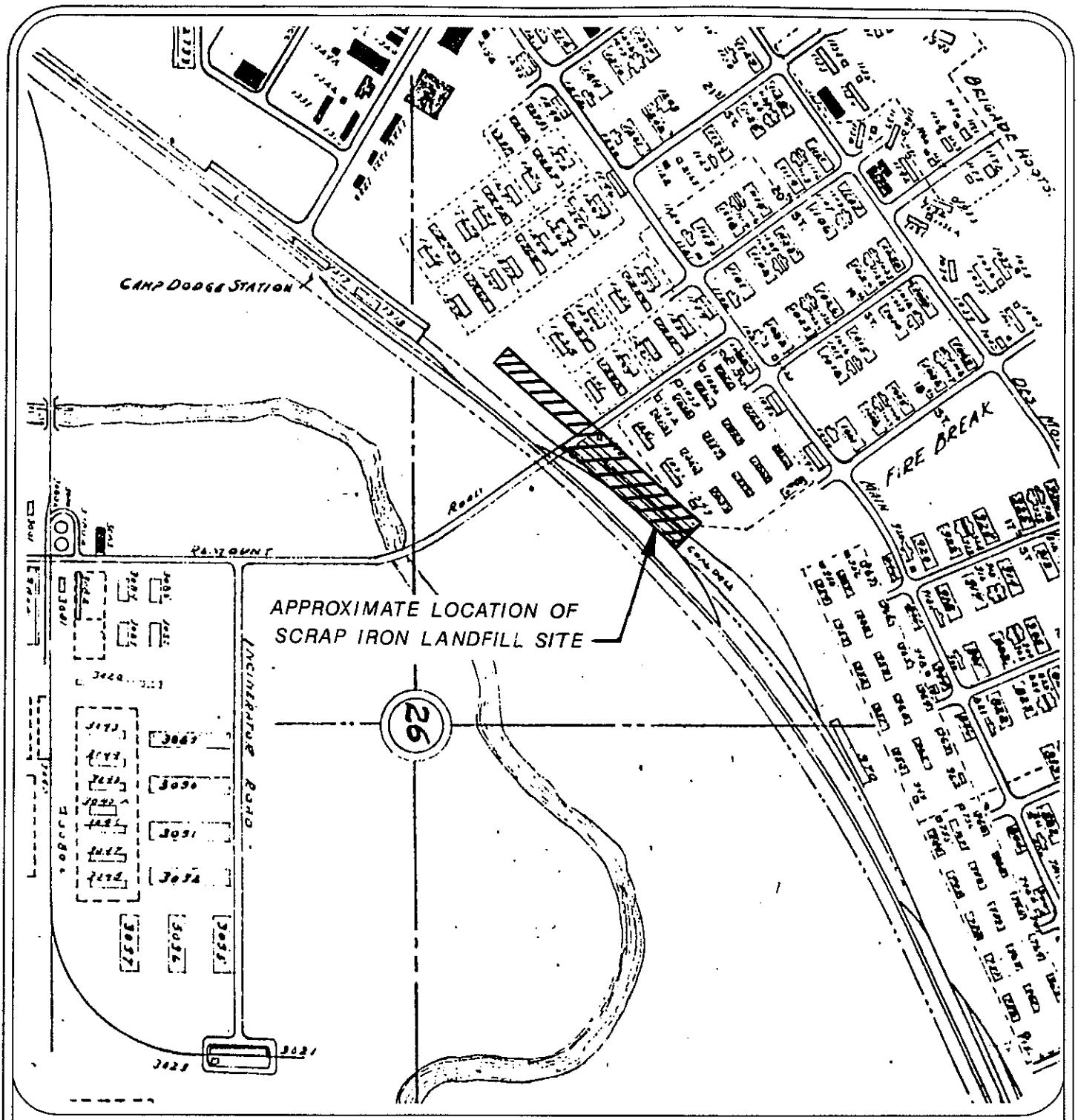
MONTGOMERY WATSON

IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

SCRAP IRON LANDFILL SITE PLAN

FIGURE 4-2

SMLSP



NOT TO SCALE

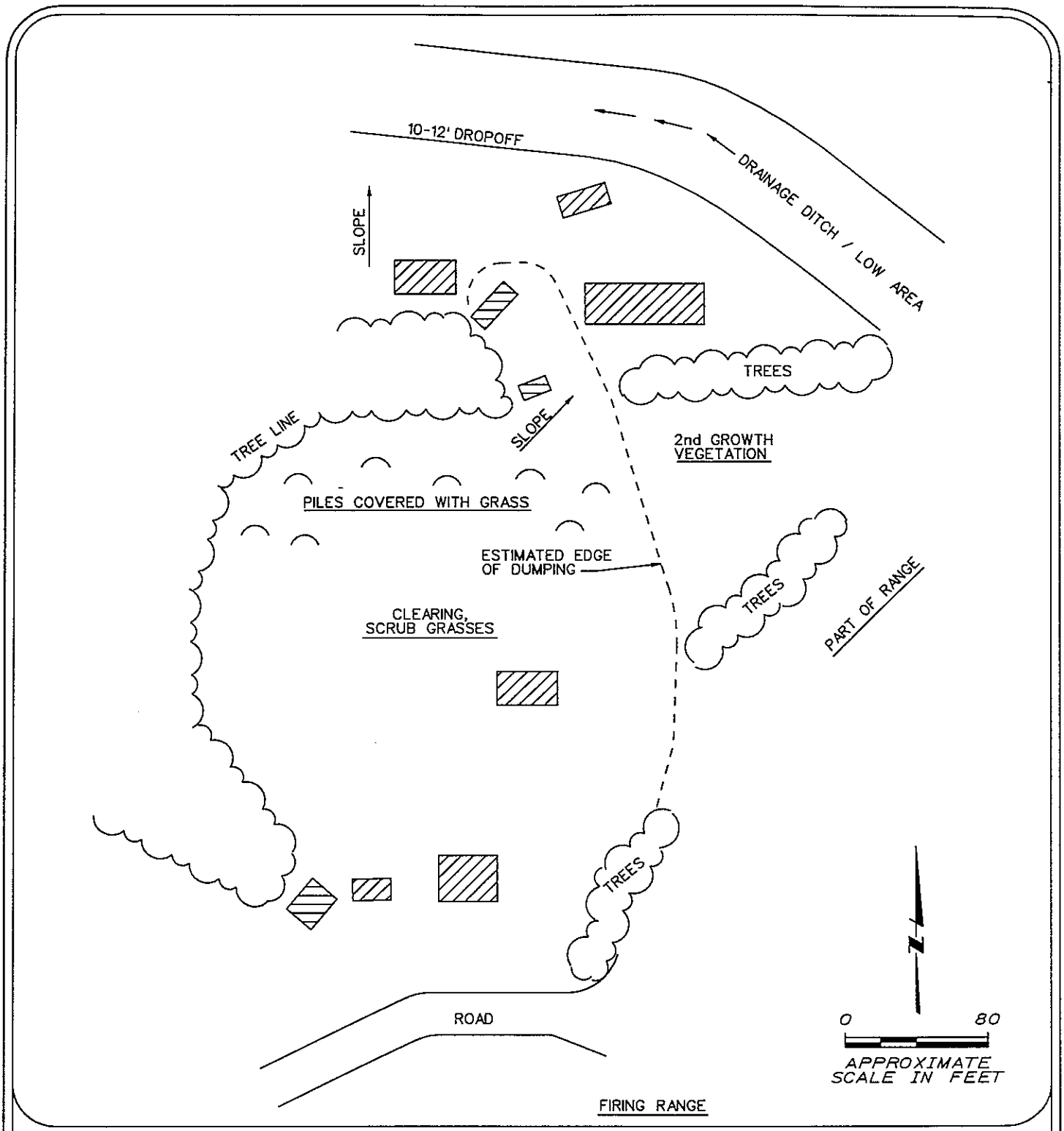
IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

LOCATION OF SCRAP IRON LANDFILL ON 1917 MAP

FIGURE 4-3

MONTGOMERY WATSON

BDR



LEGEND:

DEBRIS PILES

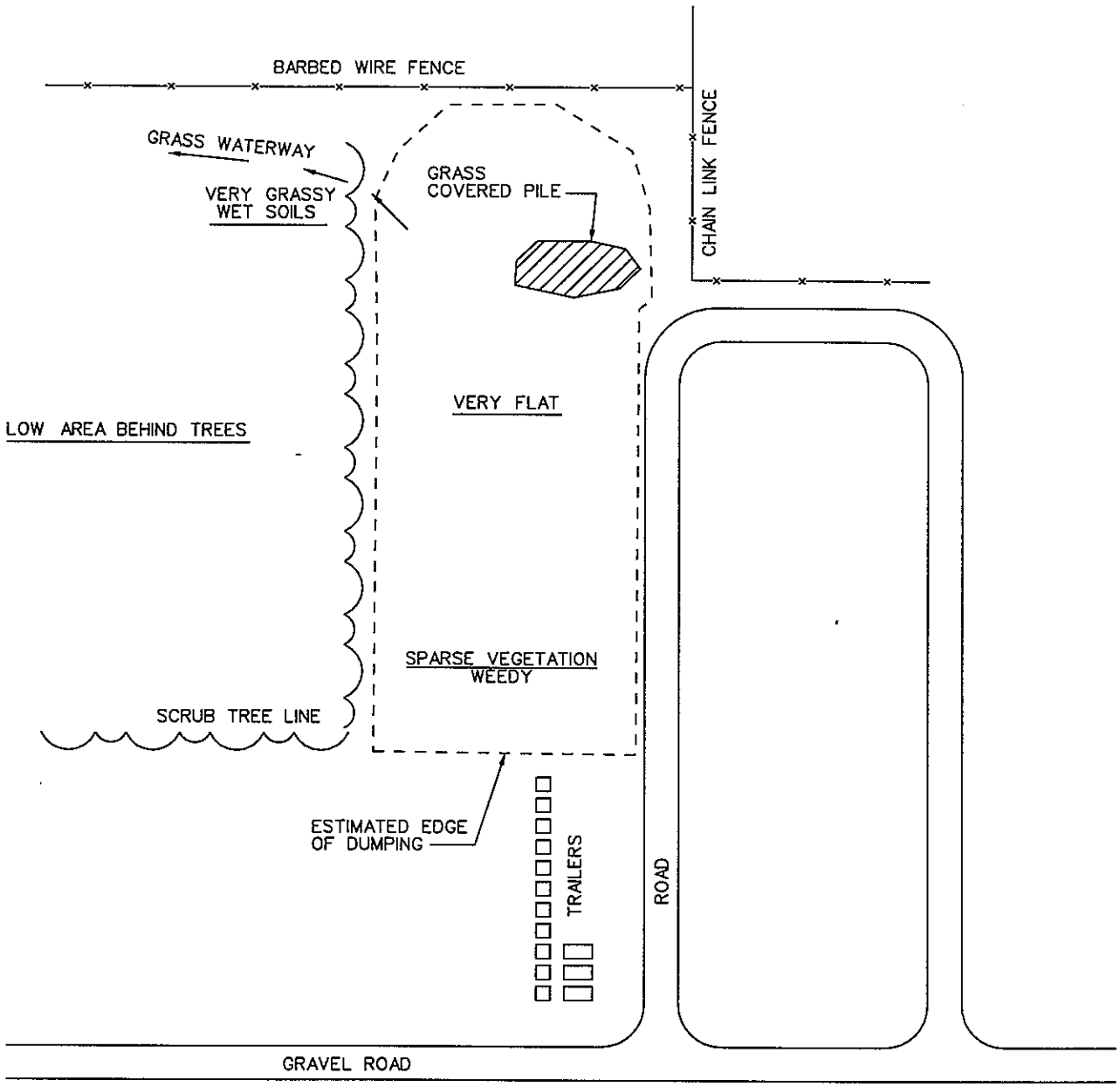
IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

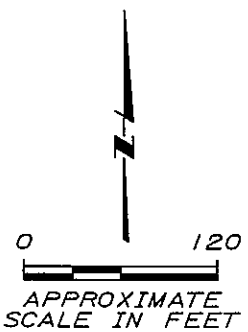
MONTGOMERY WATSON

RANGE DUMP SITE PLAN

FIGURE 4-4

RDSL





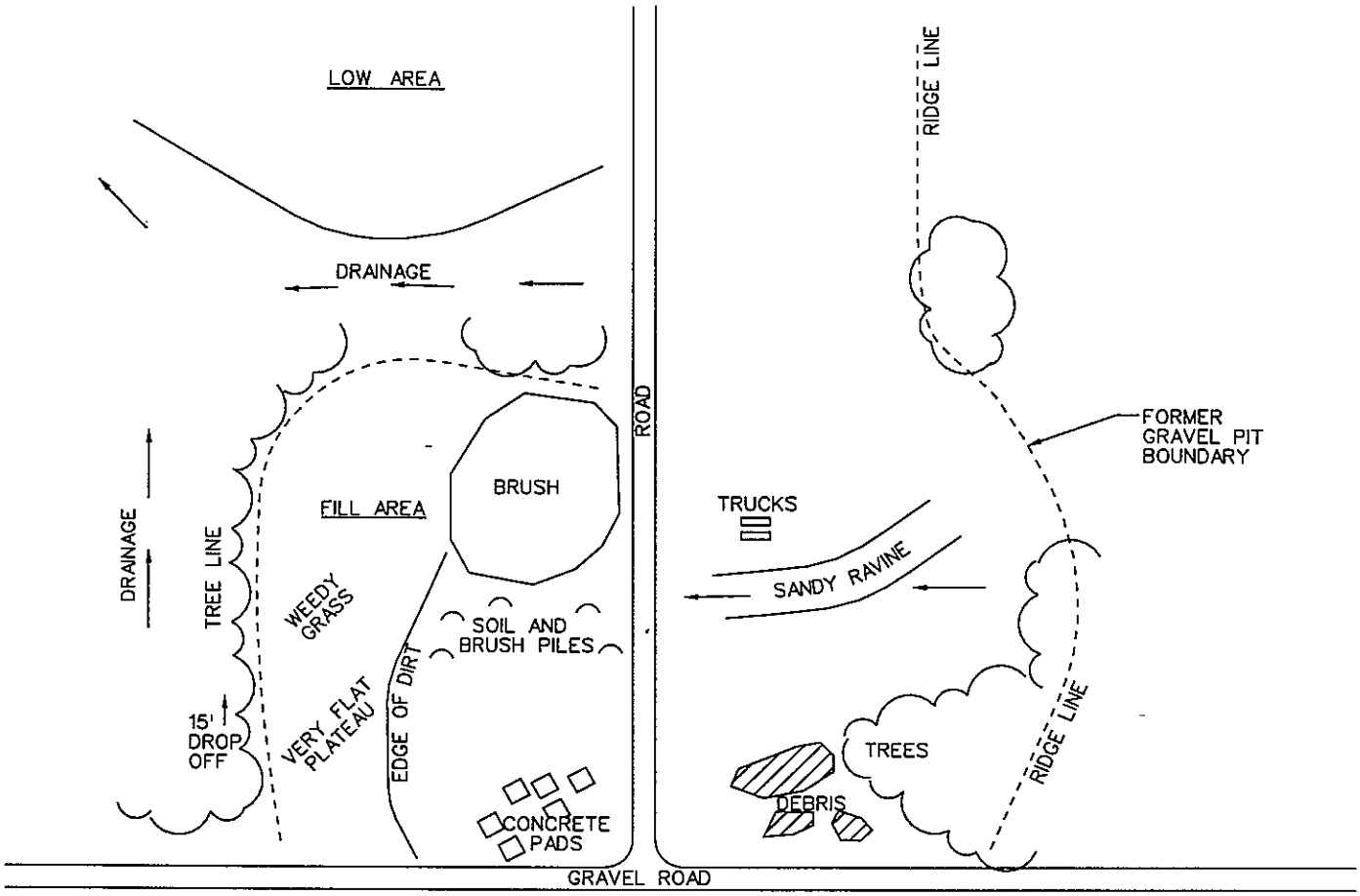
MONTGOMERY WATSON

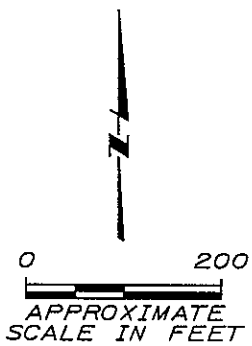
IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

LAW RANGE LANDFILL SITE PLAN

FIGURE 4-5

LAW_SL





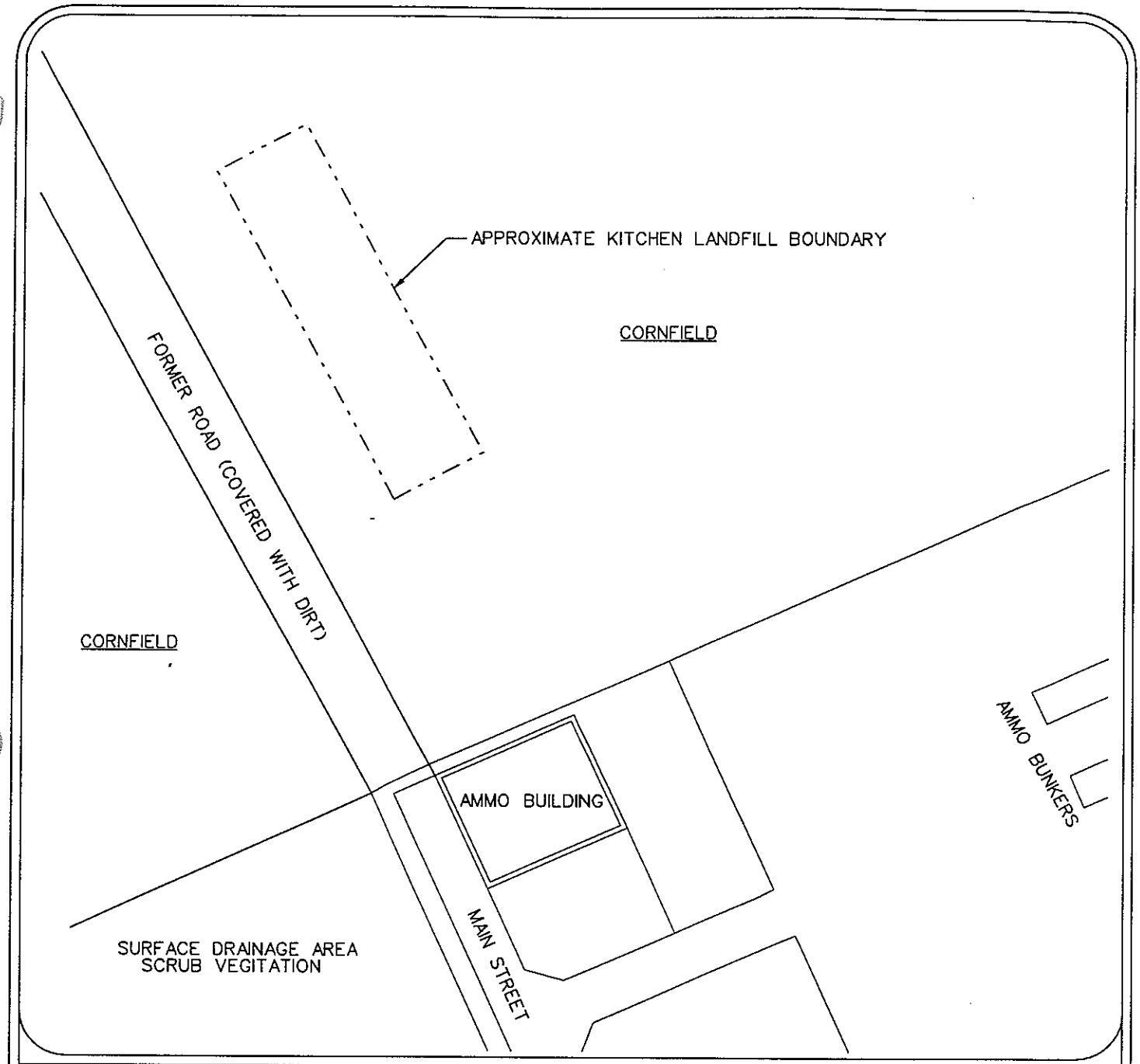
MONTGOMERY WATSON

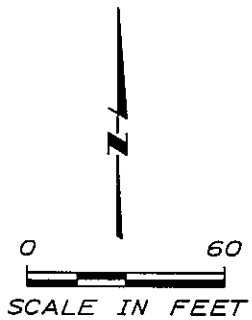
IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

GRAVEL PIT DUMP SITE PLAN

FIGURE 4-6

GPDSP





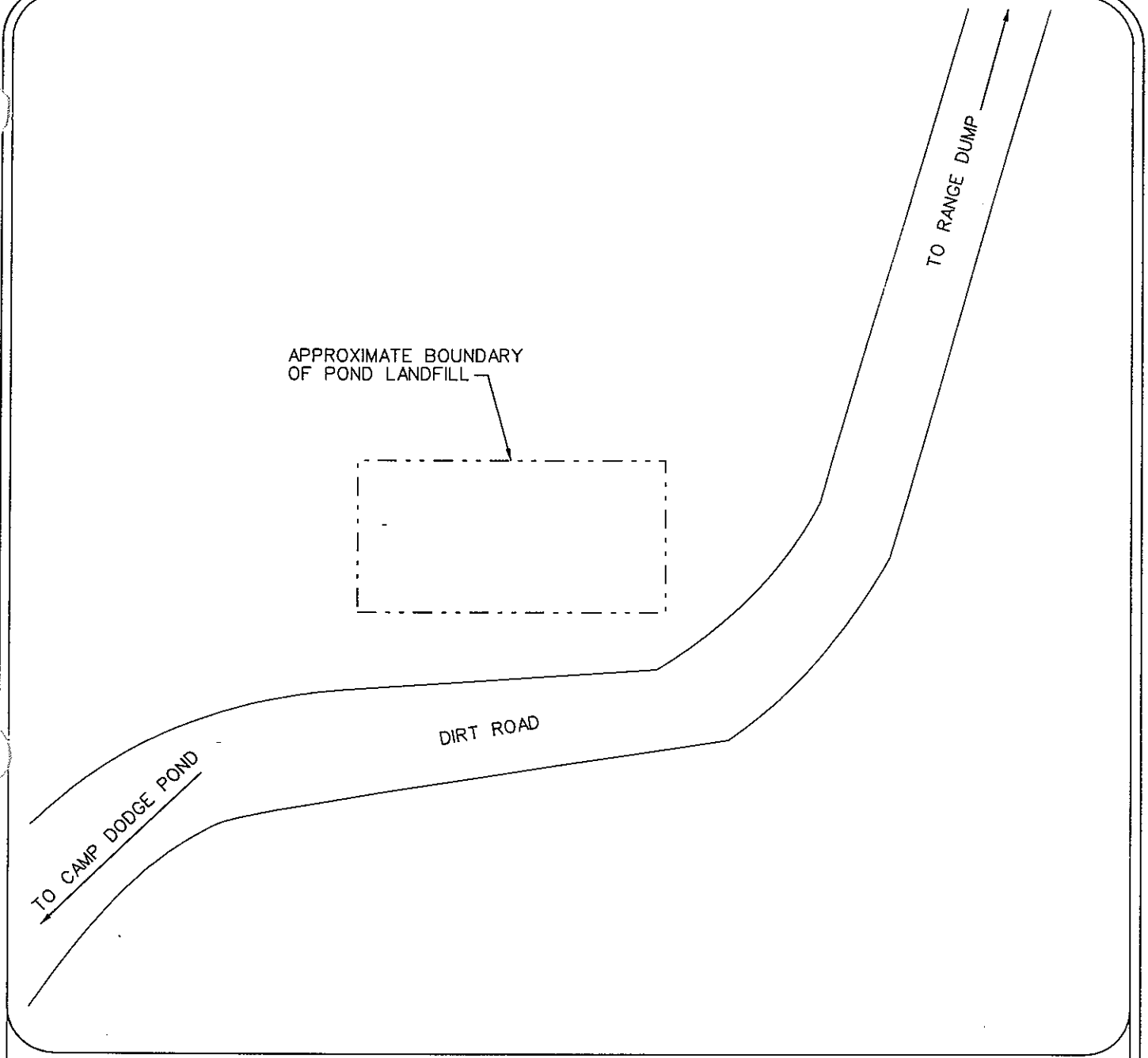
MONTGOMERY WATSON

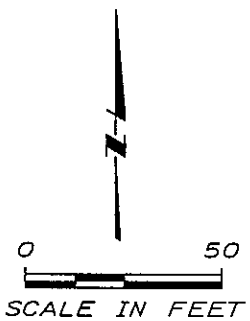
IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

KITCHEN LANDFILL SITE PLAN

FIGURE 4-7

RL SP





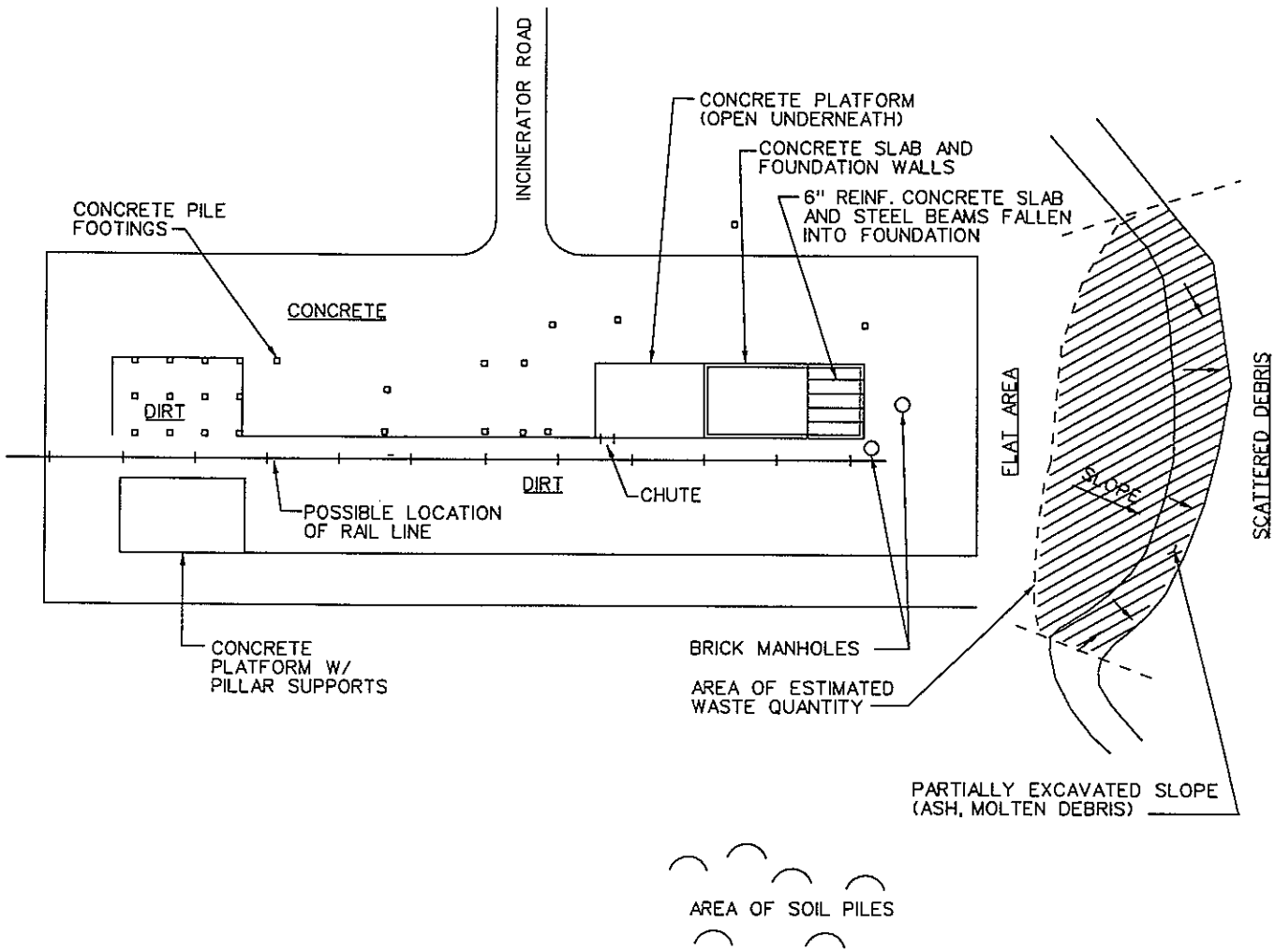
IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

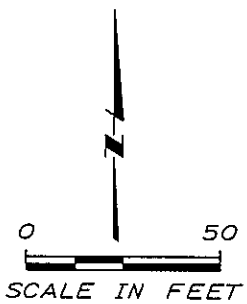
MONTGOMERY WATSON

POND LANDFILL SITE PLAN

FIGURE 4–8

PL_SP





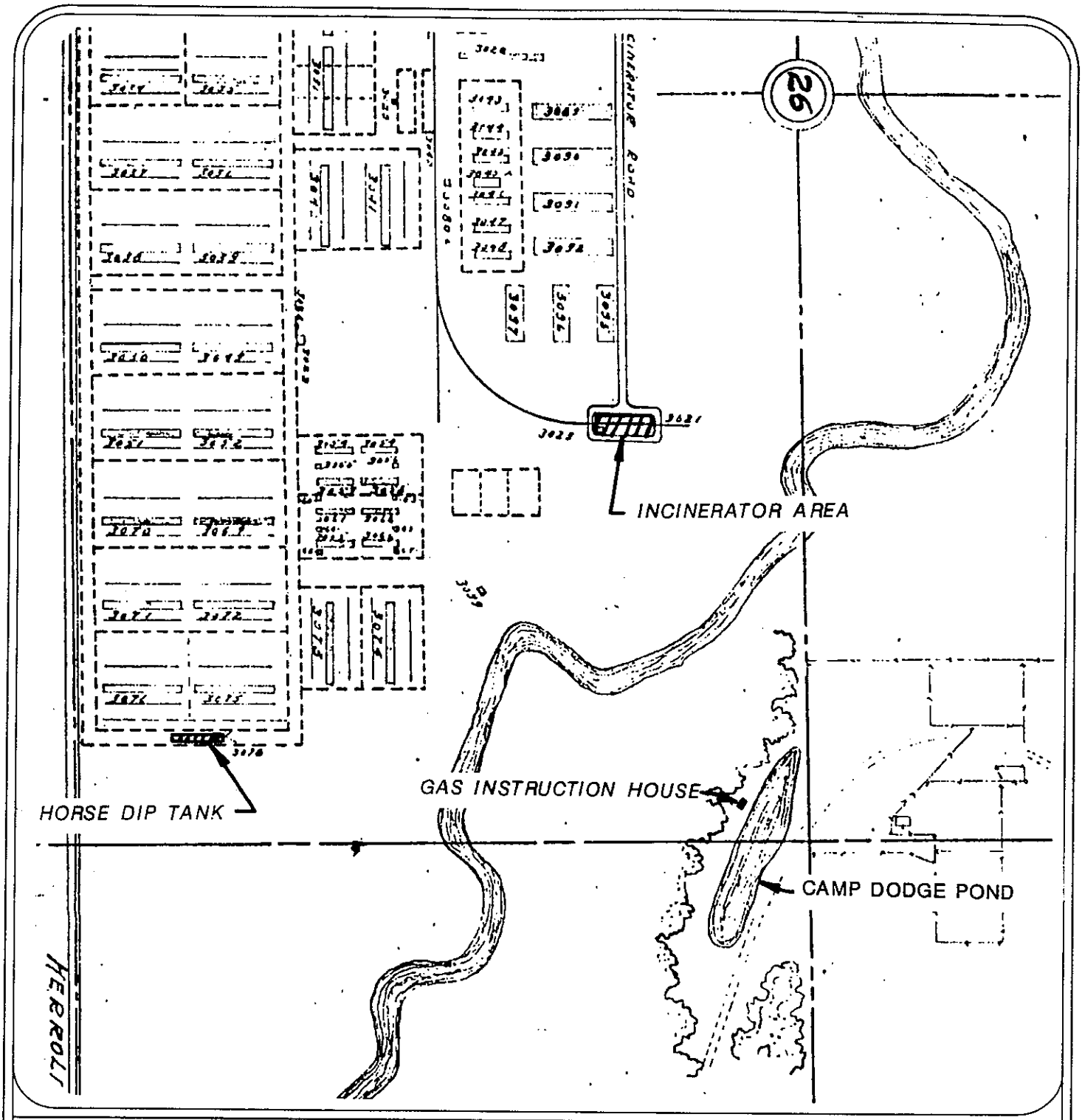
MONTGOMERY WATSON

IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

INCINERATOR AREA SITE PLAN

FIGURE 5-1

INCIN_SL



NOT TO SCALE

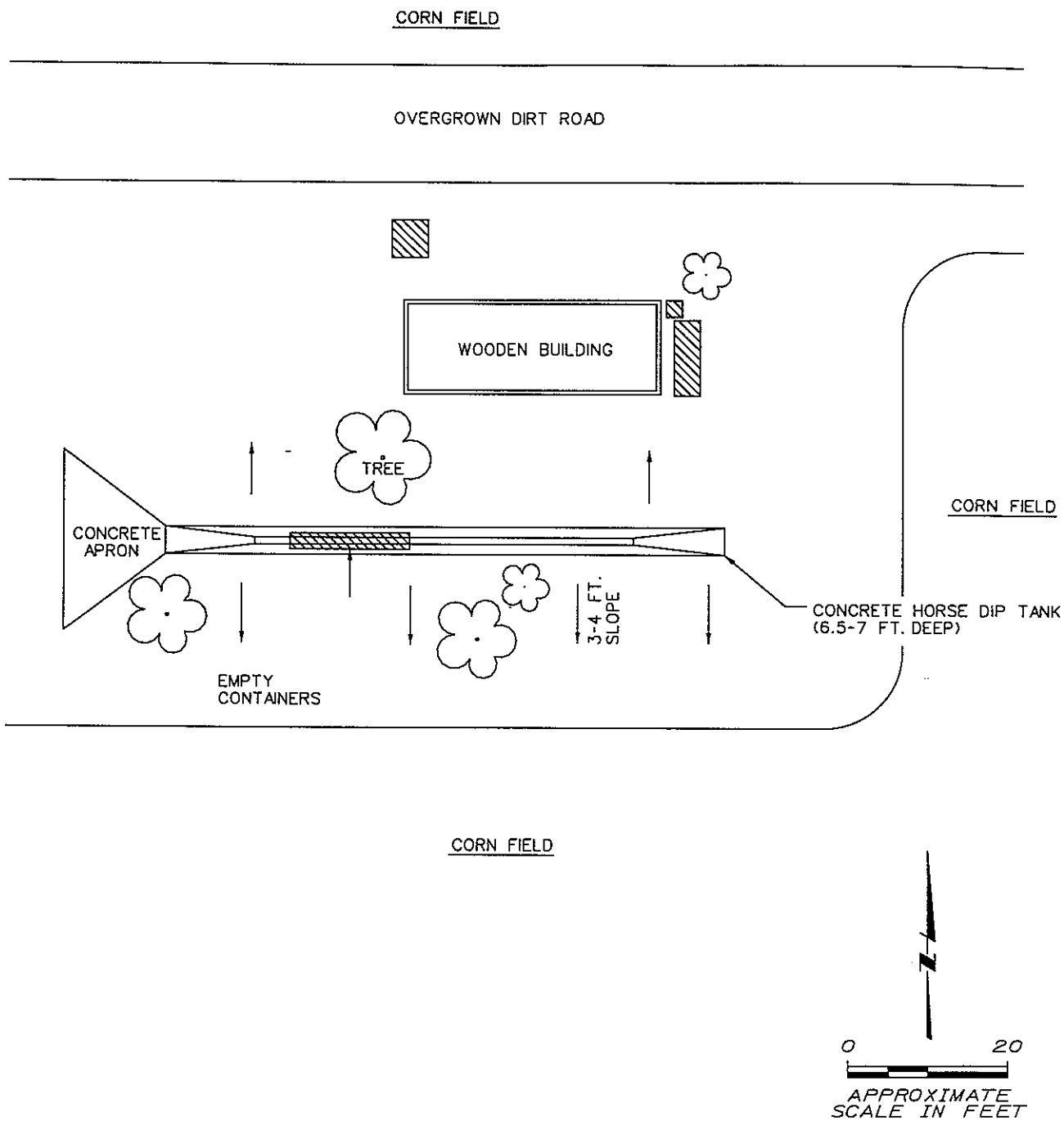
IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

LAYOUT OF PRE-WWII SITES ON 1917 MAP

FIGURE 5-2

MONTGOMERY WATSON

BDR



LEGEND:

DEBRIS

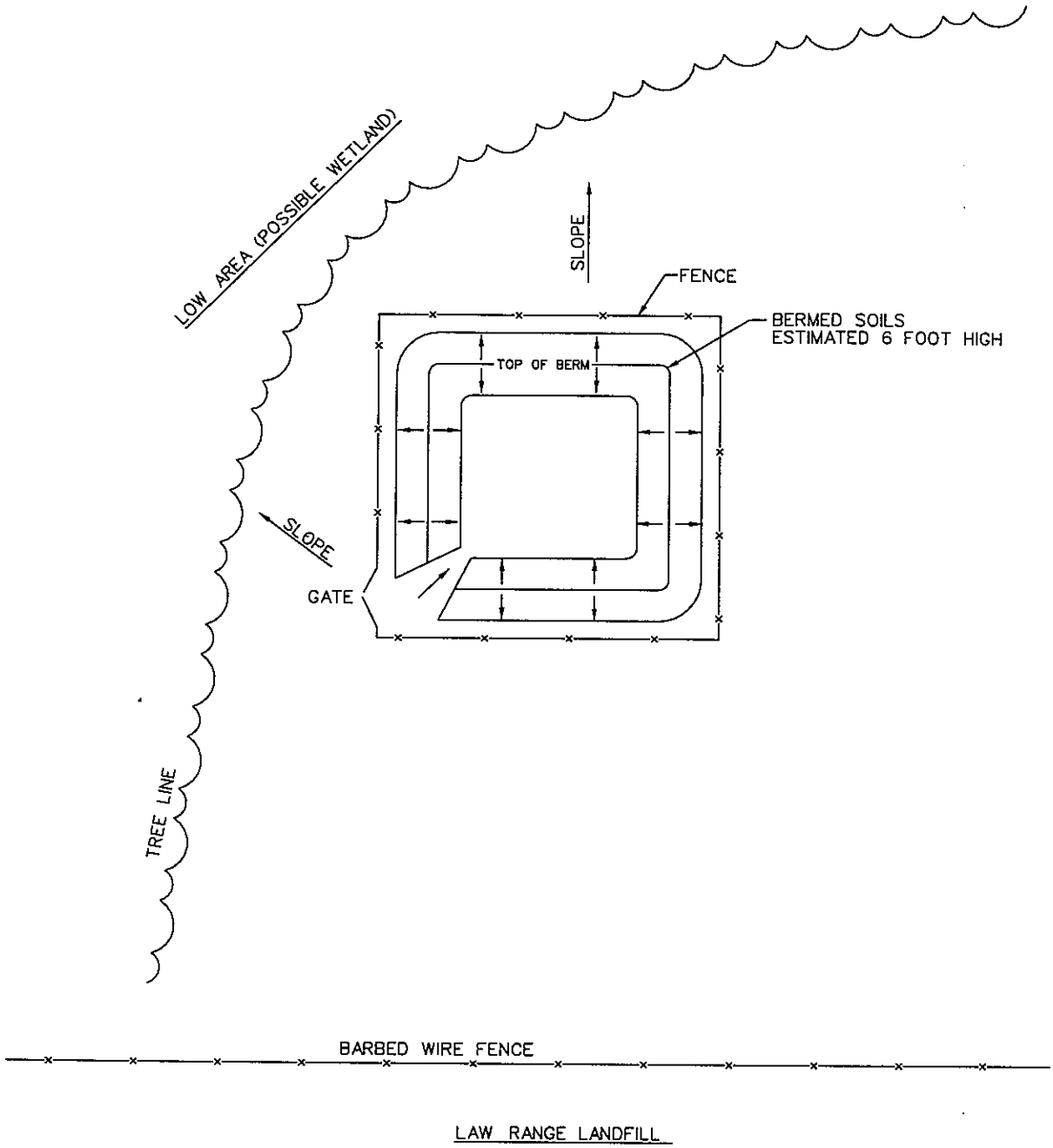
MONTGOMERY WATSON

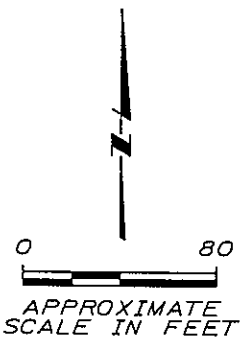
IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

HORSE DIP TANK SITE PLAN

FIGURE 5-3

HDTSP





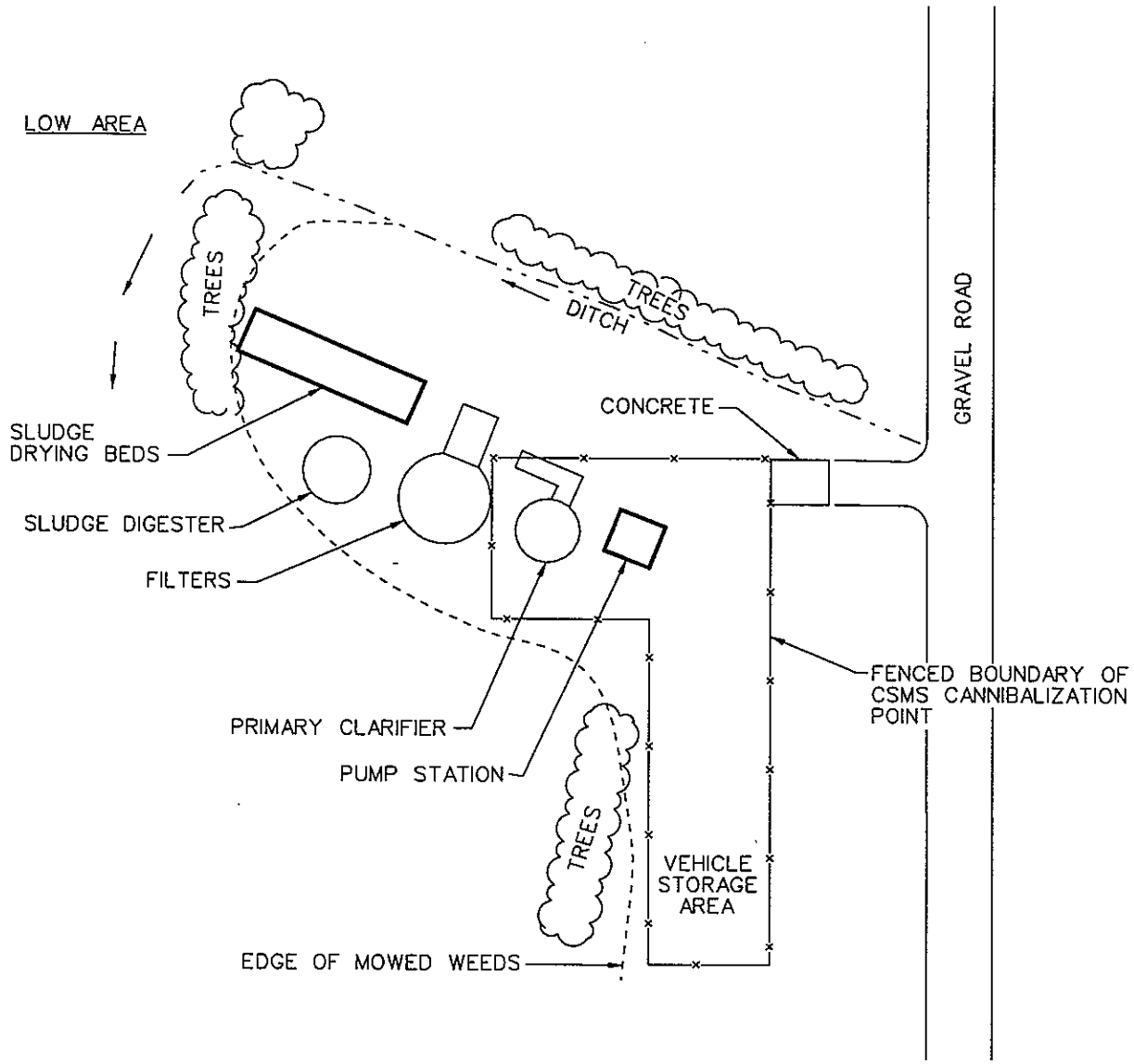
MONTGOMERY WATSON

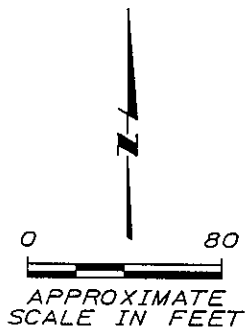
IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

DEMOLITION PIT SITE PLAN

FIGURE 6-1

DPSP





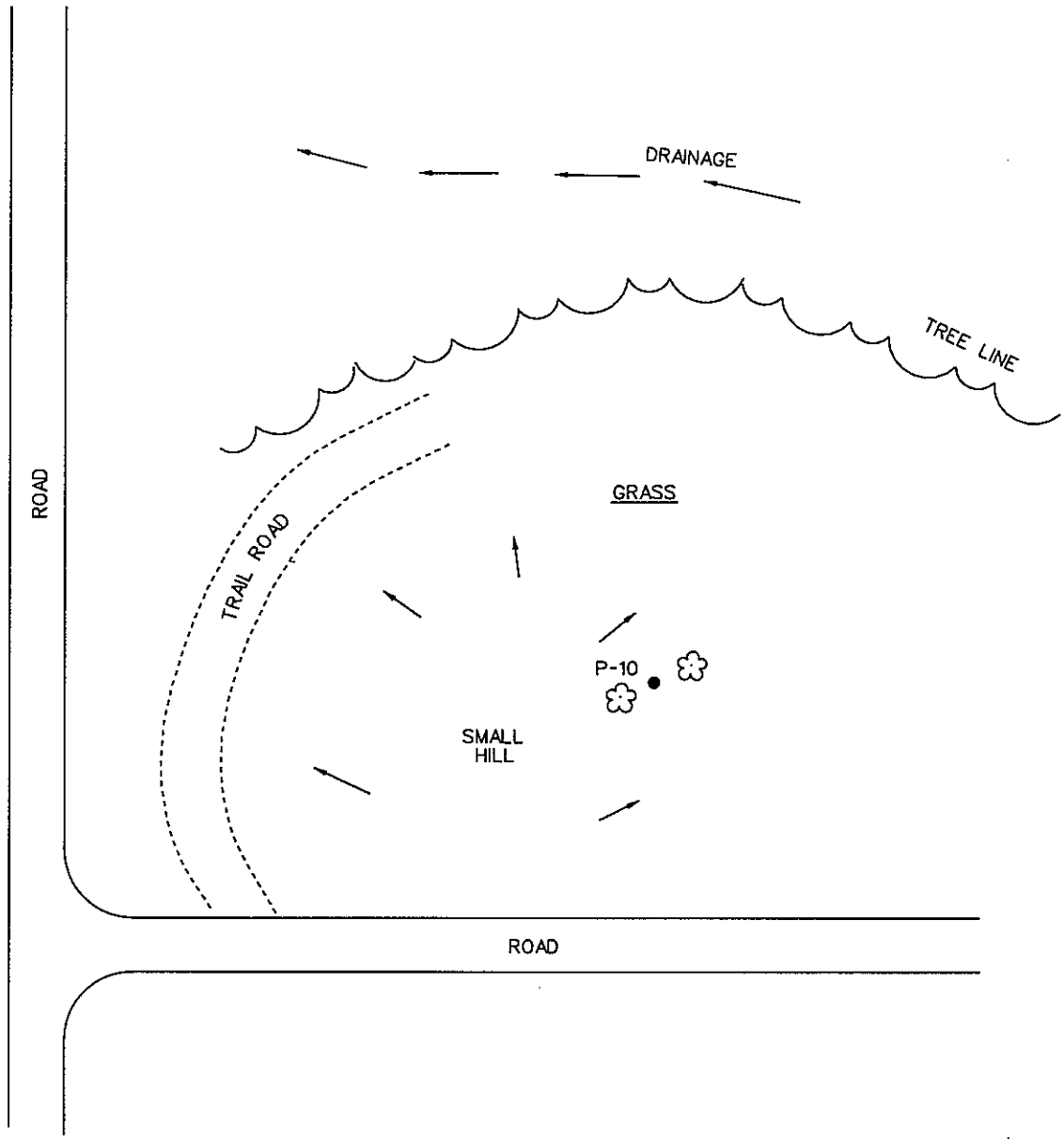
MONTGOMERY WATSON

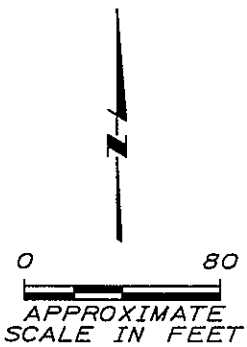
IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

FORMER WASTEWATER TREATMENT PLANT

FIGURE 6-2

FWTP_SP





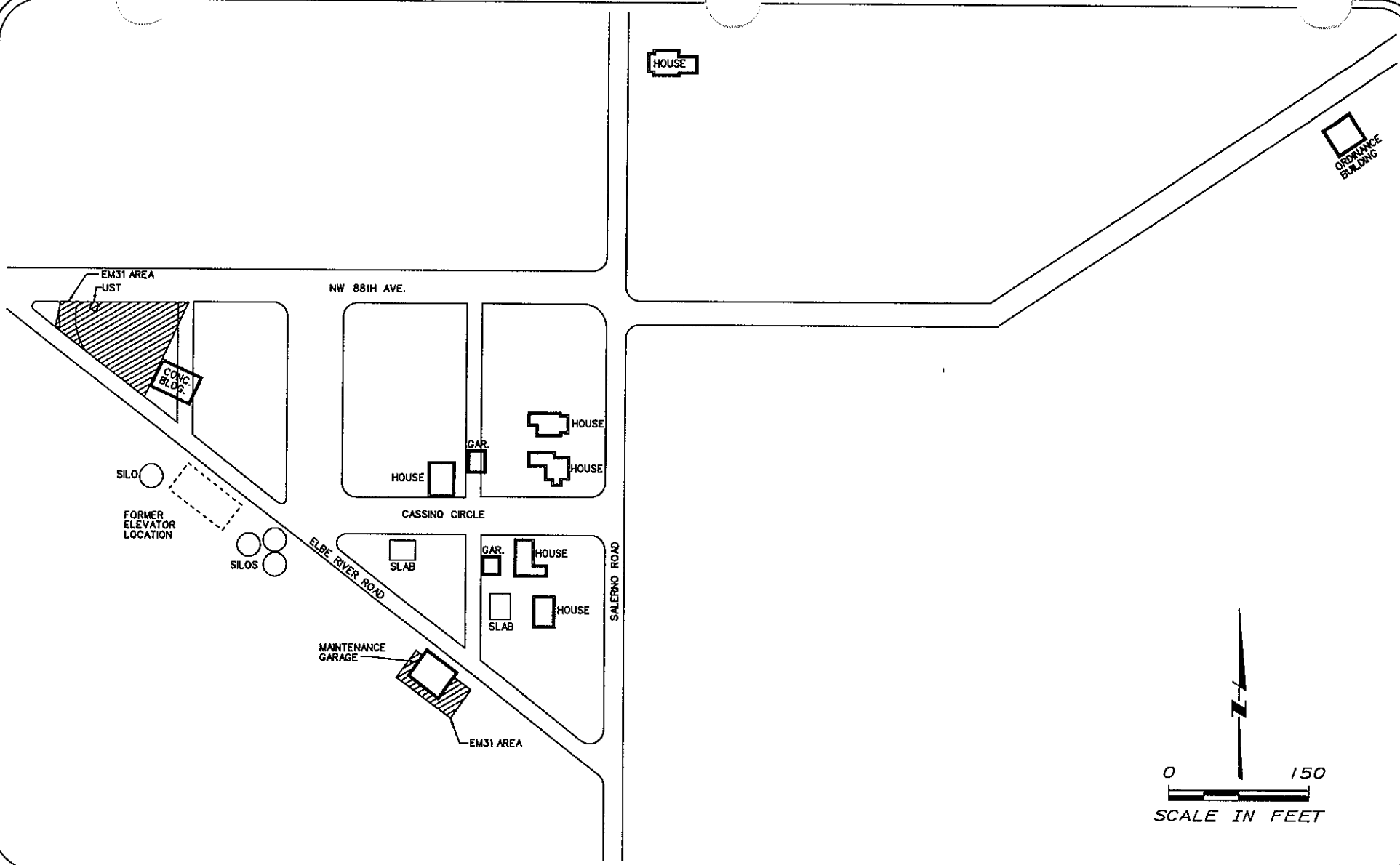
MONTGOMERY WATSON

IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

MONITORING WELL P–10 SITE PLAN

FIGURE 6–3

P10SL



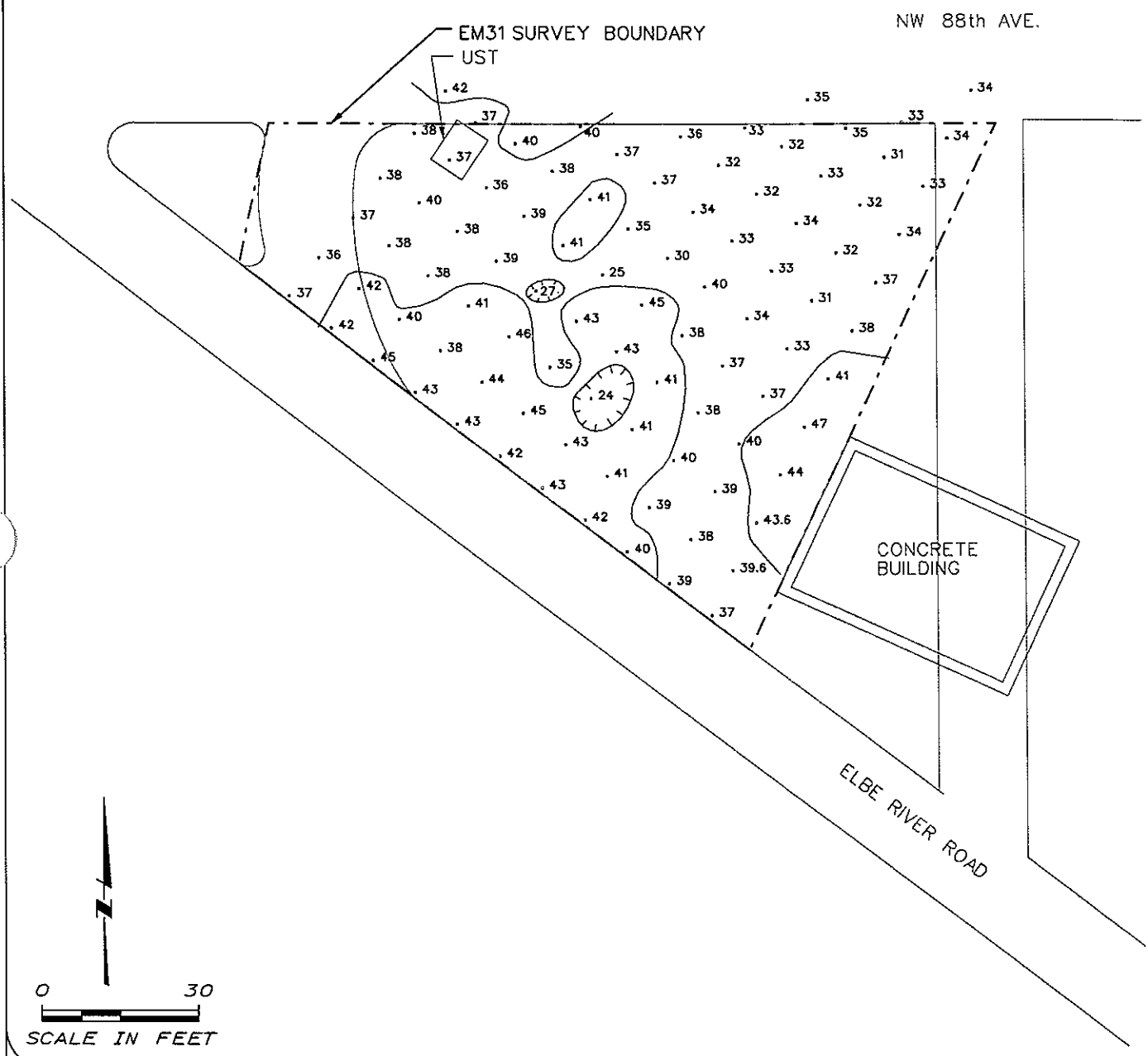
MONTGOMERY WATSON

IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

TOWN OF HERROLD LAYOUT

FIGURE 6-4

TOHL



NOTE:
UNITS IN MILLISIEMANS PER METER (mS/m).

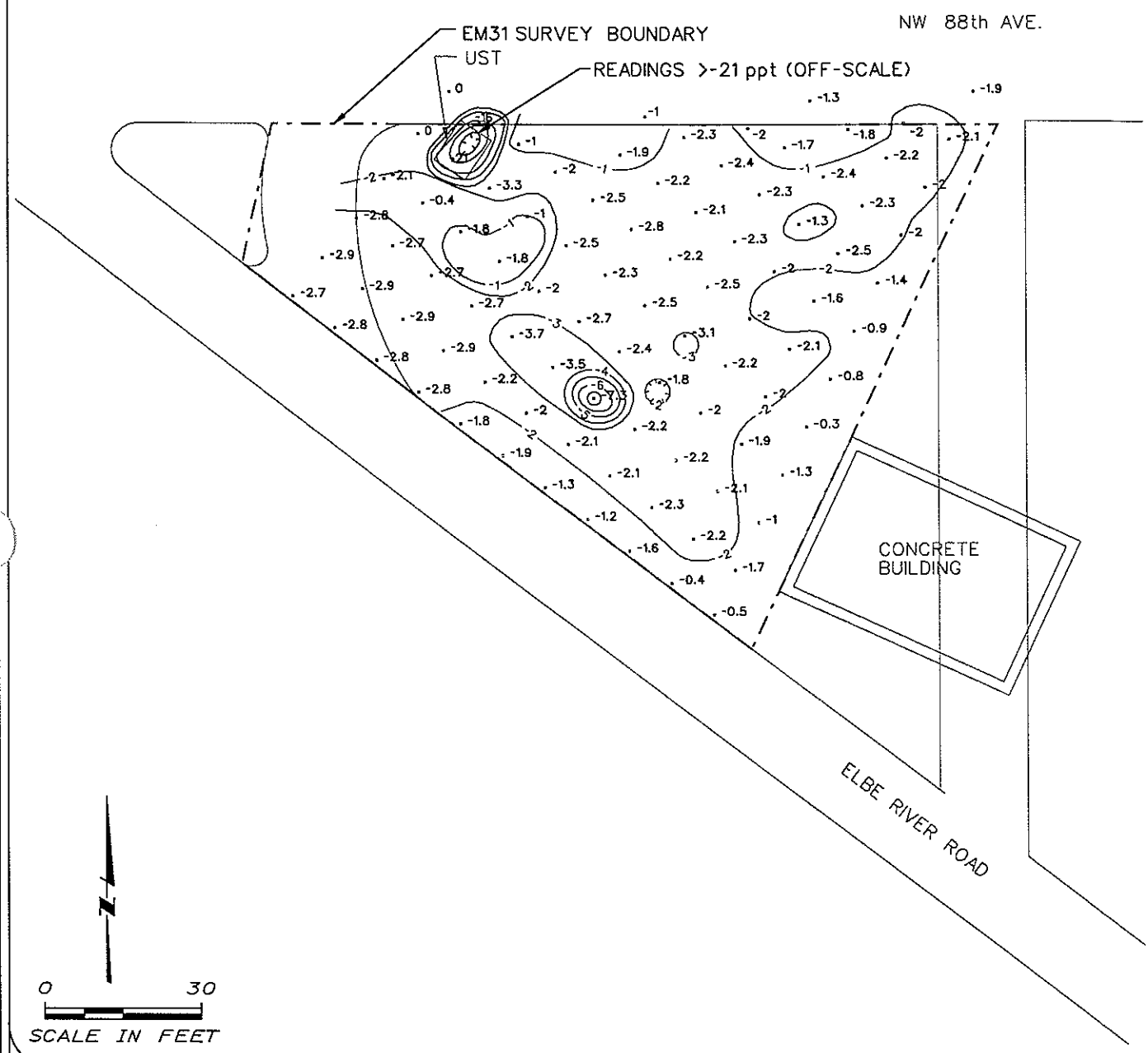
IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

TOWN OF HERROLD EM31 SURVEY (CONDUCTIVITY RESULTS)

FIGURE 6-5

MONTGOMERY WATSON

TOHESOR



NOTE:
UNITS IN PARTS PER THOUSAND (ppt).

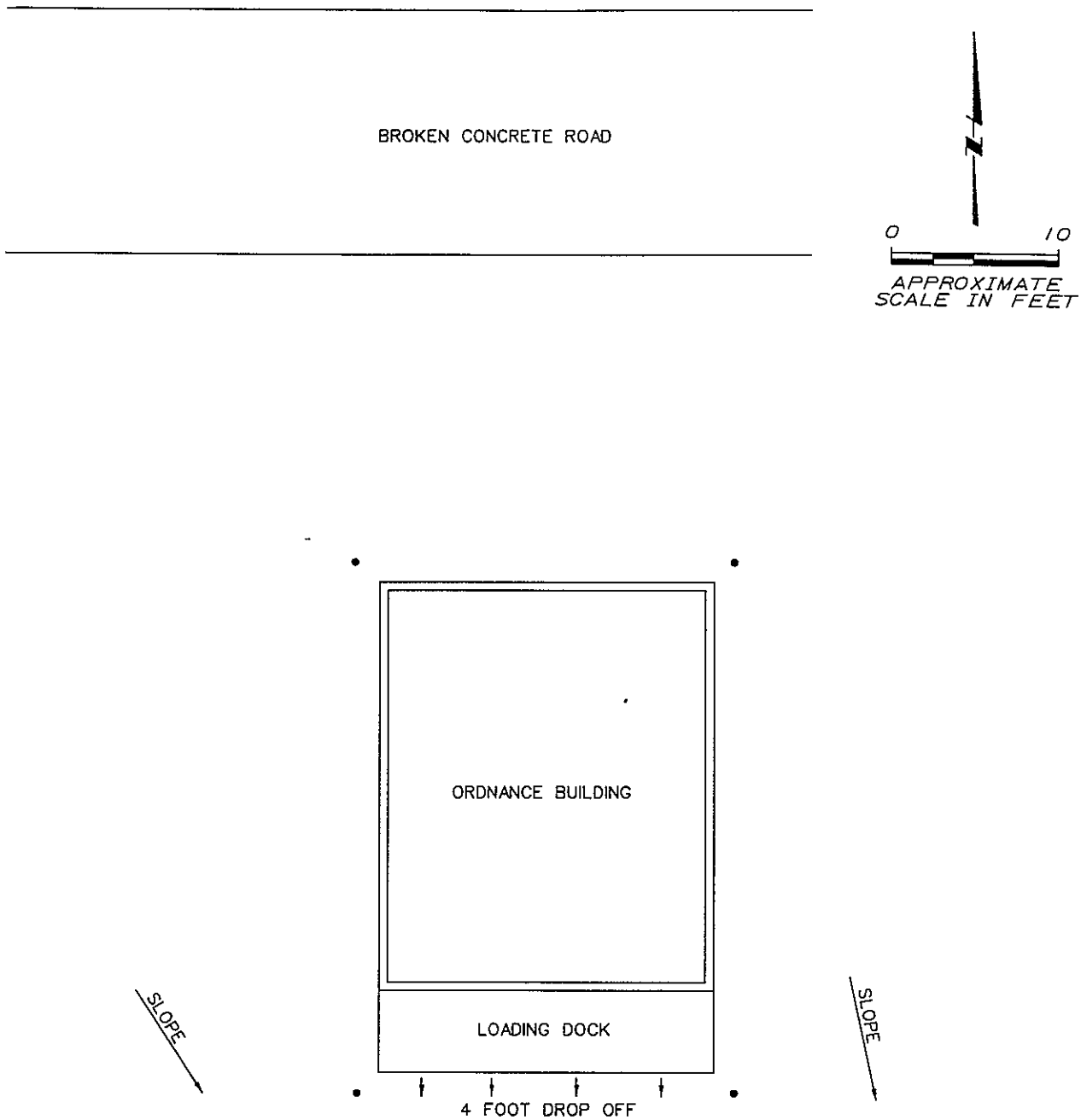
IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

TOWN OF HERROLD EM31 SURVEY (INPHASE RESULT)

FIGURE 6-6

MONTGOMERY WATSON

TOHESTR



LEGEND:

- GPS LOCATION

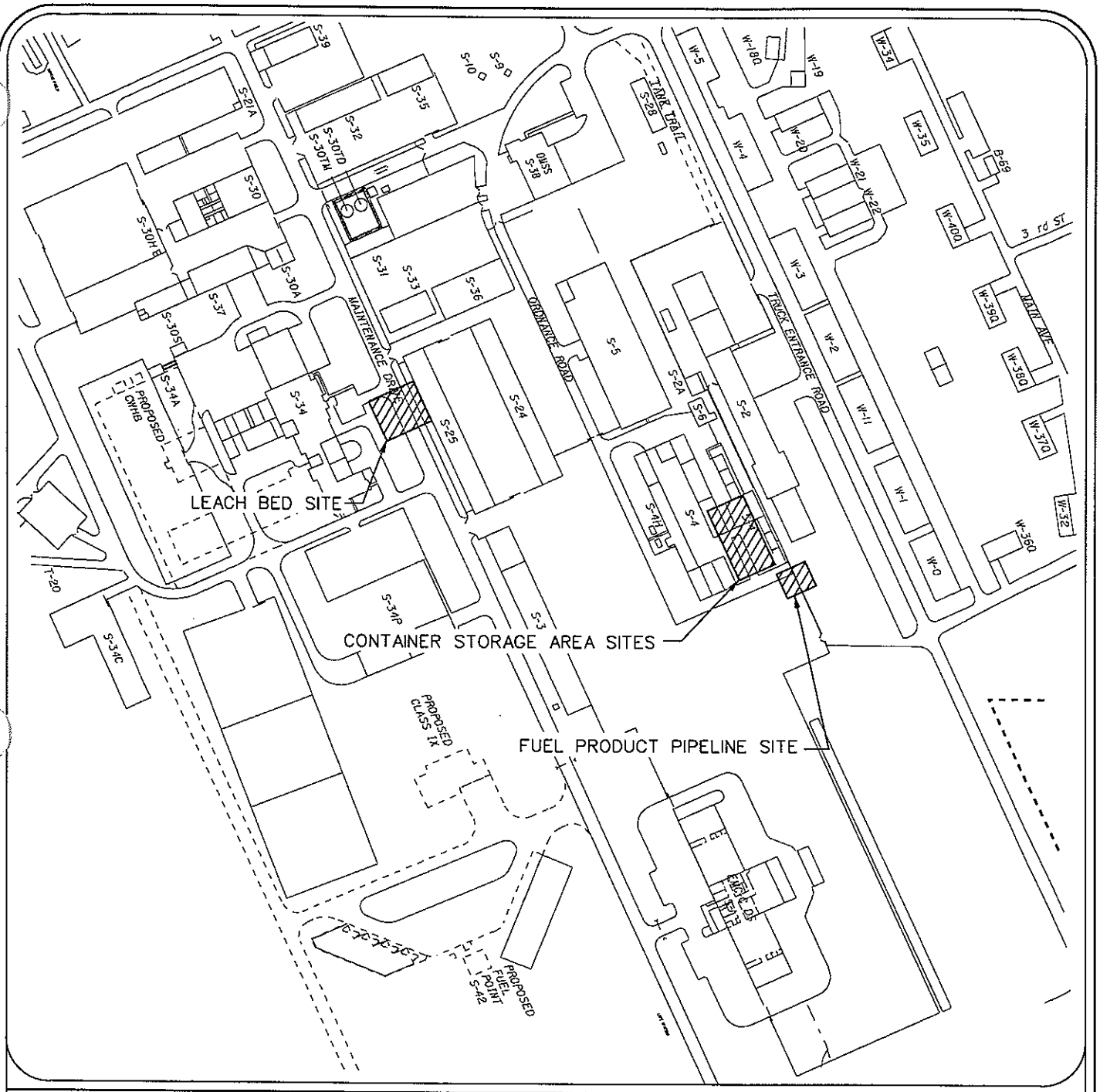
IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

MONTGOMERY WATSON

ORDNANCE BUILDING SITE PLAN

FIGURE 6-7

08SP



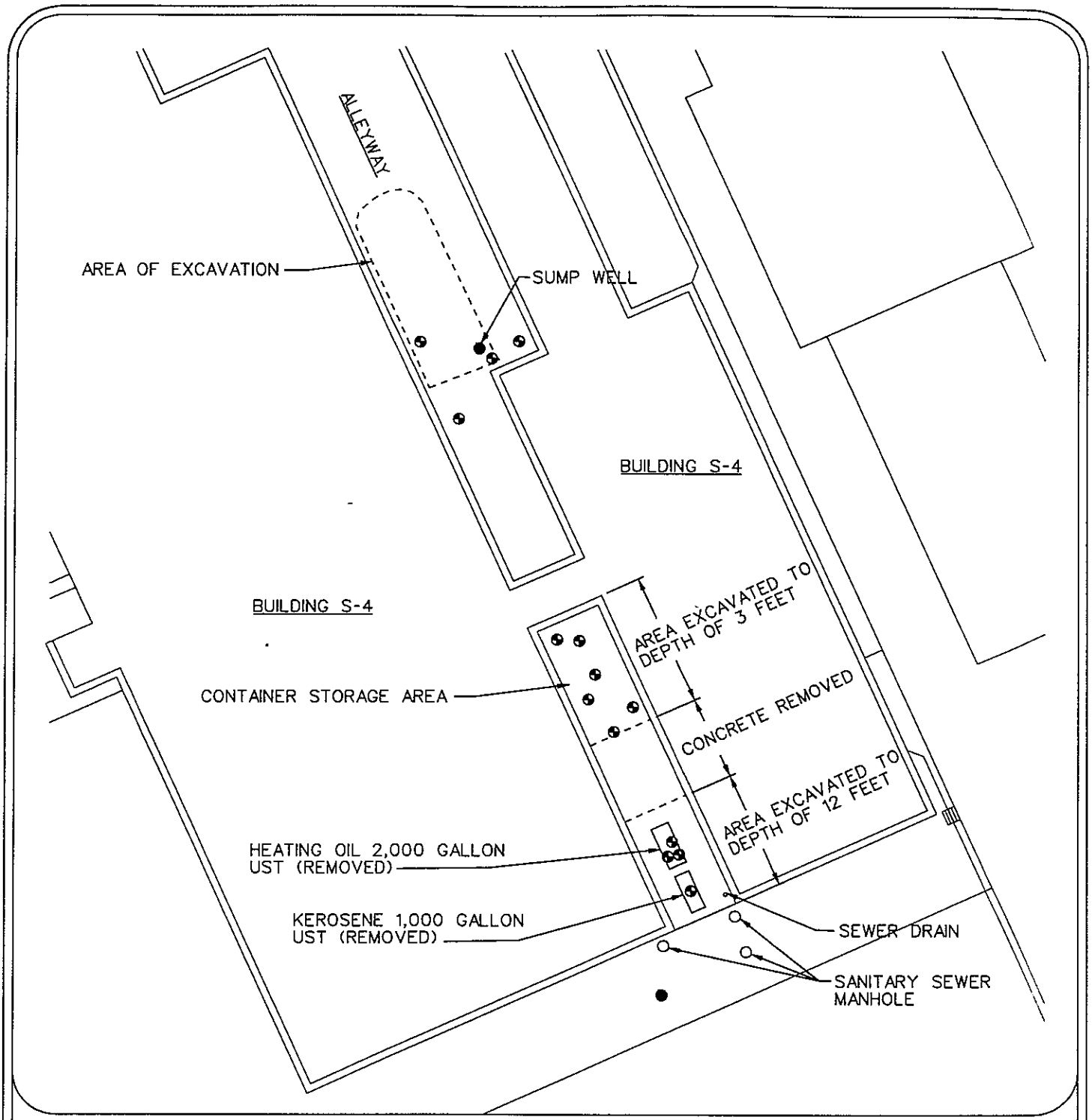
MONTGOMERY WATSON

IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

LOCATION OF SOUTH CANTONMENT AREA SITES

FIGURE 7–1

LOSCAS



LEGEND:

- ⊕ SOIL SAMPLE LOCATION
- ● GROUNDWATER SAMPLE LOCATION

N

0 40

SCALE IN FEET

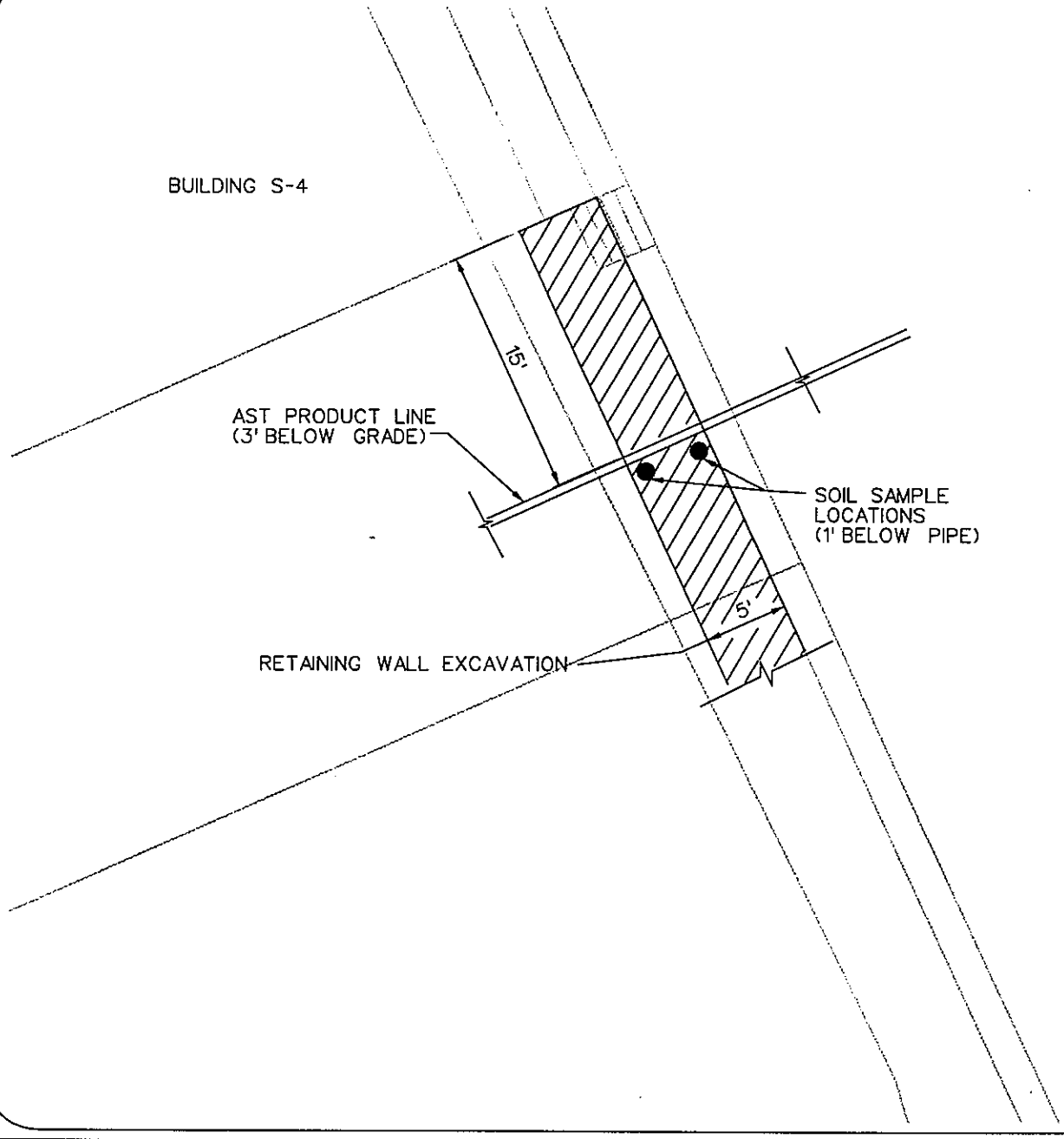
MONTGOMERY WATSON

IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

CONTAINER STORAGE AREA SITES

FIGURE 7-2

S35AS



N

0 10

SCALE IN FEET

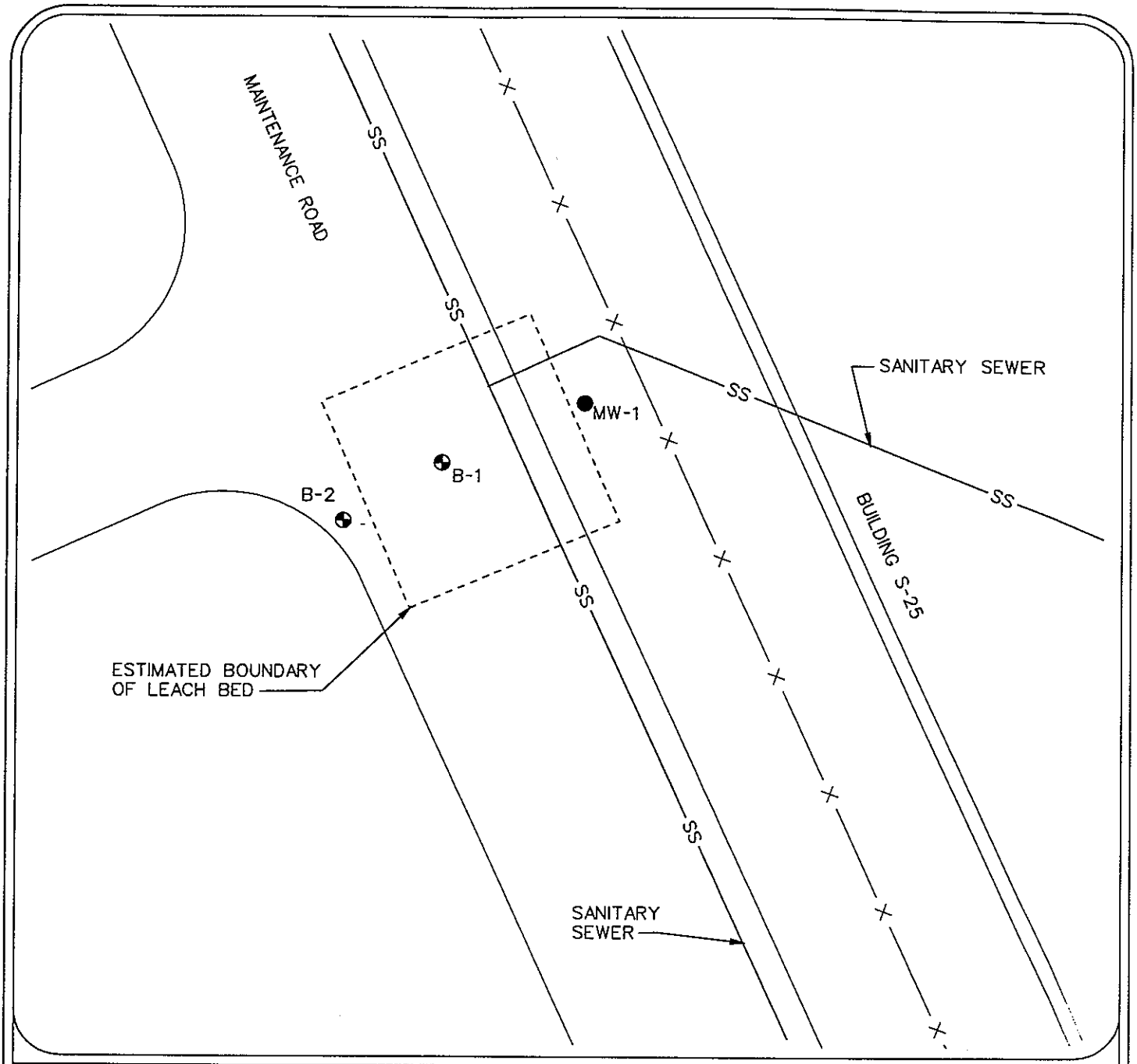
MONTGOMERY WATSON

IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

FUEL PRODUCT PIPELINE SITE

FIGURE 7-3

FPPS



LEGEND:

- SOIL BORING
- MONITORING WELL

N

0 10

SCALE IN FEET

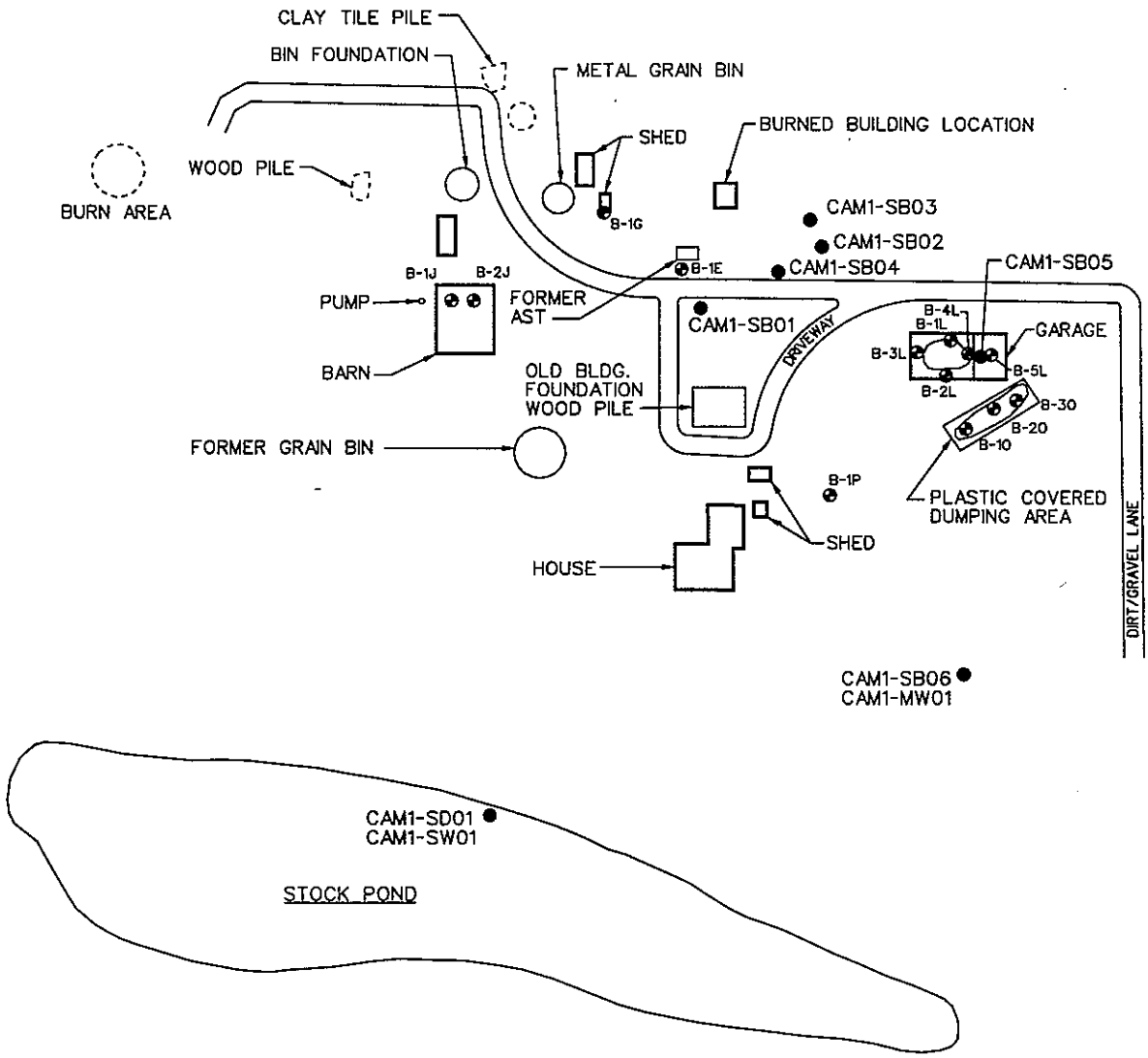
MONTGOMERY WATSON

IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

LEACH BED SITE

FIGURE 7-4

LBS



LEGEND:

- ● MONITORING WELL
- ⊕ SOIL BORING

N

0 120

APPROXIMATE SCALE IN FEET

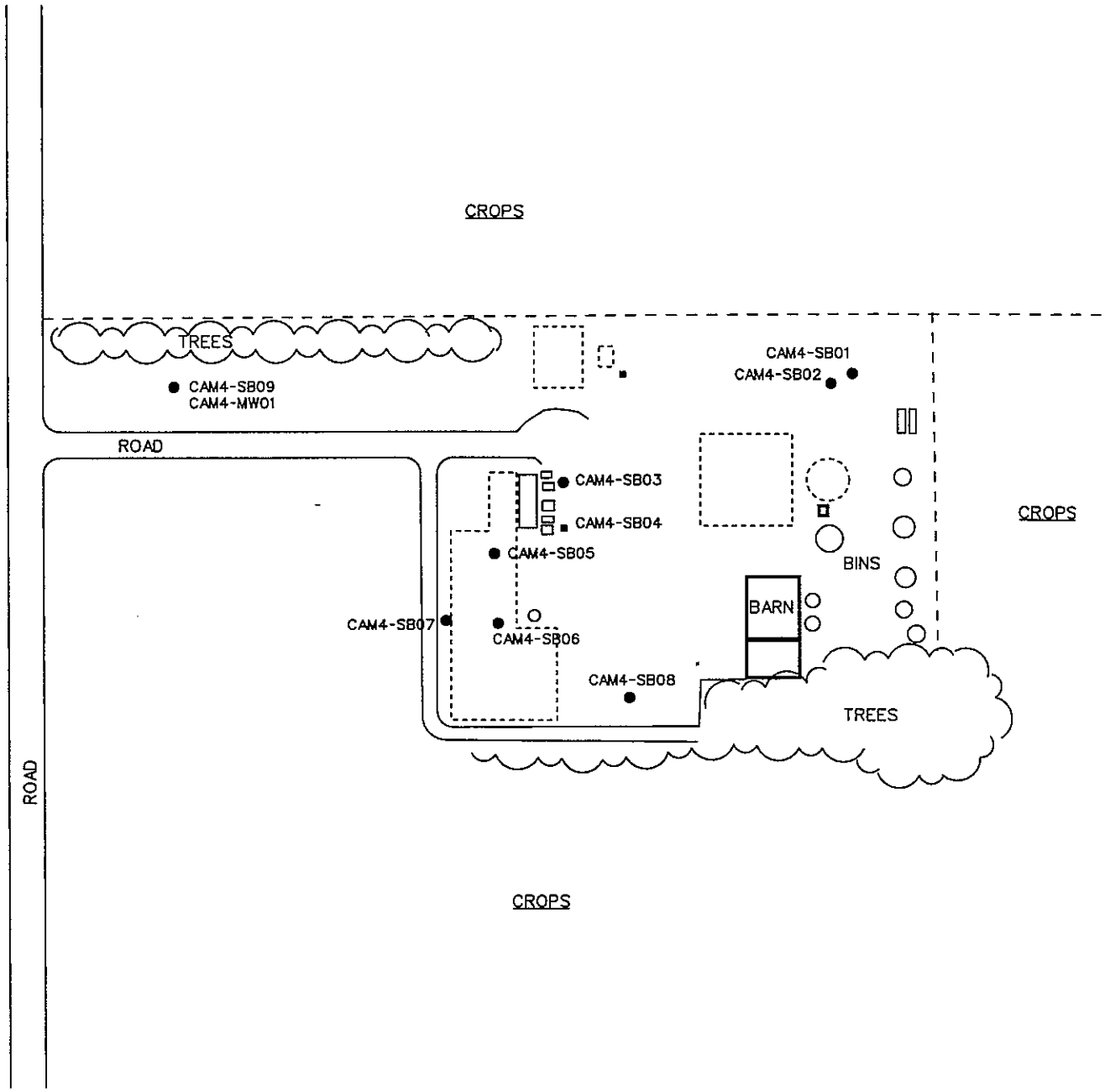
MONTGOMERY WATSON

IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

BETZ FARM SITE PLAN

FIGURE 8-1

BS_SL



LEGEND:

● SAMPLE LOCATION

FORMER STRUCTURE

0 100

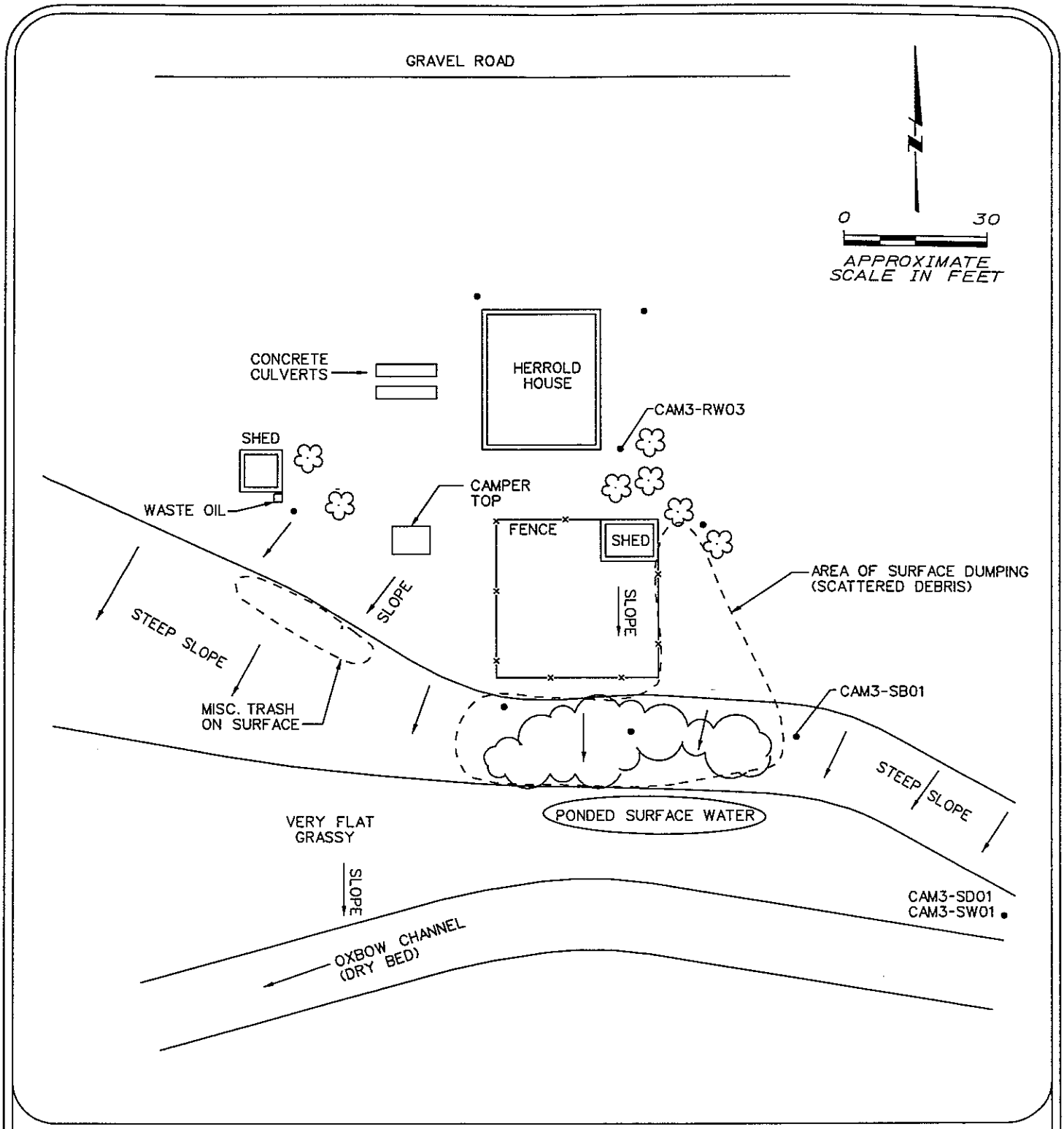
APPROXIMATE SCALE IN FEET

MONTGOMERY WATSON

IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

GRIEF FARM SITE PLAN

FIGURE 8-2



LEGEND:

- GPS LOCATION

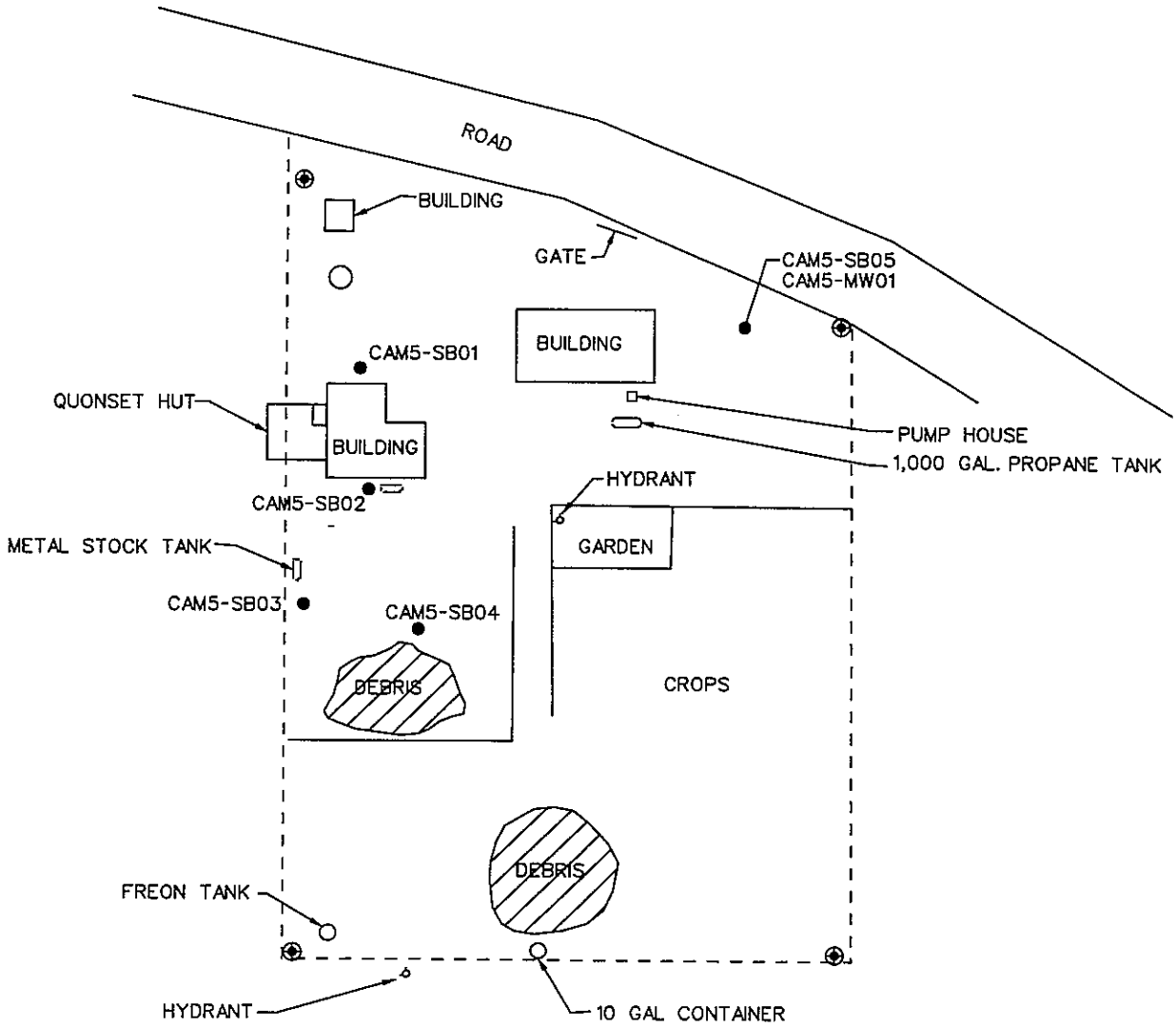
IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

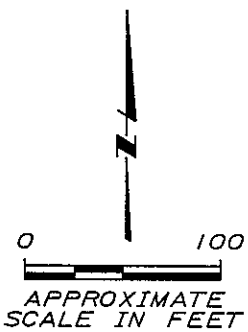
MONTGOMERY WATSON

HERROLD FARM SITE PLAN

FIGURE 8-3

HFSP





LEGEND:

- ● SAMPLE LOCATION
- ⊕ GEOPROBE SAMPLE LOCATION

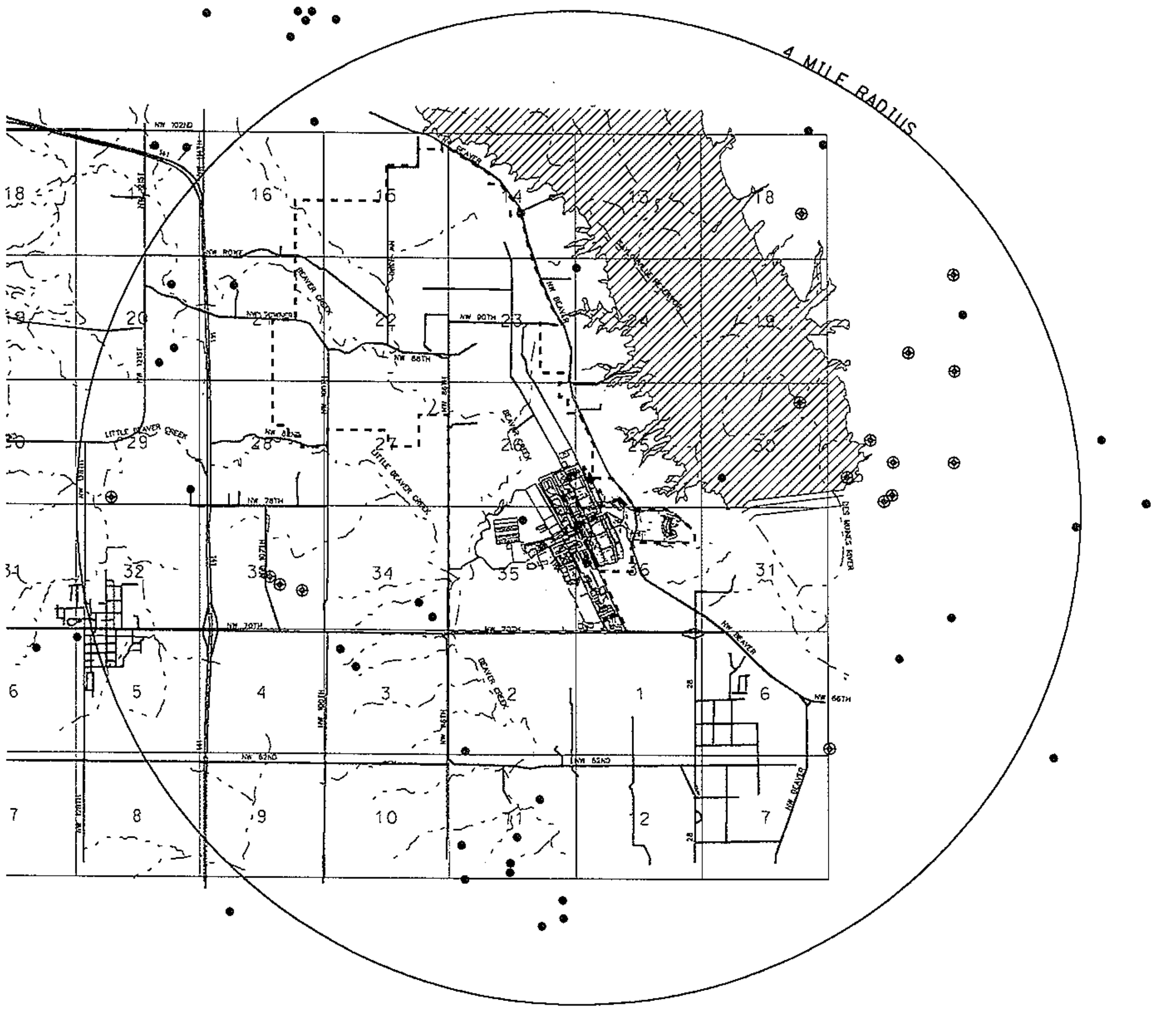
MONTGOMERY WATSON

IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

MELOS FARM SITE PLAN

FIGURE 8-4

MS.SL



SOURCE: IDNR-GSB

LEGEND:

- ● SURFICIAL WELLS
- ⊕ BEDROCK WELLS

0 7000

SCALE IN FEET

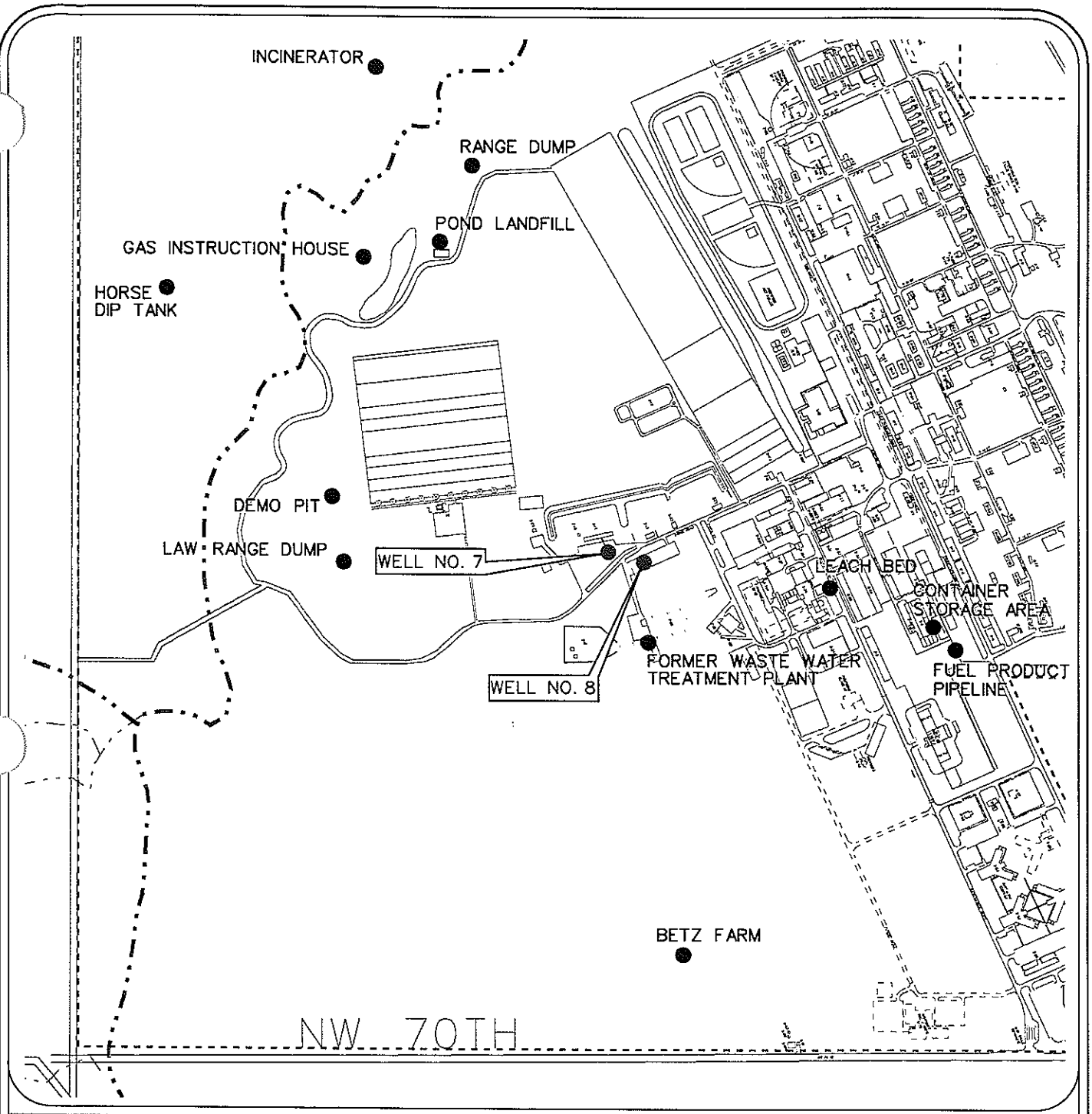
MONTGOMERY WATSON

IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

WELLS IDENTIFIED WITHIN 4 MILES

FIGURE 9-1

WINTMR



LEGEND:

● LOCATION OF PA SITES

N

0 1000

SCALE IN FEET

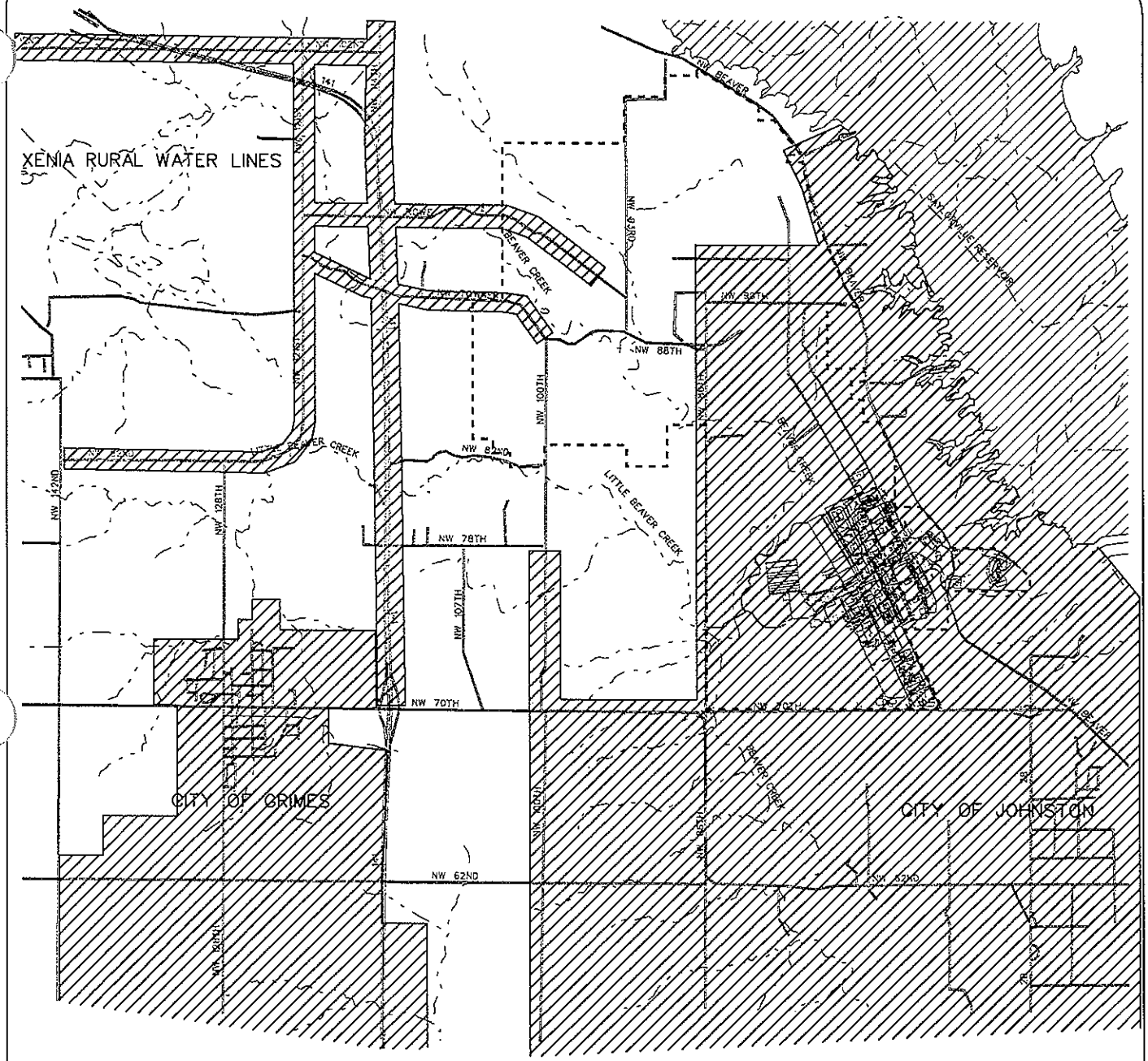
MONTGOMERY WATSON

IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

LOCATION OF CAMP DODGE MUNICIPAL WELLS

FIGURE 9-2

LOCDWN



LEGEND:

AREAS SUPPLIED BY PRIVATE WATER WELLS

AREAS SUPPLIED BY MUNICIPAL OR RURAL WATER SYSTEMS

N

0 5000

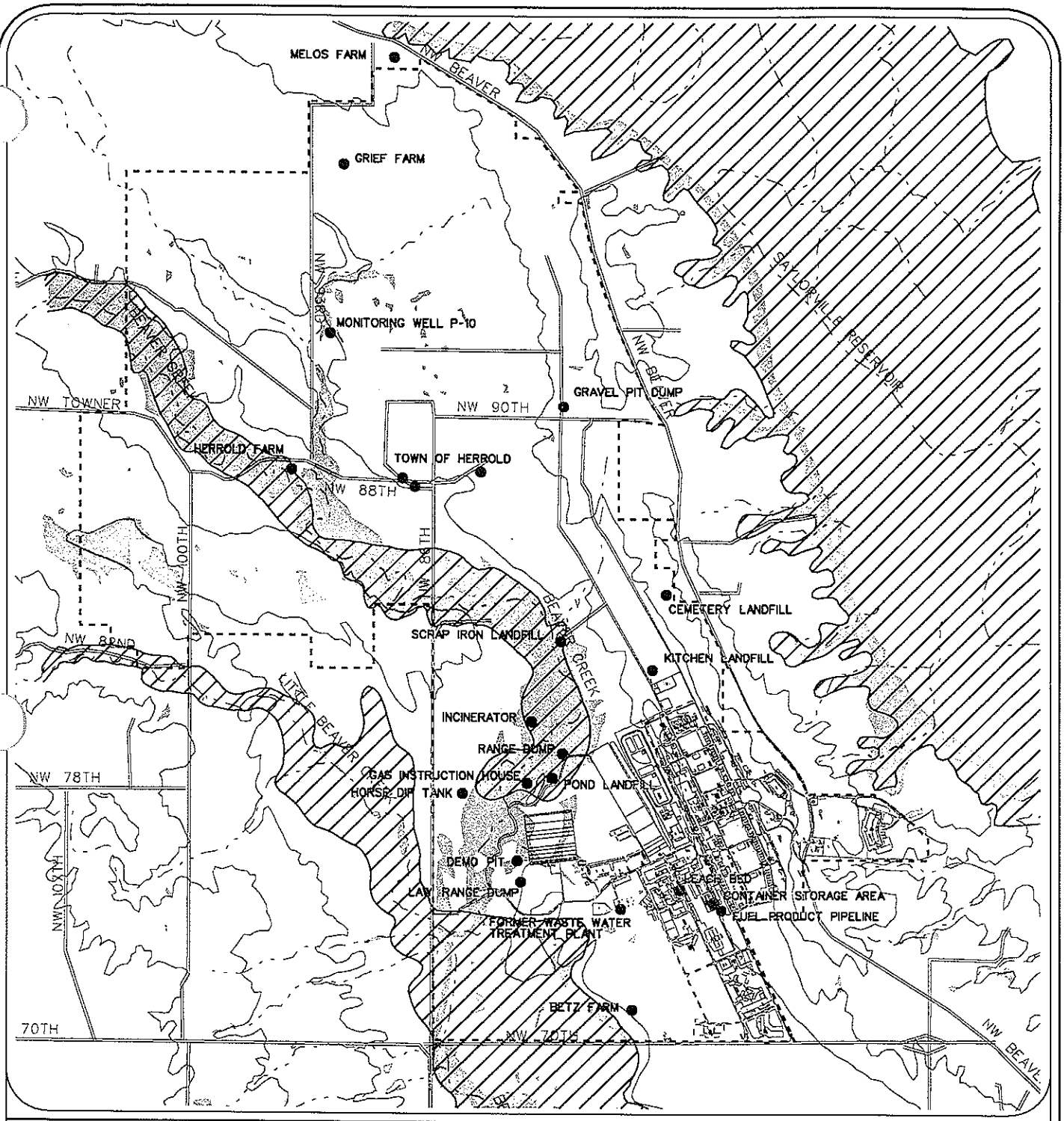
SCALE IN FEET

MONTGOMERY WATSON

IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

WATER SERVICE MAP

FIGURE 9-3



N

0 3000

SCALE IN FEET

LEGEND:

- ● LOCATION OF PA SITES
- APPROXIMATE BOUNDARY OF 100-YEAR FLOOD PLAIN
- WETLANDS

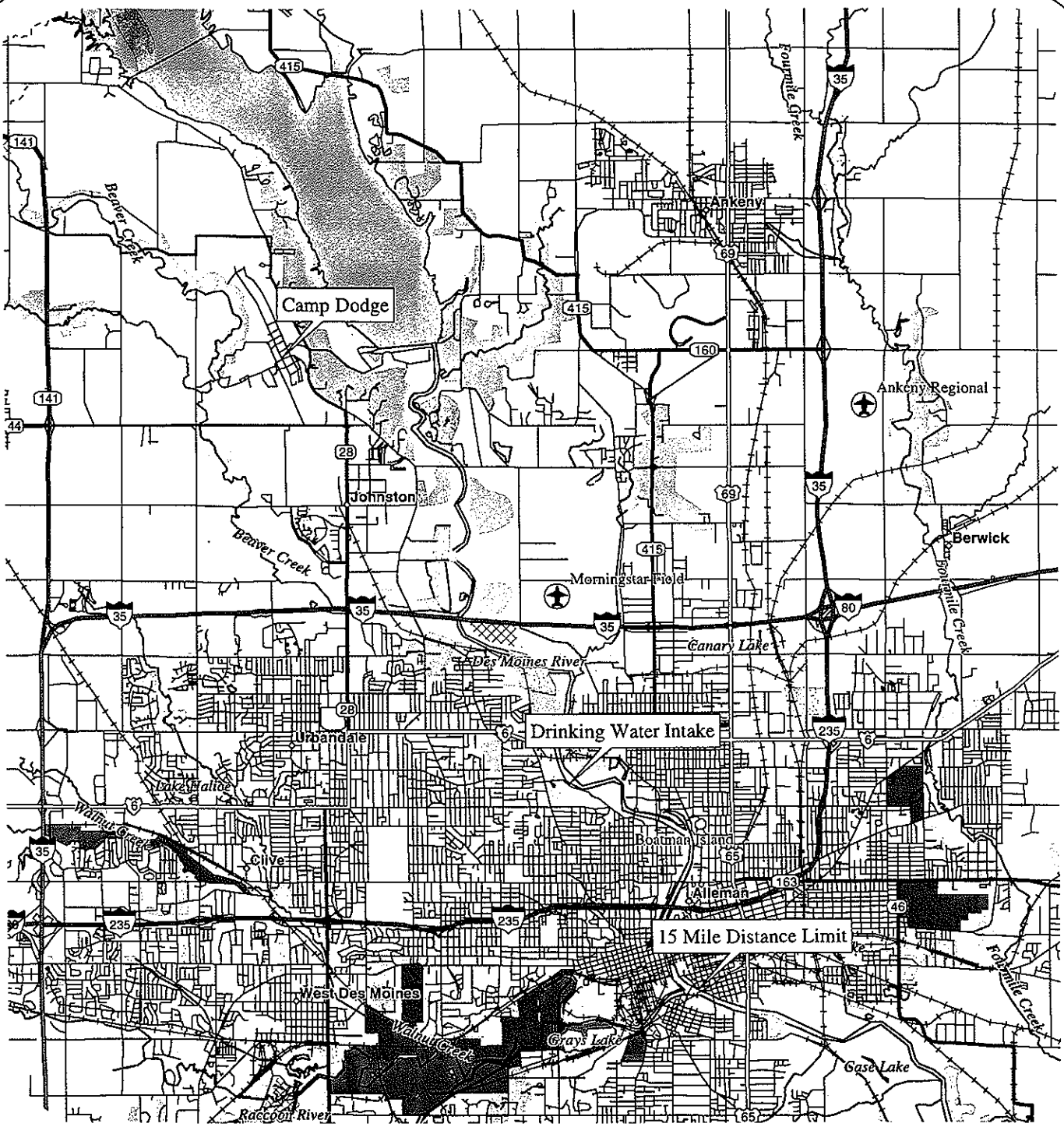
MONTGOMERY WATSON

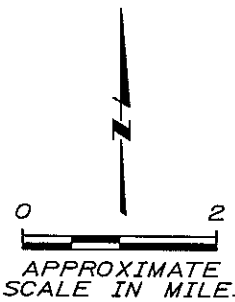
IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

SURFACE WATER PATHWAYS

FIGURE 10-1

SWP





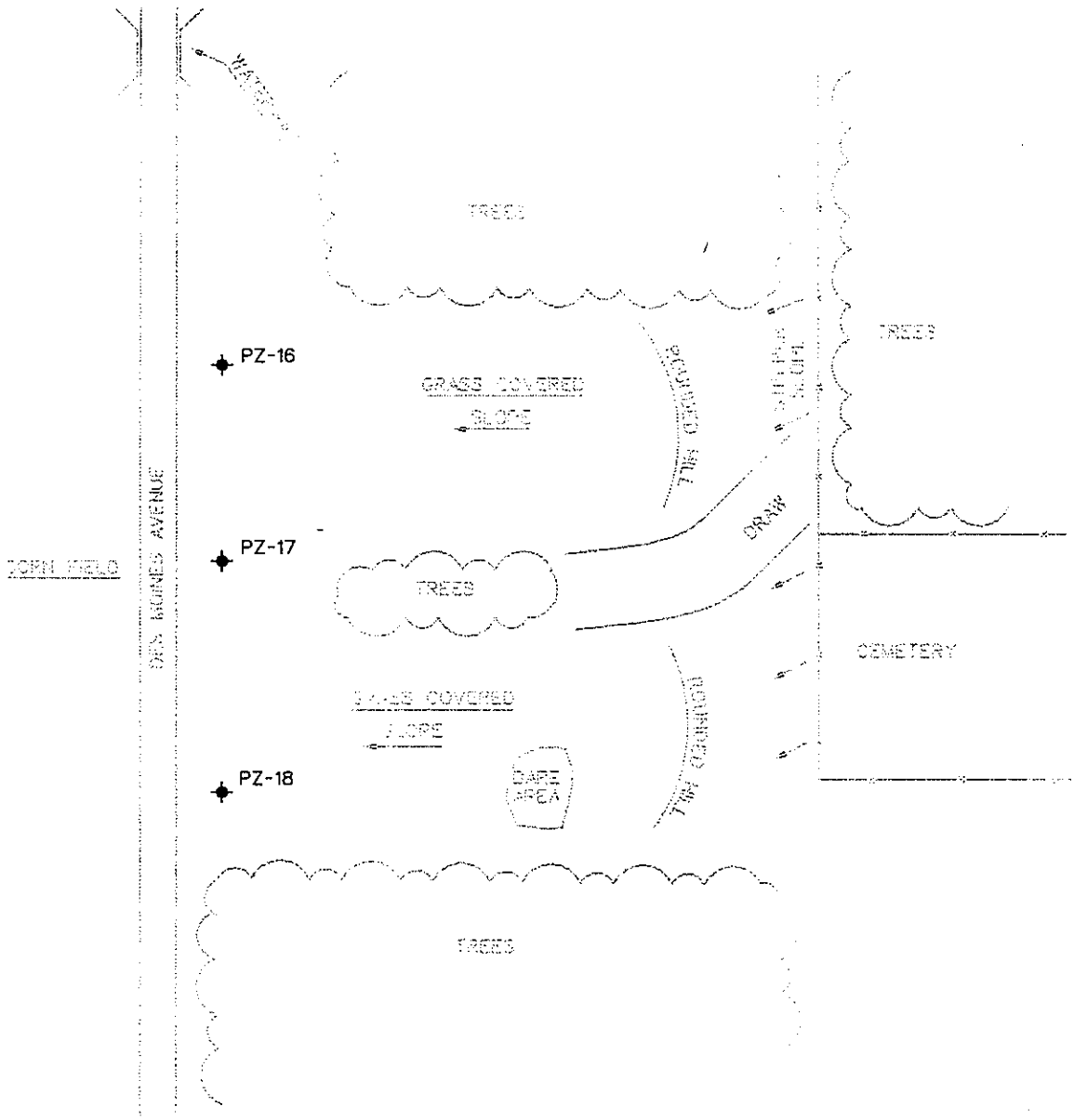
MONTGOMERY WATSON

IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

SURFACE WATER PATHWAY AND TARGETS

FIGURE 10–2

BOR



LEGEND:

PIEZOMETER

0 200

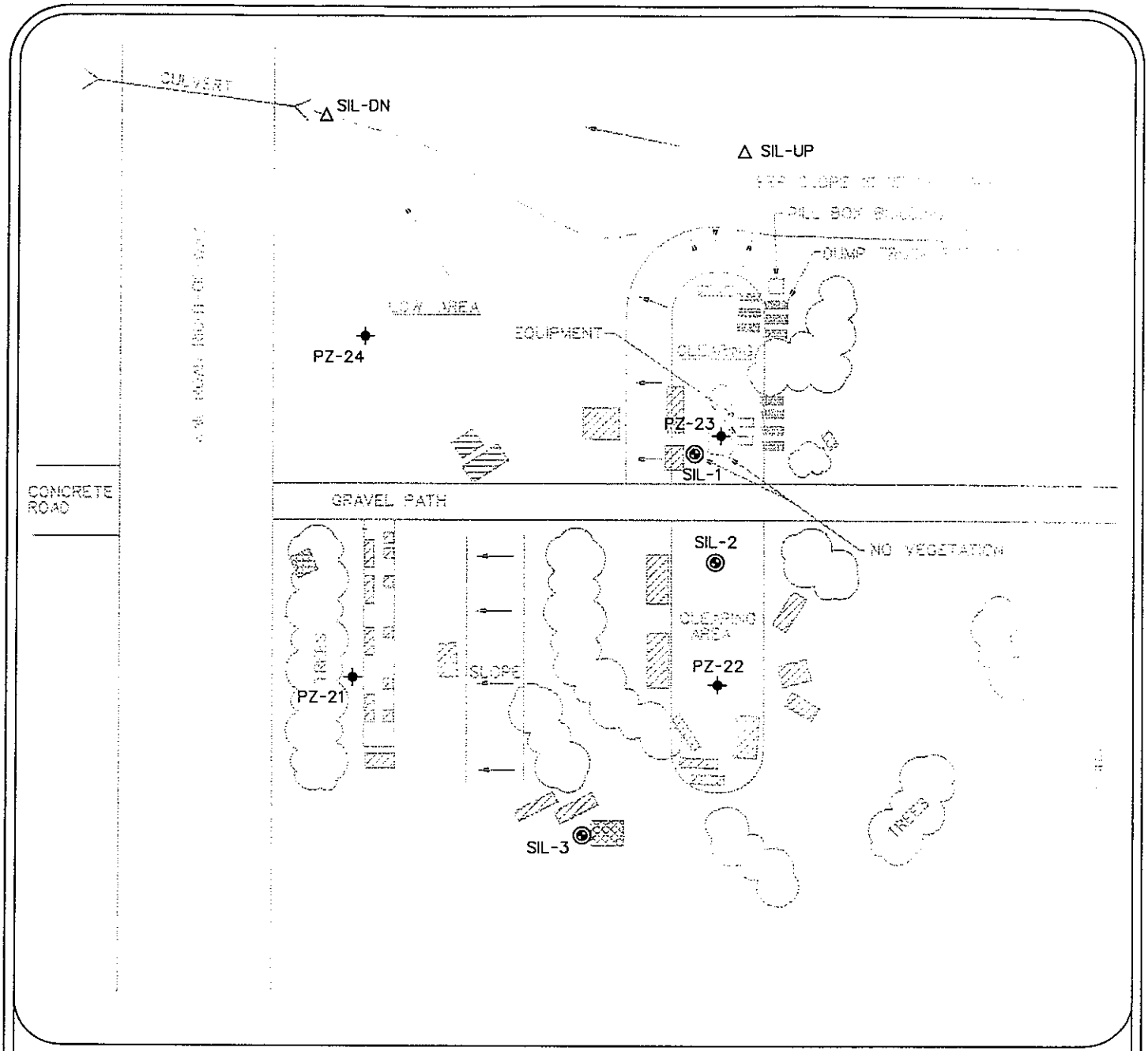
APPROXIMATE SCALE IN FEET

MONTGOMERY WATSON

IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

CEMETERY LANDFILL SAMPLING LOCATIONS

FIGURE 14–1



LEGEND:

- DEBRIS
- DRUMS
- DUMP TRUCK BED
- PIEZOMETER
- SURFACE WATER SAMPLE
- SURFACE SOIL SAMPLE

0 100

APPROXIMATE SCALE IN FEET

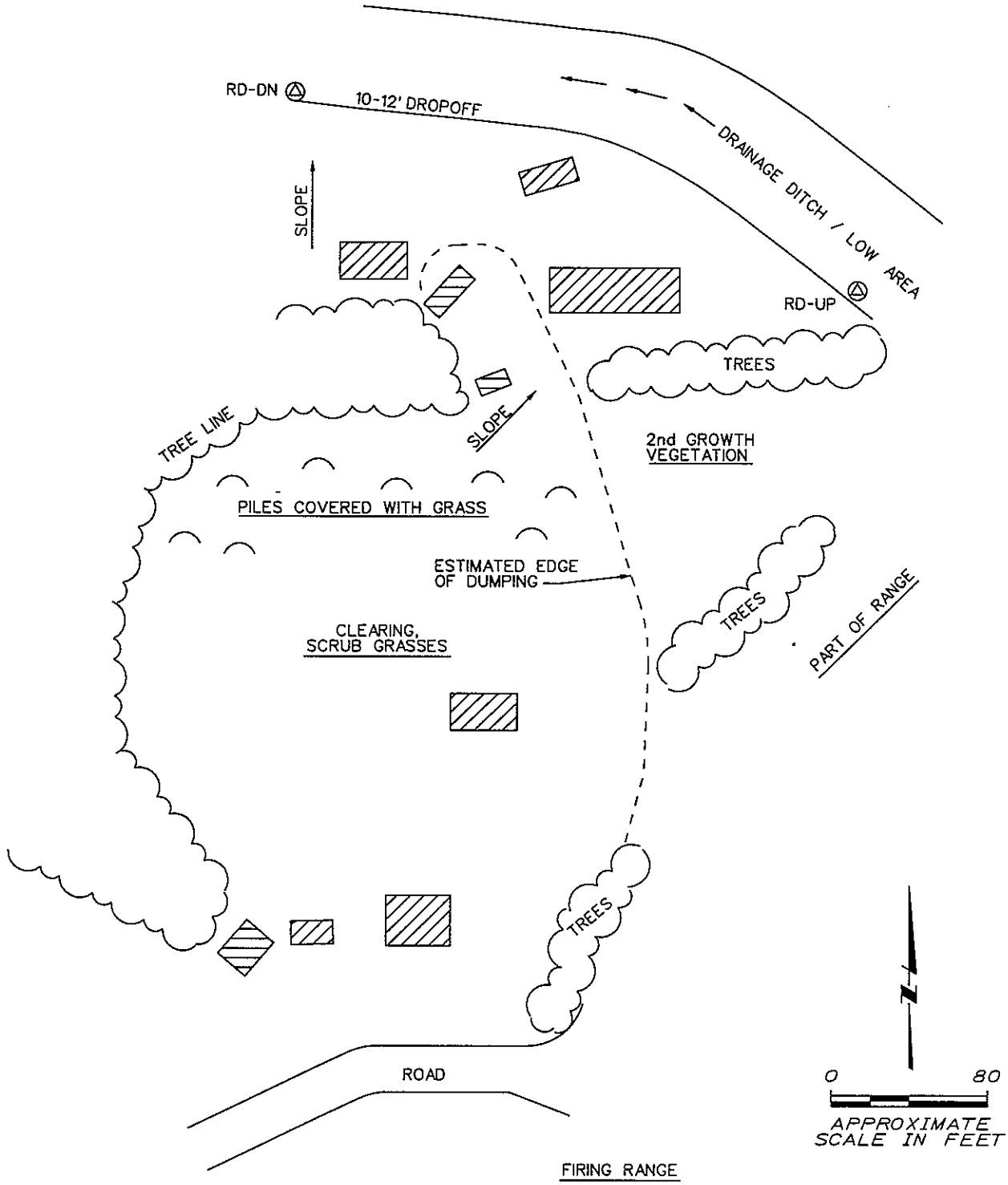
MONTGOMERY WATSON

IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

SCRAP IRON LANDFILL SAMPLING LOCATIONS

FIGURE 14-2

SIL_SL



LEGEND:

DEBRIS PILES

SURFACE WATER / SEDIMENT SAMPLE

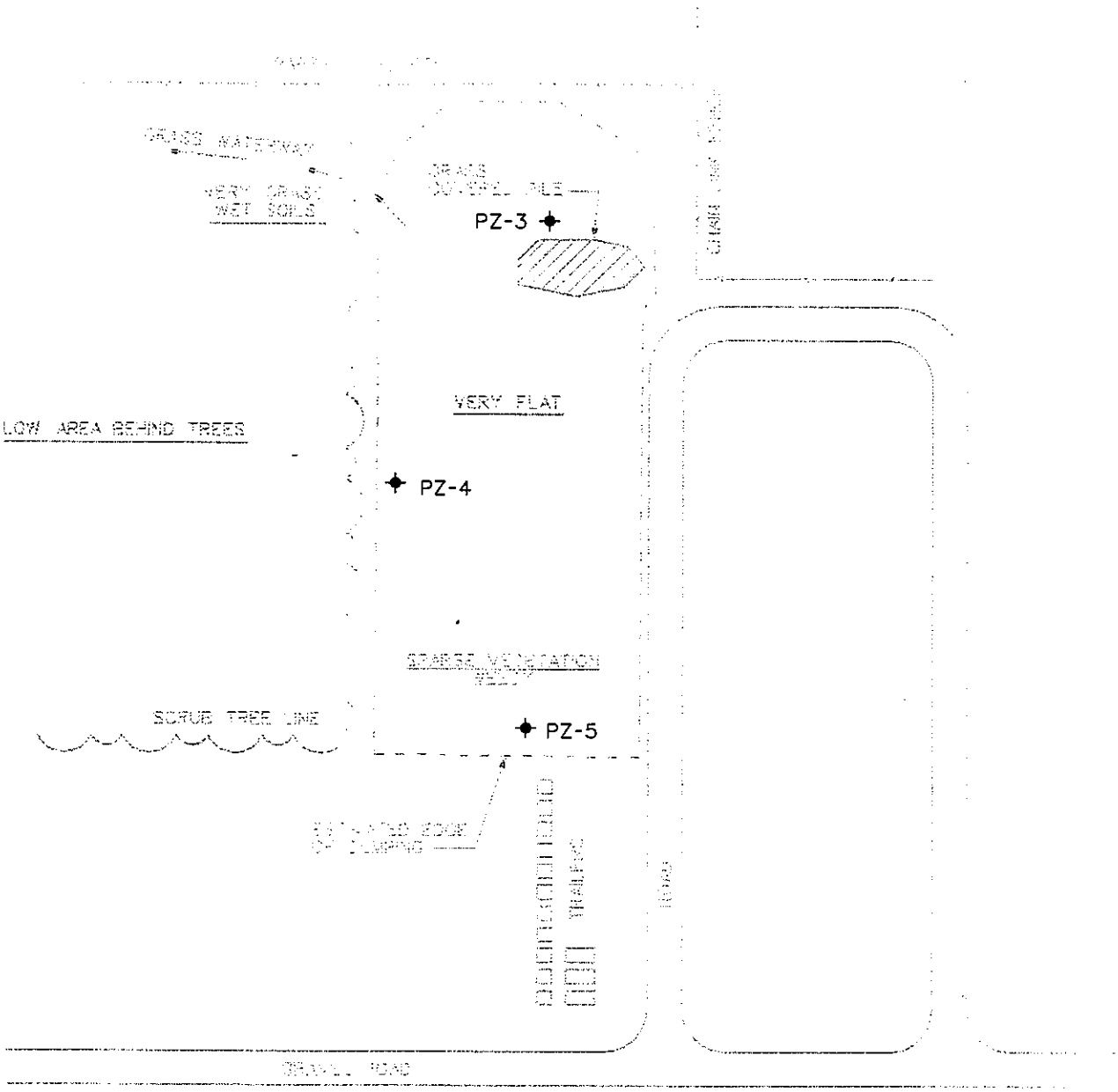
IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

MONTGOMERY WATSON

RANGE DUMP SAMPLING LOCATIONS

FIGURE 14-3

RDSL



LEGEND:

✦ PIEZOMETER

0 120

APPROXIMATE SCALE IN FEET

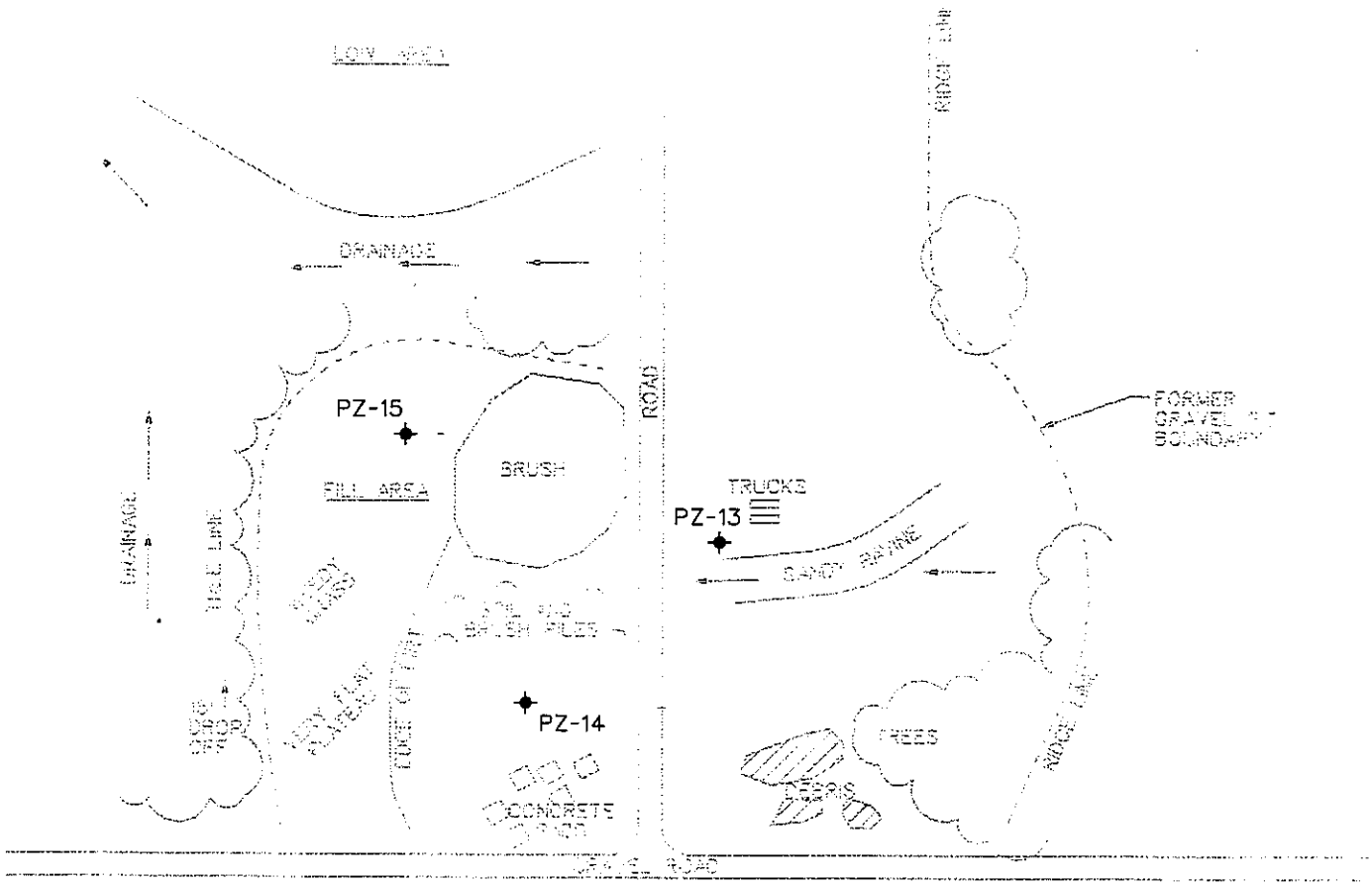
MONTGOMERY WATSON

IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

LAW RANGE LANDFILL SAMPLING LOCATIONS

FIGURE 14-4

LAW-52



LEGEND:

PIEZOMETER

N

0 200

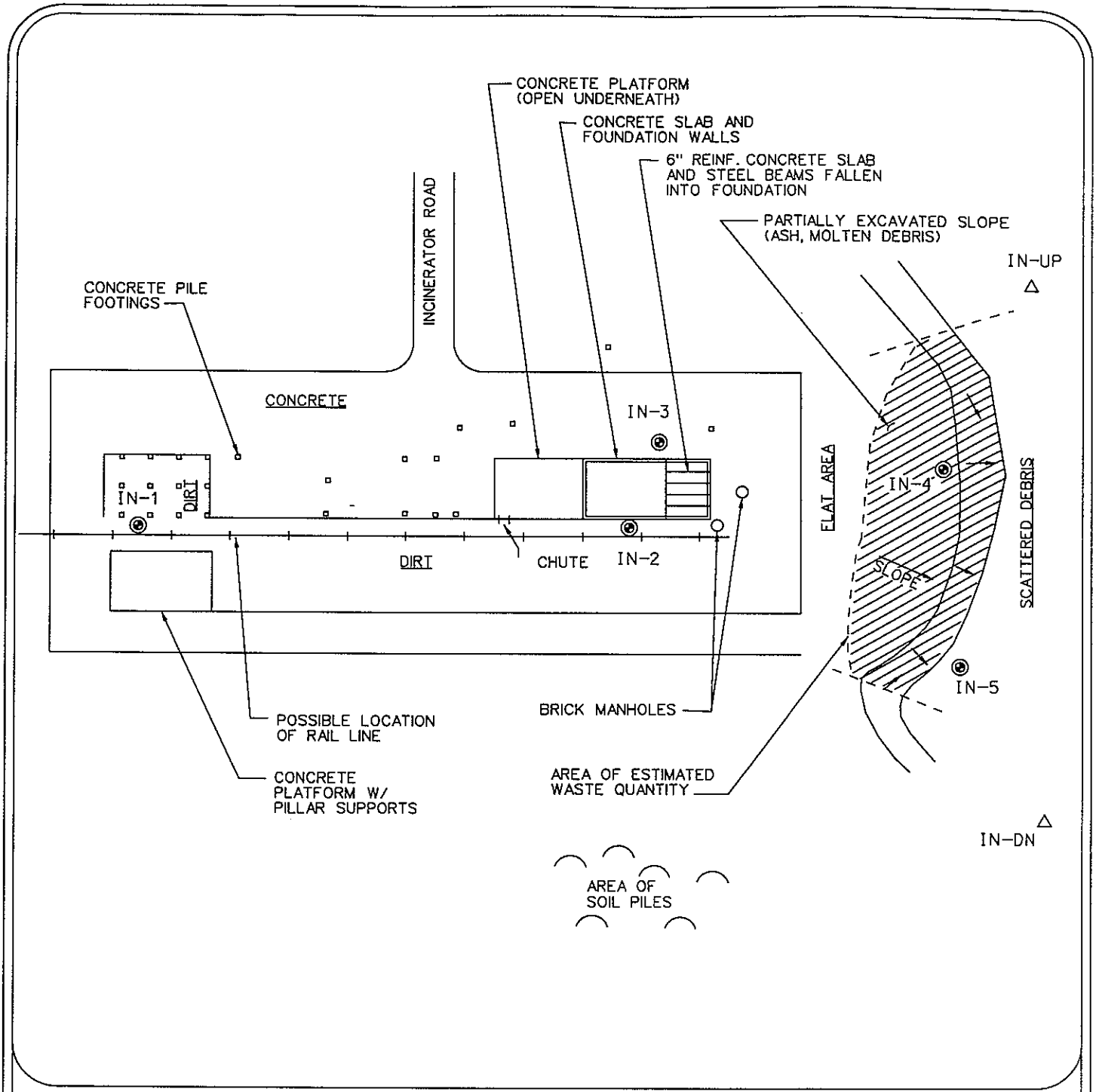
APPROXIMATE SCALE IN FEET

MONTGOMERY WATSON

IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

GRAVEL PIT DUMP SAMPLING LOCATIONS

FIGURE 14-5



LEGEND:

- ⊛ SURFACE SOIL SAMPLE
- △ SURFACE WATER SAMPLE

N

0 50

SCALE IN FEET

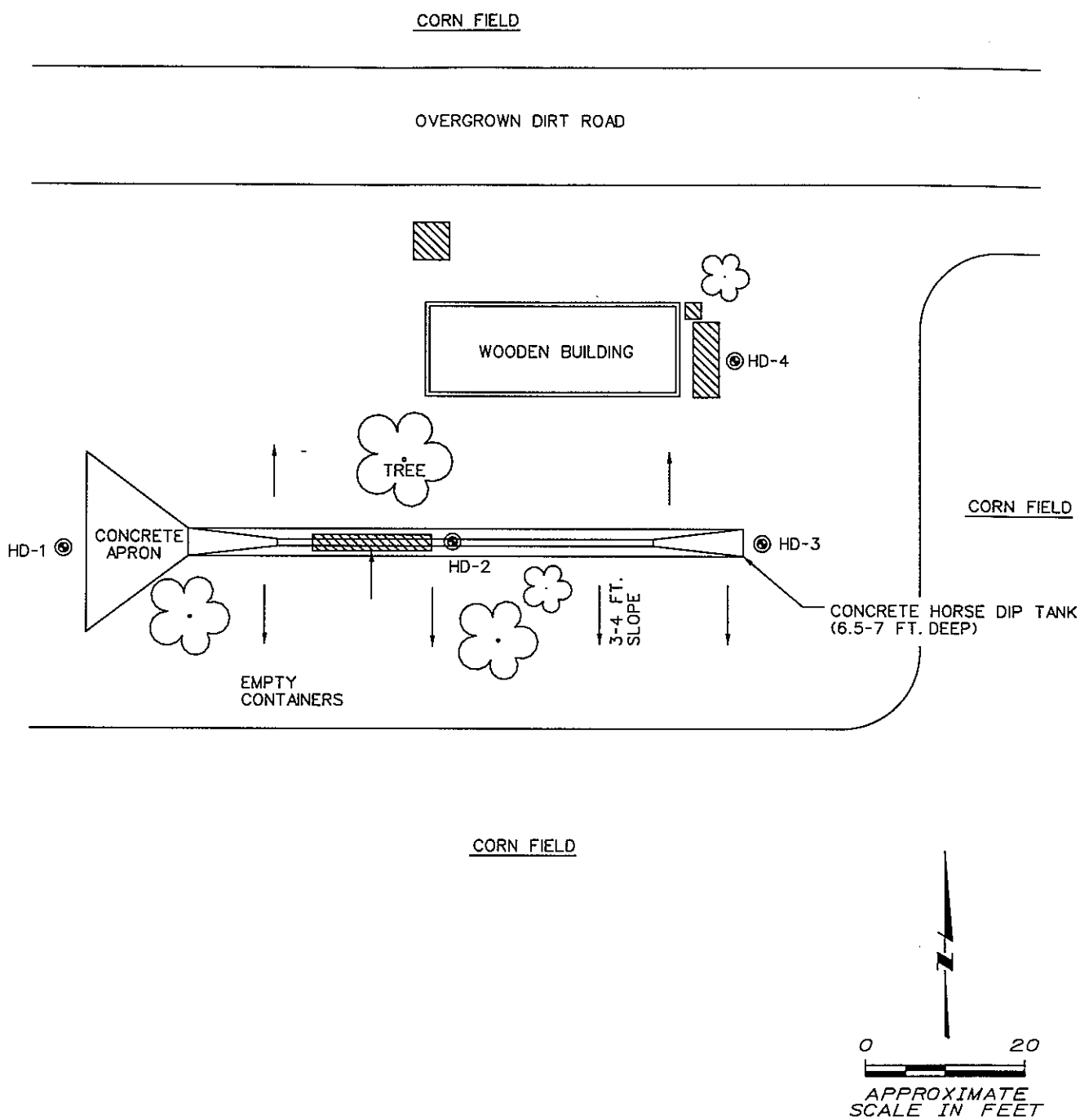
MONTGOMERY WATSON

IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

INCINERATOR AREA SAMPLING LOCATIONS

FIGURE 14-6

INCIN_SL



LEGEND:

DEBRIS

SURFACE SOIL SAMPLE

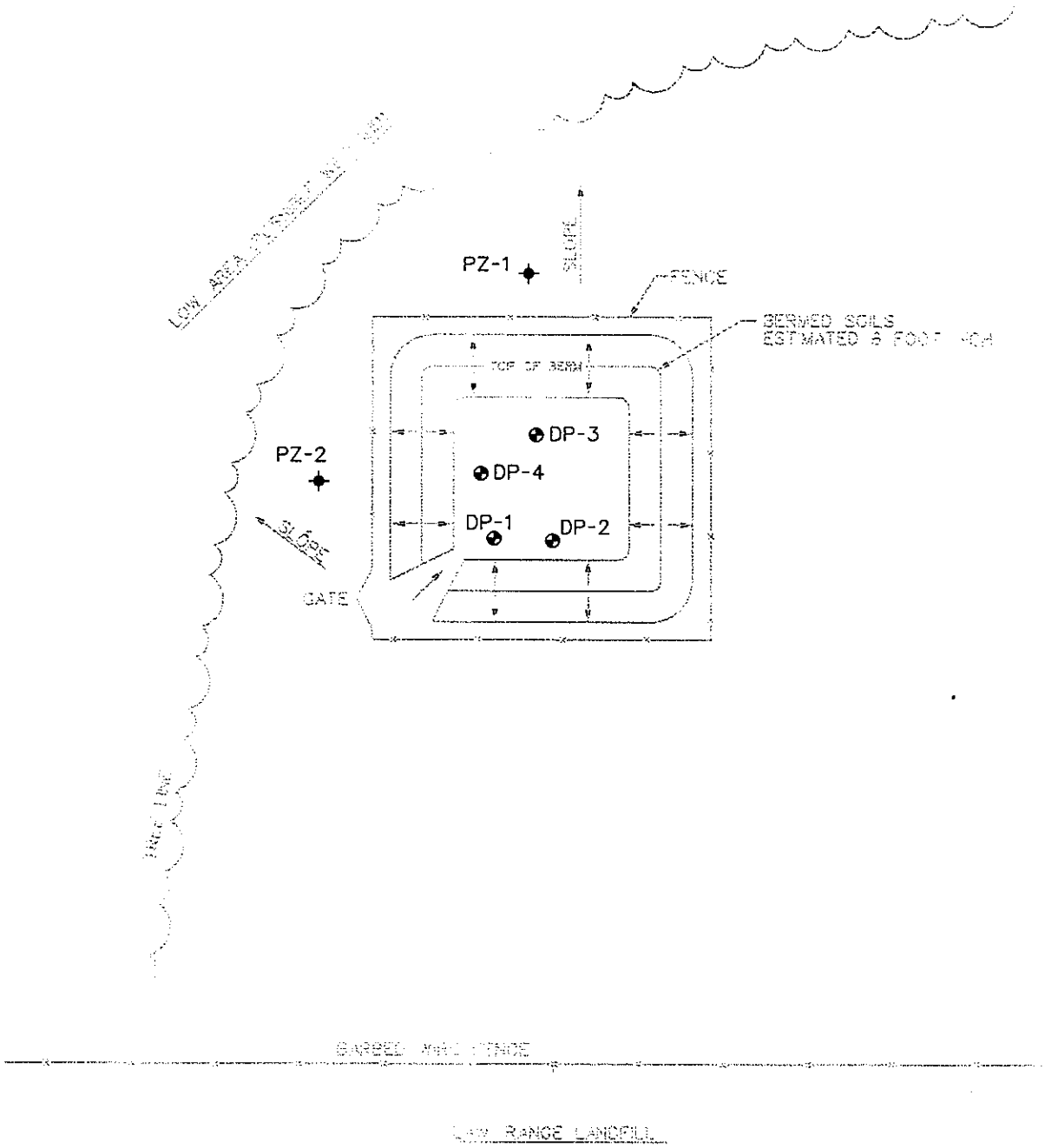
MONTGOMERY WATSON

IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

HORSE DIP TANK SAMPLING LOCATIONS

FIGURE 14-7

HDTSL



LEGEND:

- PIEZOMETER
- SOIL BORING

0 80

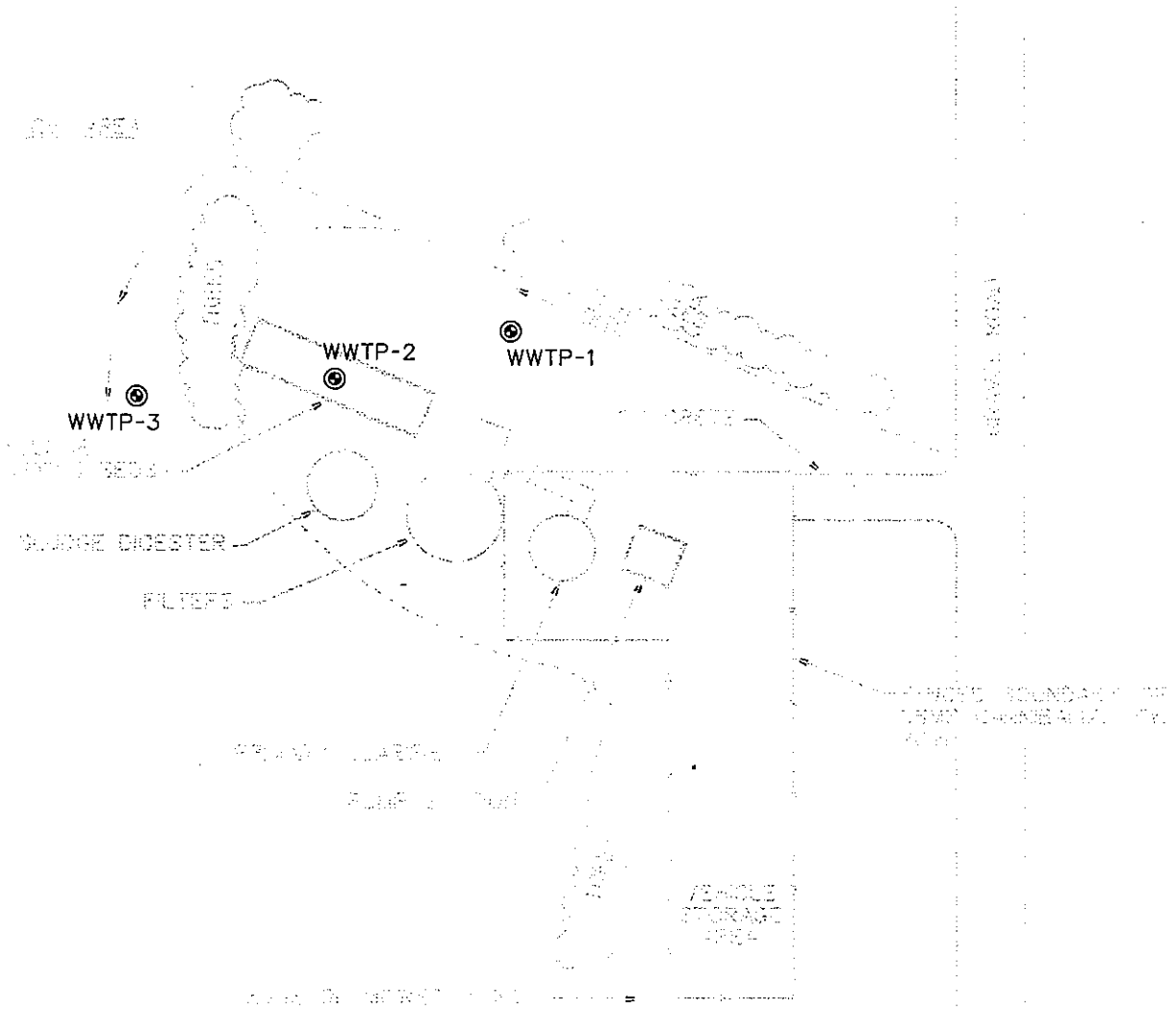
APPROXIMATE SCALE IN FEET

MONTGOMERY WATSON

IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

DEMOLITION PIT SAMPLING LOCATIONS

FIGURE 14–8



LEGEND:

◎ SURFACE SOIL SAMPLE

0 80

APPROXIMATE SCALE IN FEET

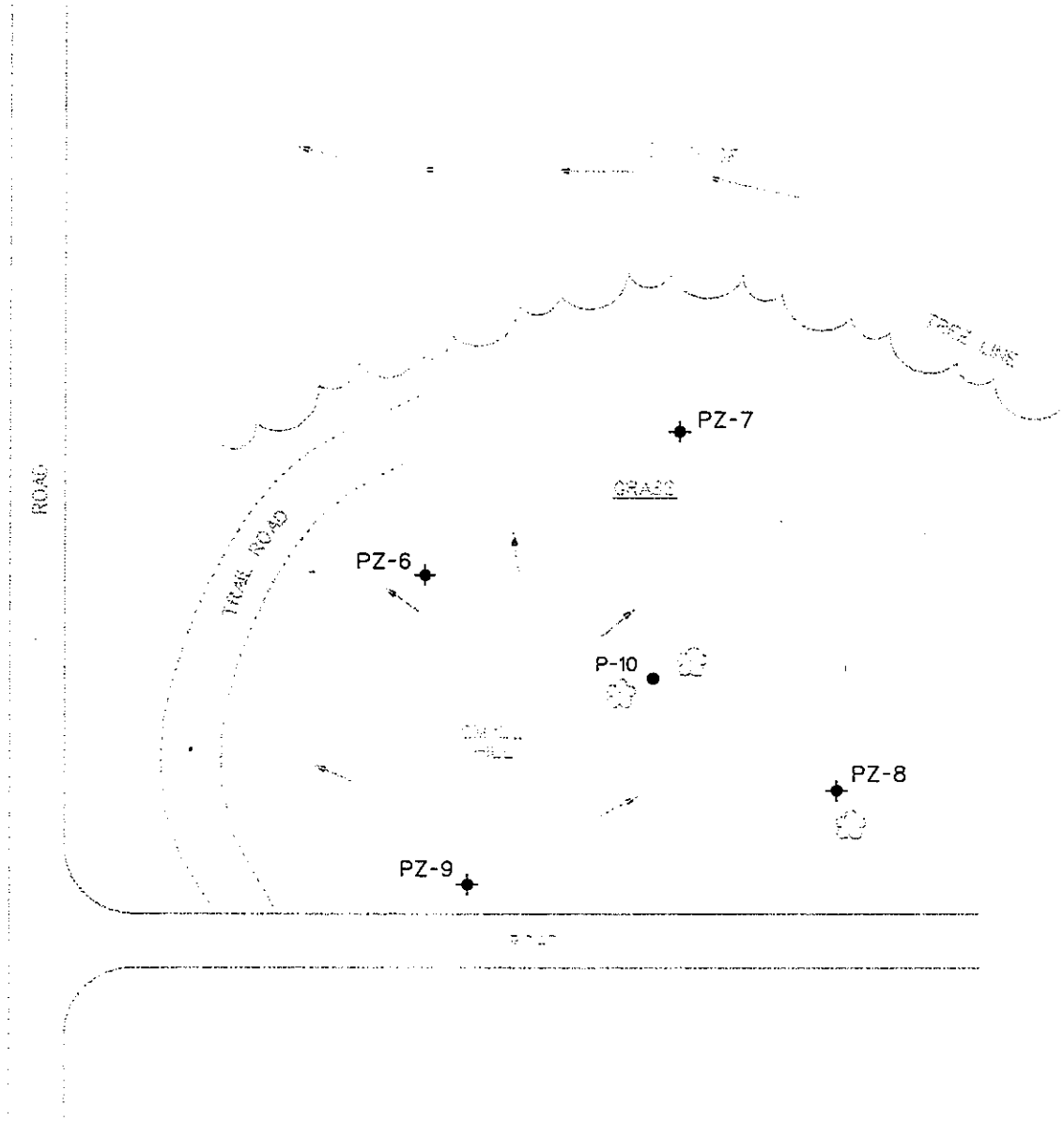
MONTGOMERY WATSON

IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

FORMER WASTEWATER TREATMENT PLANT SAMPLING LOCATIONS

FIGURE 14-9

FWTP_SL



LEGEND:

- PIEZOMETER
- MONITORING WELL

N

0 80

APPROXIMATE SCALE IN FEET

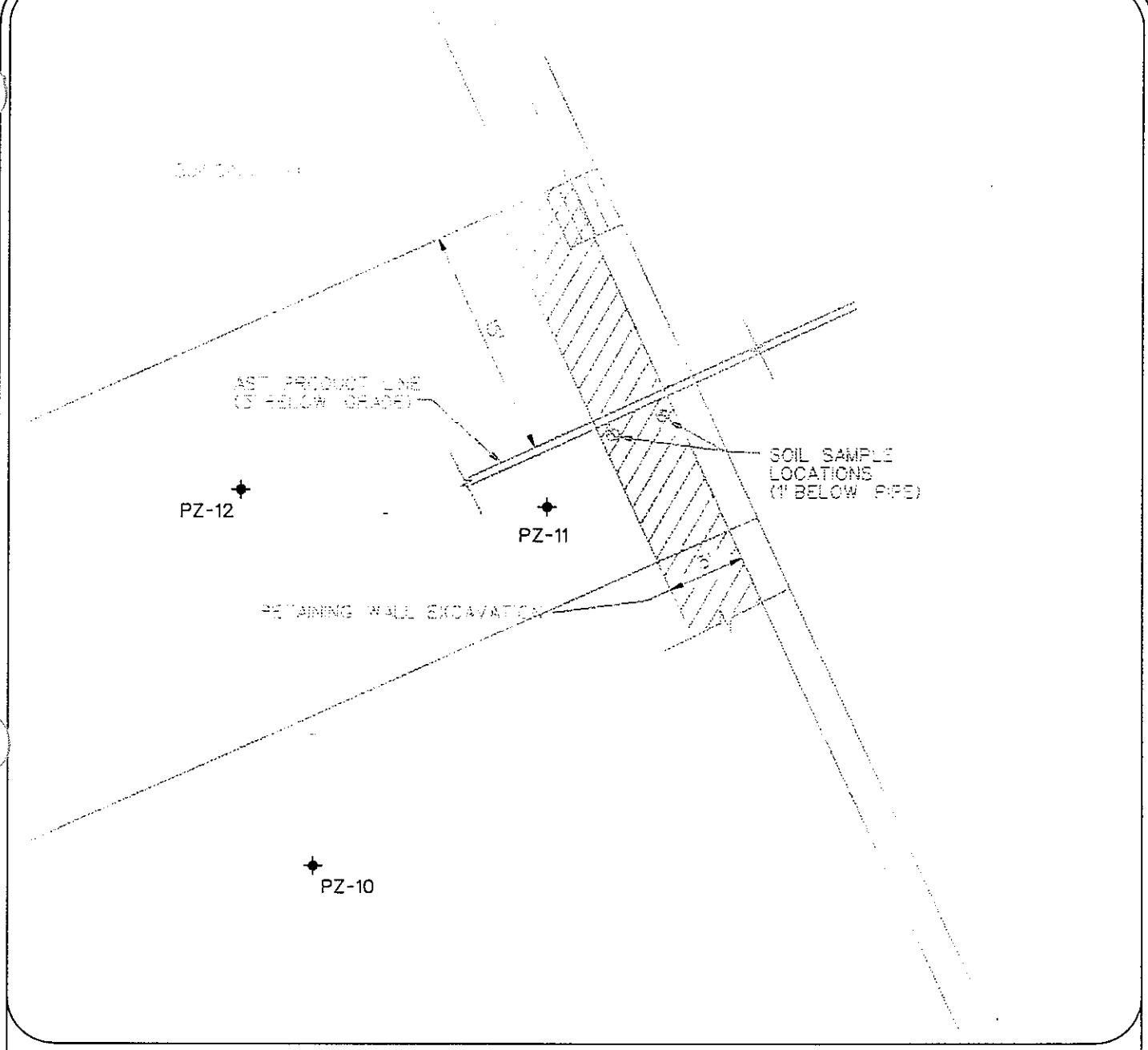
IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

MONTGOMERY WATSON

MONITORING WELL P-10 SAMPLING LOCATIONS

FIGURE 14-10

P10_SL



LEGEND:

✦ PIEZOMETER

N

0 10

SCALE IN FEET

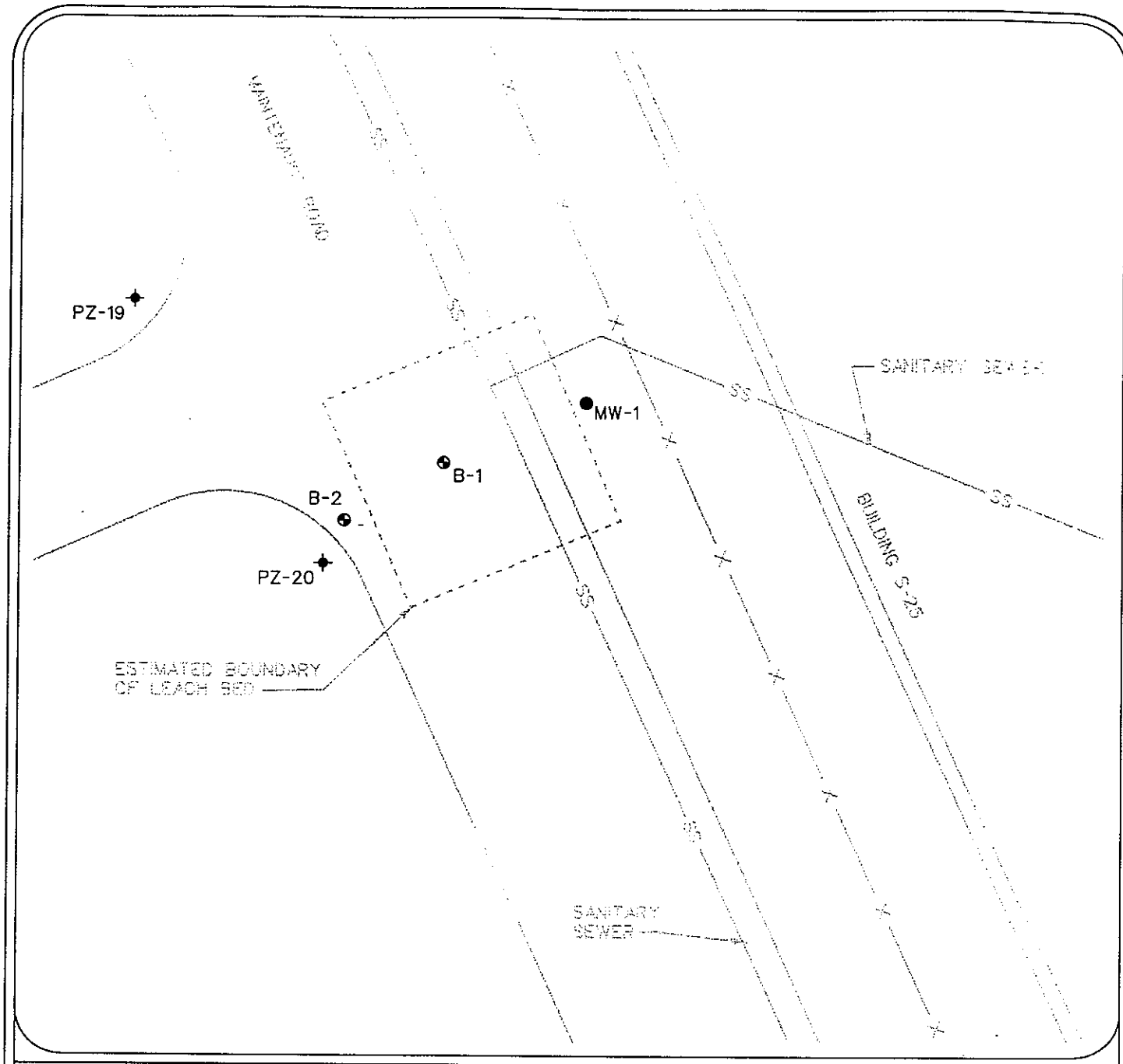
MONTGOMERY WATSON

IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

FUEL PRODUCT PIPELINE SITE SAMPLING LOCATIONS

FIGURE 14-11

FPPS_SL



LEGEND:

- SOIL BORING
- MONITORING WELL
- PIEZOMETER

N

0 20

SCALE IN FEET

MONTGOMERY WATSON

IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

LEACH BED SAMPLING LOCATIONS

FIGURE 14-12

Site Name: 77P-1

Location: SE1/4 sec.26 T80N R25W
Landscape position: LW terrace
Parent material: sandy alluvium
Vegetation: grass
Slope: 0%
Elevation: approximately 845 ft. (topo map)
Date described: 10/07/96
Described by: D.J. Quade and J. Krieg
Remarks: 7.6 cm. diameter core, mapped .
screened interval (S1) 205 - 426 cm

Depth (cm)	Soil Horizon (weathering zone)	Description
		DeForest Formation
		***Undiff* (Fm)**
0-40	A	black (10YR2/1) loam, weak, fine, granular, friable, noneffervescent, gradual boundary
20-60	AB	very dark grayish brown (10YR3/2) sandy loam, weak, very fine to fine, subangular blocky, friable, few faint very dark gray (10YR3/1) clay films on ped faces noneffervescent, gradual boundary
60-80	Bt1	very dark grayish brown (10YR3/2) sandy clay loam, fine to moderate medium prismatic parting to moderate fine to medium subangular blocky structure; firm; many faint very dark gray (10YR3/1) clay films on ped faces, noneffervescent, gradual boundary
80-110	Bt2	brown (10YR4/3) sandy clay loam, moderate medium prismatic parting to moderate medium subangular blocky structure; firm; common faint dark grayish brown (10YR4/2) clay films on ped faces, noneffervescent, gradual boundary
		Noah Creek Formation (S-PGms)
110-140	BC	brown (10YR5/3) loamy sand, friable, common, fine to medium dark grayish brown (10YR4/4) mottles, noneffevescent, gradual boundary
140-190	C1 (MOL)	brown (10YR5/3) medium sand, friable, few, fine, faint yellowish brown (10YR4/4) mottles, noneffevescent, clear boundary
190-250	C2 (MOL)	yellowish brown (10YR5/4) coarse sand interbedded with silty clay from 198-200 cm, common, fine, faint yellowish brown (10YR 5/6) mottles, noneffevescent, clear boundary
250-325	C3 (MOL)	yellowish brown (10YR5/4) very coarse sand, noneffevescent, abrupt boundary
325-450	C4 (RL)	light olive brown (2.5Y5/3) matrix-supported fine pebble gravel (pebbles up to 3mm), friable, noneffevescent, abrupt boundary

		Dows Formation
		Alden Member (Dmm)
450-500	2C (RJL)	light olive brown (2.5Y5/3) loam diamicton, prominent brown (7.5YR 4/4) vertical joints

Site Name: 77P-2

Location: SENE1/4 sec.26 T80N R25W
Landscape position: gentle slope
Parent material: colluvium/glacial diamicton
Vegetation: grass
Slope: 0%
Elevation: approximately 870 ft. (topo map)
Date described: 10/07/96
Described by: D.J. Quade and J. Krieg
Remarks: 7.6 cm. diameter core, mapped .

Silt = 365 - 426 cm

Depth (cm)	Soil Horizon (weathering zone)	Description
		DeForest Formation
		***Undiff.* (Fm)**
0-26	A	black (10YR2/1) loam, weak, fine, platy, friable, noneffervescent, gradual boundary
26-40	AB	very dark gray (10YR3/1) loam, weak, very fine to fine, subangular blocky, friable, common faint dark yellowish brown (10YR3/4) mottles, noneffervescent, gradual boundary
		Flack Mbr. (Fm)
40-100	Bt1	very dark gray (10YR3/1) heavy loam, moderate medium subangular blocky structure; firm; common faint dark yellowish brown (10YR3/4) mottles, common faint dark gray (10YR3.5/1) clay films on ped faces, few pebbles present, noneffervescent, gradual boundary
100-117	BC	very dark gray (10YR3/1) loam, weak, subangular blocky structure; firm; common, medium, prominent brown to strong brown(7.5YR4/4-7.5YR4/6) mottles, few dark concretions (iron and manganese, noneffervescent, gradual boundary
		Dows Formation
		Morgan Mbr. (Dms)
117-155	C1 (MOL)	grayish brown (2.5Y5/2) sandy loam, friable, common, medium, prominent strong brown(7.5YR4/6-7.5YR5/6) mottles, noneffevescent, clear boundary
155-175	C2 (MOL)	grayish brown (2.5Y5/2) silty clay loam; firm; common, medium to coarse, prominent reddish yellow (7.5YR6/8) and strong brown (7.5YR5/6) mottles, few, fine, prominent brownish yellow (10YR6/6) mottles; noneffevescent; clear boundary

175-187	C3 (MOL)	light yellowish brown (2.5Y6/3) silty clay loam interbedded with brown (10YR4/3) medium sand; firm to loose; common, coarse, prominent, strong brown (7.5YR4/6) and (7.5YR5/6) mottles; noneffevescent, clear boundary
187-260	C4 (MOL)	dark gray (10YR4/1) coarse sand; loose; many, coarse, prominent, strong brown (7.5YR4/6) and dark brown (7.5YR3/4) mottles; noneffevescent; clear boundary
260-380	C5 (MRL)	light olive brown (2.5Y5/4) coarse to very coarse sand; loose; many, coarse, prominent, yellowish brown (10YR5/6) and (10YR5/8) mottles from 260-272 cm.; noneffevescent, clear boundary
380-395	C6 (MRL)	light olive brown (2.5Y5/4) coarse sand; loose; many, coarse, prominent, olive (5Y4/6) mottles with strong brown (7.5YR5/8) rinds.; noneffevescent, clear boundary
395-420	C7 (RL)	light yellowish brown (2.5Y6/3) silt loam; friable; noneffevescent, clear boundary
420-450	2C1 (MOJL)	yellowish brown (10YR5/6) sandy loam; friable; few, medium, distinct grayish brown (2.5Y5/2) mottles; prominent strong brown (7.5YR4/6) iron segregations on vertical joints; noneffevescent, clear boundary
		Alden Mbr. (Dmm)
450-625	2C2 (UU)	greenish gray (Chart 1 Gley 5/10Y) silty loam diamicton ; thin interbedded sand stringers with few pebbles; weak effervescence

Site Name: 77P-3

Location: NW1/4 sec.25 T80N R25W
Landscape position: gentle slope
Parent material: colluvium/glacial diamicton
Vegetation: grass
Slope: 6%
Elevation: approximately 911 ft. (topo map)
Date described: 10/07/96
Described by: D.J. Quade and J. Krieg
Remarks: 7.6 cm. diameter core, mapped .

Depth (cm)	Soil Horizon (weathering zone)	Description
		DeForest Formation
		***Undiff.* (Fm)**
0-10	A	very dark grayish brown (10YR3/2) sandy loam; weak, fine, granular, friable, noneffervescent, gradual boundary
		Flack Mbr. (Fm)
10-40	AC	very dark grayish brown (10YR3/2) sandy loam; weak, fine granular, friable, common, medium, faint brown (10YR4/3) and few, fine, prominent strong brown (7.5YR4/6) mottles; noneffervescent, one large pebble (3 cm) at 27 cm; abrupt boundary
		Dows Formation
		Morgan Mbr. (Dms)
40-145	C1 (MOL)	yellowish brown (10YR5/4) sandy loam with interbedded medium to coarse sand; loose; common coarse yellowish red (5YR4/6) mottles in medium to coarse sand and dark yellowish brown (10YR4/4-4/6) mottles in sandy loam, some pebbles present, noneffervescent, abrupt boundary
		Pennsylvanian Bedrock
145-206	2C1 (MOL)	light yellowish brown (2.5Y6/3) siltstone; common, fine, faint, brown light yellowish brown (2.5Y6/4) mottles, common yellowish brown (10YR5/6-5/8) limonite concretions, noneffervescent, clear boundary
206-355	2C2 (MOL)	pale olive (5Y6/3) siltstone; common light brown (7.5YR6/4) mottles; common ferrosiderite concretions, noneffervescent, clear boundary
355-435	2C3 (MOL)	olive (5Y5/3) and reddish brown (5YR5/3) interbedded mudstone; common light brown (7.5YR6/4) mottles; common ferrosiderite concretions, noneffervescent, slickensides present on faces from 300 to 435 cm.

Site Name: 77P-4

Location: NE1/4 sec.23 T80N R25W
Landscape position: shoulder slope
Parent material: colluvium/glacial diamicton
Vegetation: grass
Slope: 0-1%
Elevation: approximately 960 ft. (topo map)
Date described: 10/07/96
Described by: D.J. Quade and J. Krieg
Remarks: 7.6 cm. diameter core, mapped .

SI = 232-293 cm

Depth (cm)	Soil Horizon (weathering zone)	Description
		DeForest Formation
		***Undiff.* (Fm)**
0-25	A	black to very dark gray (10YR2.5/1) loam to sandy loam, weak, fine, granular, friable, noneffervescent, gradual boundary
25-30	Bw1	very dark grayish brown (10YR3/2) sandy loam, weak, fine granular, friable, noneffervescent, gradual boundary
		Flack Mbr. (Fm)
30-50	Bw2	brown to very dark grayish brown (10YR4/3-10YR3/1) sandy loam, weak, fine subangular blocky; friable; rare, fine faint yellowish brown (10YR5/8) mottles, few pebbles up to 2 cm. in diameter present, noneffervescent, gradual boundary
50-95	C1 (MOL)	light olive brown (2.5Y5/4) sandy loam, friable, rare, fine prominent strong brown (7.5YR5/8) mottles, noneffervescent, clear boundary
		Dows Formation
		Morgan Mbr. (Dms)
95-200	C2 (MRU)	light olive brown (2.5Y5/4) loamy sand coarsening downward to medium to coarse sand, loose, rare, fine prominent strong brown (7.5YR5/8) mottles, pebbles up to 3 cm in diameter; small lenses of light yellowish brown (2.5Y6/3) silty clay loam; strong effervescence; clear boundary
200-313	C3 (RJU)	light olive brown (2.5Y5/4) silt loam to loam; few, fine, faint, olive brown (2.5Y4/6), pale yellow (2.5Y7/4) and strong brown (7.5YR5/8) mottles; strong effervescence, clear boundary
313-335	C4 (OU)	light olive brown (2.5Y5/4) coarse sand; loose; strong effervescence; clear boundary
		Alden Mbr. (Dmm)

335-366	2C (UU)	dark greenish gray (Chart 1 Gley 4/1 10Y) loam; firm; strong effervescence
380-395	C6 (MRL)	light olive brown (2.5Y5/4) coarse sand; loose; many, coarse, prominent yellowish brown(10YR 5/8) mottles with strong brown (7.5YR 5/8) rinds; noneffervescent; clear boundary
395-420	C7 (RL)	light grayish brown (2.5Y6/3) silt loam; firm; noneffervescent; abrubt boundary
		Alden Mbr.
420-450	2C (MOJL)	yellowish brown (10YR5/6) sandy loam diamicton ; firm; few, medium, prominent grayish brown (2.5Y5/2) mottles; strong brown (7.5YR4/6) vertical joints; noneffervescent; clear boundary
450-625	2C2 (UU)	greenish gray (Chart 1 Gley 5/10Y) silty loam diamicton, weak effervescence

Site Name: 77P-5

Location: 1/4 sec. 23 T80N R25W
Landscape position: saddle on ridge
Parent material: glacial diamicton
Vegetation: grass
Slope: 2-3%
Elevation: approximately 968 ft. (topo map)
Date described: 10/08/96
Described by: D.J. Quade and J. Krieg
Remarks: 7.6 cm. diameter core, mapped.

si = 365 - 426 cm

Depth (cm)	Soil Horizon (weathering zone)	Description
		DeForest Formation
		Undiff. (Fm)
0-20	A	black (7.5YR2.5/1) loam, weak, fine, granular, friable, noneffervescent, gradual boundary
20-38	AB	black (7.5YR2.5/1) silty clay loam; weak, very fine subangular, friable, noneffervescent, gradual boundary
38-67	Bt1	black (7.5YR2.5/1) silty clay loam; firm; moderate, fine to medium subangular blocky; many, faint black (10YR2/1) thin clay films on ped faces; noneffervescent gradual boundary
		Flack Mbr. (Fm)
67-98	Bt2	dark yellowish brown (10YR4/4) silty clay loam, firm; coarse prismatic parting to medium subangular blocky; many, faint black (10YR2/1) thick clay films on ped faces; noneffervescent, clear boundary, few pebbles to 2 mm in diameter
98-130	BC	light yellowish brown (2.5Y6/4) loam; firm; common medium strong brown (7.5YR5/6-7.5YR5/8) and few, fine, prominent yellowish brown (10YR5/8) mottles; common, faint dark gray (10YR4/1) thin clay films on ped faces; noneffervescent; gradual boundary
		Dows Formation
130-200	C1 (MRU)	**Morgan Mbr. (Dms)** light yellowish brown (2.5Y6/3) loam diamicton and silt loam bed (183-190 cm) underlain by a stringer of strong brown (7.5YR5/8) medium sand (190-200 cm); stratified; common, medium strong brown (7.5YR5/6-5/8) mottles in loam diamicton and common, medium, prominent mottles in sand; firm to loose; weak effervescence, clear boundary

200-230	C2 (MOU)	yellowish brown (10YR5/6-5/8) sandy loam diamicton, common, medium prominent strong brown (7.5YR5/8) mottles and grayish brown (2.5Y5/2) mottles from 200-230 cm.; medium sand stringers with pebbles up to 2 cm in diameter; friable; weak effervescence, gradual boundary
230-260	C3 (OU)	light olive brown (2.5Y5/4) and grayish brown (2.5Y5/2) very coarse sandy loam diamicton with pebbles <2 cm., friable, weak effervescence
260-300	C4 (MOU)	grayish brown (2.5Y5/2) and light olive brown (2.5Y5/3) sandy loam to sandy clay loam diamicton, friable; weak effervescence
300-323	C5 (RU)	gray (2.5Y5.5/1) silty clay loam diamicton; firm; weak effervescence, abrupt boundary
323-340	C6 (OU)	yellowish brown (10YR5/6) coarse to very coarse sand; loose; weak effervescence; clear boundary
340-375	C7 (OU)	yellowish brown (10YR5/8) medium sand interbedded with dark grayish brown (2.5Y4/2) silt loam, loose to firm; weak effervescence; clear boundary
375-430	C8 (OU)	yellowish brown (10YR5/6) coarse sand matrix pebble gravel with pebbles up to 2 cm in diameter; weak effervescence; clear boundary
		Alden Mbr. (Dmm)
430-450	2C1 (UJU)	dark greenish gray (Chart 1 Gley 4/1 10Y) loam diamicton interbedded with yellowish brown (10YR5/6) coarse sand; prominent reddish brown (5YR3/4) vertical joints
450-550	2C2 (UU)	dark greenish gray (Chart 1 Gley 4/1 10Y) loam diamicton; moderate effervescence; clear boundary

Site Name: 77P-6

Location: 1/4NE sec. 23 T80N R25W
Landscape position: shoulder slope
Parent material: colluvium/glacial diamicton
Vegetation: switch grass
Slope: 5-6%
Elevation: approximately 955 ft. (topo map)
Date described: 10/08/96
Described by: D.J. Quade and J. Krieg
Remarks: 7.6 cm. diameter core, mapped. Spruce wood collected from 585-601 cm.

Si = 260 - 320 cm

Depth (cm)	Soil Horizon (weathering zone)	Description
		DeForest Formation
		Undiff. (Fm)
0-20	A	dark grayish brown (2.5Y4/2-4/3) to olive brown loam to sandy loam; weak, fine, granular, friable, strong effervescence, clear boundary
		Flack Mbr. (Fm)
20-60	C1 (OU)	light olive brown (2.5Y5/4) loam to sandy loam; few pebbles up to 3mm in diameter, friable, strong effervescence gradual boundary
		Dows Formation
		Morgan Mbr. (Dms)
60-150	2C1 (MOU)	light olive brown (2.5Y5/4) sandy loam diamicton; friable; common pebbles <2cm.; rare, medium, prominent yellowish brown (10YR5/6) and strong brown (7.5YR4/6) mottles; strong effervescence, gradual boundary
150-215	2C2 (MOU)	light olive brown (2.5Y5/4) fine loamy sand diamicton; loose; pebble stringer with pebbles up to 3 cm. in diameter; rare, medium, prominent yellowish brown (10YR5/6) and strong brown (7.5YR4/6) mottles; strong effervescence, gradual boundary
215-280	2C3 (OU)	light yellowish brown (2.5Y6/4) fine sand; loose; common, medium, prominent strong brown (7.5 4/6) mottles; moderate effervescence, gradual boundary
280-457	2C4 (JOU)	light brownish gray (2.5Y6/2) and light olive brown (2.5Y5/3) loam diamicton; friable; prominent vertical joints with yellowish brown 10YR5/8 coatings from 280-340 cm and strong brown (7.5YR4/6) coatings from 380-457 cm.; strong effervescence, gradual boundary

Alden Mbr. (Dmm)

457-500	3C1 (MRU)	olive brown (2.5Y4/4) loam diamicton, common, medium prominent strong brown (7.5YR4/6) mottles; friable; moderate effervescence, gradual boundary
500-580	3C2 (MRU)	olive gray (5Y4/2) loam to silt loam diamicton; common, fine, prominent yellowish brown (10YR5/6) and few, medium, prominent dark gray (Chart 1 Gley 4/N) mottles; friable, moderate effervescence; clear boundary
580-700	3C3 (UU)	dark greenish gray (Chart 1 Gley 4/1 10Y) loam diamicton, firm; moderate effervescence. Wood collected from 585-601 cm.

Site Name: 77P-7

Location: 1/4NW sec. 23 T80N R25W
Landscape position: gentle slope on uplands
Parent material: colluvium/glacial diamicton
Vegetation: grass
Slope: 1-2%
Elevation: approximately 908 ft. (topo map)
Date described: 10/08/96
Described by: D.J. Quade and J. Krieg
Remarks: 7.6 cm. diameter core, mapped.

si - 358 - 5:2 cm

Depth (cm)	Soil Horizon (weathering zone)	Description
		DeForest Formation
		Undiff. (Fm)
0-30	A	very dark gray (10YR3/1) loam; weak, fine, granular, noneffervescent, gradual boundary
30-48	AB	very dark gray (10YR3/1) heavy loam; weak, fine subangular, friable, noneffervescent, gradual boundary
48-90	Bt1	light olive brown (2.5Y5/3) silty clay loam; firm; strong medium prismatic parting to medium subangular blocky; dark gray (10YR4/1) thick, continuous clay films on ped faces; noneffervescent gradual boundary
90-122	Bt2	light olive brown (2.5Y5/3) and grayish brown (2.5Y5/2) silty clay loam; firm; strong coarse prismatic parting to medium subangular blocky; fine, common, prominent yellowish brown (10YR5/8) mottles; dark gray (10YR4/1) thick, continuous clay films on ped faces; rare, medium manganese and iron concretions; noneffervescent; abrupt boundary
		Flack Mbr. (Dms)
122-130	BC	light olive brown (2.5Y5/3) and grayish brown (2.5Y5/2) sandy loam with stone line; pebbles <1cm in diameter, noneffervescent abrupt boundary
130-200	C1 (MOU)	light olive brown (2.5Y5/3) and grayish brown (2.5Y5/2) fine sand; loose; common, medium, prominent yellowish brown (10YR5/6-5/8) mottles; common, medium manganese and iron concretions noneffervescent abrupt boundary
200-213	C2 (MOU)	light olive brown (2.5Y5/3) and grayish brown (2.5Y5/2) coarse sand; loose; common, medium, prominent strong brown (7.5YR5/8) mottles; common, medium manganese and iron concretions noneffervescent abrupt boundary

		Dows Formation
		Morgan Mbr. (Dms)
213-381	2C1 (JOU)	light yellowish brown (2.5Y6/3) loam diamicton with interbedded light yellowish brown (2.5Y6/3) medium sand from 230-237 cm and very coarse pebbly sand from 340-366 cm with pebbles up to 2cm. in diameter; thick, prominent strong brown (7.5YR5/6-5/8 and 4/6) vertical joints; moderate effervescence, gradual boundary
381-394	2C2 (OU)	light olive brown (2.5Y5/4) very fine sand; loose, moderate effervescence; clear boundary
394-409	2C3 (OU)	grayish brown (2.5Y5/2) silt loam diamicton, firm; moderate effervescence, clear boundary
409-419	2C4 (OU)	light olive brown (2.5Y5/3) coarse sand; loose; moderate effervescence, abrupt boundary
		Alden Mbr. (Dmm)
419-465	3C1 (UJU)	dark greenish gray (Chart 1 Gley 4.5/1 10Y) loam diamicton; firm; thick, prominent strong brown (7.5YR4/6,5/8) and reddish brown (5YR4/4) coatings on vertical joints; moderate effervescence; clear boundary
465-490	3C2 (UU)	dark greenish gray (Chart 1 Gley 4.5/1 10Y) loam diamicton; firm; moderate effervescence
490-553	3C3 (UU)	gray (5Y5/1) very coarse sand; loose; moderate effervescence, clear boundary
553-595	3C4 (UU)	dark greenish gray (Chart 1 Gley 4.5/1 10Y) loam diamicton; firm; moderate effervescence

Site Name: 77P-8

Location: 1/4NW sec. 23 T80N R25W
Landscape position: gentle slope on uplands
Parent material: glacial diamicton
Vegetation: grass
Slope: 1%
Elevation: approximately 893 ft. (topo map)
Date described: 10/08/96
Described by: D.J. Quade and J. Krieg
Remarks: 7.6 cm. diameter core, mapped.

si = 29[illegible] - 35[illegible] cm

Depth (cm)	Soil Horizon (weathering zone)	Description
		DeForest Formation
		Undiff. (Fm)
0-16	A	very dark gray (10YR3/1) loam; weak, fine, granular, friable; noneffervescent, gradual boundary
16-30	AB	very dark gray (10YR3/1) loam; weak, very fine subangular, friable, noneffervescent, gradual boundary
30-60	Bt1	very dark gray (10YR3/1) silty clay loam; firm; moderate, medium subangular blocky parting to moderate coarse prismatic; dark gray (10YR4/1) thick, continuous clay films on ped faces; noneffervescent gradual boundary
60-111	Bt2	light olive brown (2.5Y5/3) and grayish brown (2.5Y5/2) silty clay loam; firm; strong coarse prismatic parting to medium subangular blocky; dark gray (10YR4/1) thick, continuous clay films on ped faces; noneffervescent; clear boundary
		Dows Formation
		Morgan Mbr. (Dms)
111-140	C1 (MRU)	light olive gray (5Y6/2) loam to silt loam; friable; common, medium, prominent strong brown (7.5YR4/6) and few, fine, prominent (10YR5/4) mottles; common and calcium carbonate concretions; common soft accumulations of calcium carbonate; no pebbles; weak effervescence; abrupt boundary
140-200	C2 (MRU)	light olive gray (5Y6/2) medium sand; loose; common, medium to coarse, prominent strong brown (7.5YR5/8) mottles; no pebbles; weak effervescence; clear boundary

200-265	C3 (MOU)	light olive brown (5Y6/3) very fine to fine sand; common, coarse, prominent dark yellowish brown (10YR4/4-4/6) mottles; pebbles less than <2 cm in diameter at base of unit; weak effervescence; clear boundary
265-410	C4 (MOU)	dark yellowish brown (10YR4/4) sandy loam diamicton; friable; few, medium, prominent gray (5Y6/1) mottles; moderate effervescence; clear boundary
410-436	C5 (MRU)	dark gray (2.5Y4/1) coarse sand; fine, common strong brown (7.5YR4/6) mottles; loose; moderate effervescence, clear boundary
		Alden Mbr. (Dmm)
436-575	2C1 (UU)	dark greenish gray (Chart 1 Gley 4.5/1 10Y) loam diamicton; very firm; moderate effervescence

Site Name: 77P-9

Location: 1/4NW sec. 22 T80N R25W
Landscape position: gentle slope of small knob
Parent material: colluvium/glacial diamicton
Vegetation: grass
Slope: 2-3%
Elevation: approximately 872 ft. (topo map)
Date described: 10/10/96
Described by: D.J. Quade and J. Krieg
Remarks: 7.6 cm. diameter core, mapped. UU sample collected at ~640 cm.

x̄ = 427-579 cm

Depth (cm)	Soil Horizon (weathering zone)	Description
		DeForest Fm.
		Flack Mbr. (Fm)
0-32	A	very dark grayish brown (10YR3/2) sandy loam; massive; friable; common pebbles up to 2 cm in diameter at base; noneffervescent, gradual boundary
		Flack Mbr. (Dms)
32-80	C1 (MOL)	yellowish brown (10YR5/6) matrix-supported (coarse sand matrix) pebble gravel; pebbles vary from 5mm to 5cm in diameter; strong brown (7.5YR4/6 iron segregations around large pebbles; loose; thin pale olive (5Y6/3) silt bed at 50 cm; noneffervescent, gradual boundary
80-127	C2 (OL)	dark yellowish brown (10YR4/6) medium to coarse pebble sand; loose; pebbles up to 2 cm in diameter; noneffervescent; clear boundary
		Dows Formation
		Morgan Mbr. (Dms)
127-169	2C1 (MJOL)	grayish brown to brown(10YR5/2-5/3) very fine sandy loam; friable; few, fine, faint; yellowish brown (10YR5/4) mottles; yellowish brown (10YR5/6-5/8) and strong brown (7.5YR4/6) iron segregations on joint faces; noneffervescent; clear boundary
169-245	2C2 (MOU)	yellowish brown to dark yellowish brown(10YR5/4-4/4) very fine sandy loam interbedded with a brown (10YR5/3) coarse sand bed at 210-218 cm and a yellowish red (5YR4/6) coarse sand bed at 240-245 cm; friable to loose; few, fine, faint yellowish brown (10YR5/6-5/8) mottles in sandy loam; moderate effervescence; clear boundary
245-300	2C3 (MJRU)	grayish brown (2.5Y5/2) loam to sandy loam; friable; few, fine, faint yellowish brown (10YR5/6-5/8) mottles; strong brown (7.5YR4/6) iron segregations and manganese on joint faces; moderate effervescence; abrupt boundary

Alden Mbr (Dmm)

300-400	3C1 (UJU)	dark gray (5Y4/1) sandy loam diamicton interbedded with medium sand; light olive brown (2.5Y5/4) sand at 322+ cm and pale olive (5Y4/2) sand at 396-400 cm; thin strong brown (7.5YR4/6) and thick (5YR4/4-3/4) iron segregations on joint faces; strong effervescence; clear boundary
400-695	3C2 (UU)	dark gray (5Y4/1) loam diamicton interbedded with dark gray (5Y4/1) fine sands at 410-442 cm, 455-468 cm and 627-634 cm; strong effervescence

Site Name: 77P-10

Location: 1/4NE sec. 22 T80N R25W
Landscape position: top of ridge east of Beaver Creek
Parent material: colluvium/glacial diamicton
Vegetation: grass
Slope: 1-2%
Elevation: approximately 850 ft. (topo map)
Date described: 10/10/96
Described by: D.J. Quade and J. Krieg
Remarks: 7.6 cm. diameter core, mapped.

SL = 565 - 625 cm

Depth (cm)	Soil Horizon (weathering zone)	Description
		DeForest Formation
		Undiff. (Fm)
0-20	A	very dark gray to very dark grayish brown (10YR3/1-3/2) sandy loam; massive; friable; noneffervescent, gradual boundary
20-35	Bw	dark grayish brown (10YR4/2) sandy loam; moderate, fine subangular blocky; very thin, discontinuous very dark gray (10YR3/1) coatings on ped faces; noneffervescent, gradual boundary
35-50	BC	brown to very dark grayish brown (10YR4/3-3/2) sandy loam; weak, fine subangular blocky; noneffervescent; clear boundary
		Flack Mbr. (Dms)
50-110	C1 (OL)	brown to strong brown (7.5YR4/4-4/6) loamy sand; occasional pebbles up to 5mm in diameter; noneffervescent; clear boundary
		Dows Formation
		Morgan Mbr. (Dms)
110-135	2C1 (MOL)	light olive brown(2.5Y5/4) loam diamicton; common, fine, prominent yellowish brown to dark yellowish brown 10YR5/8-3/4) mottles; noneffervescent; clear boundary
135-164	2C2 (OU)	light olive brown(2.5Y5/4) loam diamicton with few interbedded fine sand stringers with strong brown to brown (7.5YR4/6-3/4) iron segregations along bedding planes; moderate effervescence; clear boundary
164-255	3C1 (MDU)	pale olive (5Y6/3) silt loam; common medium, prominent yellowish brown (10YR5/6-5/8) and strong brown (7.5YR4/6) mottles; strong brown (7.5YR4/6) iron and manganese segregations on pipestems; strong effervescence; clear boundary

Alden Mbr. (Dmm)

255-335	4C1 (MRJU)	pale olive (5Y6/3-6/4) sandy loam diamicton; common, medium, prominent yellowish brown (10YR5/6-5/8) mottles, yellowish brown (10YR3/4) and reddish brown (5YR4/4) segregations on vertical joint faces; strong effervescence; gradual boundary
335-371	4C2 (MRJU)	olive (5Y5/3) loam diamicton; common, fine, prominent yellowish brown (10YR5/6) mottles, yellowish brown (10YR3/4) and reddish brown (5YR4/4) segregations on vertical joint faces; strong effervescence; gradual boundary
371-526	4C3 (RJU)	gray (5Y5/1) loam diamicton; thin light olive brown (2.5Y5/4) sand stringer from 524-526 cm; yellowish brown (10YR3/4) and reddish brown (5YR4/4) segregations on vertical joint faces; strong effervescence; gradual boundary
526-645	4C4 (UU)	dark gray (5Y4/1) loam diamicton; strong effervescence

Site Name: 77P-11

Location: 1/4SWsec. 22 T80N R25W
Landscape position: Late Wisconsinan terrace east of Beaver Creek
Parent material: alluvium/glacial diamicton
Vegetation: grass
Slope: 0-1%
Elevation: approximately 842 ft. (topo map)
Date described: 10/10/96
Described by: D.J. Quade and J. Krieg
Remarks: 7.6 cm. diameter core, mapped. UU sampled at 355-360 cm.

SI = 254 – 310 cm

Depth (cm)	Soil Horizon (weathering zone)	Description
		DeForest Formation
		Undiff. (Fm)
0-18	A	very dark gray (10YR3/1) sandy loam; massive; friable; noneffervescent, gradual boundary
18-30	AB	very dark gray (10YR3/1) sandy loam; weak, medium subangular blocky; noneffervescent, gradual boundary
30-56	Bw	very dark grayish brown (10YR3/2) loamy sand; moderate, medium subangular blocky; thin, discontinuous dark gray (10YR3/1) coatings on ped faces; noneffervescent; clear boundary
		Noah Creek Formation **(S-PGms(pl))**
56-69	BC	dark brown (10YR3/3) medium sand; occasional pebble stringers with pebbles up to 1 cm in diameter from 76-77 cm and 84-85 cm; dark gray (10YR3/1) coatings on root traces; noneffervescent; clear boundary
69-122	C1 (OL)	olive (5Y4/4) very coarse sand coarsening downward to a matrix-supported pebble gravel; very coarse pebbles to small cobble band from 105-122 cm; strong brown (7.5YR4/6) iron segregations around cobbles; noneffervescent; clear boundary
		Dows Formation
		Morgan Mbr. (Dms)
122-230	2C1 (MOU)	light grayish brown(2.5Y6/2.5) loam diamicton; common, medium, prominent strong brown (7.5YR5/4-5/6) and yellowish brown (10YR5/6-5/8) mottles; moderate effervescence; clear boundary
230-247	2C2 (MOU)	light olive brown (2.5Y5/4) medium sand; few pebbles <5mm in diameter; few, prominent yellowish brown (10YR5/6-5/8) mottles; moderate effervescence; clear boundary

Alden Mbr. (Dmm)

247-270	3C1 (MRJU)	olive gray (5Y5/2) very fine sandy loam diamicton; few, fine, prominent yellowish brown (10YR5/6-5/8) mottles; yellowish brown (10YR5/6-5/8) and strong brown (7.5YR4/6) iron segregations on vertical joint faces; moderate effervescence; gradual boundary
270-312	3C2 (RJU)	olive (5Y5/3) loam diamicton; yellowish brown (10YR5/6-5/8) and strong brown (7.5YR4/6) iron segregations on vertical joint faces; moderate effervescence; gradual boundary
312-330	3C3 (UJU)	dark gray (5Y4/1) loam diamicton; strong brown (7.5YR4/6) iron segregations on vertical joint faces; moderate effervescence; gradual boundary
330-370	4C4 (UU)	dark gray (5Y4/1) loam diamicton; moderate effervescence

Site Name: 77P-12

Location: 1/4NWsec. 22 T80N R25W
Landscape position: high shoulder slope of knob
Parent material: colluvium/loess/glacial diamicton
Vegetation: grass
Slope: 1%
Elevation: approximately 842 ft. (topo map)
Date described: 10/11/96
Described by: D.J. Quade and J. Krieg
Remarks: 7.6 cm. diameter core, mapped.

SI = 518 - 671 cm

Depth (cm)	Soil Horizon (weathering zone)	Description
		DeForest Formation
		Undiff. (Fm)
0-20	A	black (10YR2/1) sandy loam; massive; friable; noneffervescent, gradual boundary
20-27	AB	black (10YR2/1) fine sandy loam; moderate, medium subangular blocky; noneffervescent, gradual boundary
27-44	Bw	very dark grayish brown (10YR3/2) fine sandy loam; moderate to strong, medium subangular blocky; thin, very discontinuous very dark gray (10YR3/1) clay coatings on ped faces; noneffervescent; clear boundary
44-65	BC	very dark grayish brown (10YR3/2) fine sandy loam; weak, medium subangular blocky; thin, very discontinuous very dark gray (10YR3/1) clay coatings on ped faces; noneffervescent; clear boundary
		Flack Mbr. (Dms)
65-83	C1 (MOL)	dark yellowish brown (10YR4/4) sandy loam with occasional pebbles <1 cm in diameter; common, medium, faint dark yellowish brown (10YR4/6-4/8) mottles; noneffervescent; clear boundary
		Dows Formation
		Morgan Mbr. (Dms)
83-178	2C1 (MOL)	light yellowish brown (2.5Y6/3) silt loam; common, medium, prominent yellowish brown (10YR5/6-5/8) and coarse, common, prominent strong brown (7.5YR4/6) mottles; noneffervescent; clear boundary
178-227	2C2 (OL)	light olive brown (2.5Y5/3) silt loam; prominent brown to strong brown (7.5YR4/4; 4/6,5/6,5/8) iron segregations on pipestem features; few pebbles <5mm in diameter from 201-203 cm; few snails at base; noneffervescent; clear boundary

Alden Mbr. (Dmm)

227-345	3C1 (RJU)	light olive brown (2.5Y5/3) sandy loam diamicton; from prominent brown to strong brown (7.5YR4/4; 4/6,5/6,5/8) iron segregations and reddish brown (5YR4/4) iron segregations on vertical joint faces; moderate effervescence; gradual boundary
345-616	3C2 (RJU)	light olive brown (2.5Y5/3) sandy loam diamicton; prominent strong brown (7.5YR4/4-4/6) iron segregations on vertical joint faces; sand content increasing toward base, medium sand stringer from 566-570 cm.; strong effervescence; gradual boundary
616-692	3C3 (UU)	dark gray (5Y4/1) loam diamicton; strong effervescence; clear boundary
692-700	3C4 (OU)	yellowish brown (10YR5/4-5/6) medium sand; brown to strong brown (7.5YR4/4-4/6) iron cementation on sand; moderate effervescence

Site Name: 77P-13

Location: 1/4SW sec. 14 T80N R25W
Landscape position: foot slope of knob
Parent material: colluvium/glacial diamicton
Vegetation: grass
Slope: 2-3%
Elevation: approximately 871 ft. (topo map)
Date described: 10/11/96
Described by: D.J. Quade and J. Krieg
Remarks: 7.6 cm. diameter core, mapped. UU sample collected at ~472 cm.

Si = 379 - 439 cm

Depth (cm)	Soil Horizon (weathering zone)	Description
		DeForest Formation
		Undiff. (Fm)
0-11	A	black (7.5YR2.5/1) loam; massive; friable; noneffervescent, gradual boundary
11-23	BA	black (7.5YR2.5/1) loam; moderate, granular parting to fine subangular blocky; noneffervescent, gradual boundary
		Flack Mbr. (Dms)
23-77	Bt1	very dark gray to very dark grayish brown (10YR3/1-3/2) loamy sand; moderate fine to medium subangular blocky; thin, discontinuous black (7.5YR2.5/1) clay coatings on ped faces; medium sand stringer present from 45-48 cm; noneffervescent; gradual boundary
77-96	2Bt1	***Dows Formation***
		Morgan Mbr. (Dms) very dark grayish brown (10YR3/2) sandy loam; moderate to strong medium prismatic parting to medium to coarse subangular blocky; common, fine, distinct strong brown (7.5YR4/6) mottles; thin, black (7.5YR2.5/1) clay coatings on ped faces; noneffervescent; gradual boundary
96-140	2Bt2	brown (10YR4/3) sandy loam; strong coarse prismatic parting to coarse subangular blocky; common, medium, faint yellowish brown (10YR5/6-5/8) mottles; thin, continuous very dark grayish brown (10YR4/2) clay coatings on ped faces noneffervescent; gradual boundary
140-175	2BC (MOL)	light olive gray (5Y6/3) sandy loam; moderate coarse prismatic parting to coarse subangular blocky; common, medium, faint yellowish brown (10YR5/6-5/8) mottles; thin, continuous light olive gray (5Y6/2) clay coatings on ped faces noneffervescent; gradual boundary

175-210	2C1 (MOU)	light yellowish brown (2.5Y6/3) sandy loam interbedded with thin beds of fine to medium sand; many coarse distinct yellowish brown (10YR5/6-5/8) mottles; moderate effervescence; gradual boundary
210-297	2C2 (MOJU)	light yellowish brown (2.5Y6/3) sandy loam; many coarse distinct yellowish brown (10YR5/6-5/8) mottles; prominent strong brown (7.5YR4/6,5/6,5/8) iron segregations on vertical joint faces; moderate effervescence; gradual boundary
297-405	2C3 (RJU)	light yellowish brown (2.5Y6/3.5) sandy loam; prominent yellowish brown (10YR5/6-5/8) iron segregations on vertical joint faces; higher silt content than above; moderate effervescence; gradual boundary
		Alden Mbr. (Dmm)
405-410	3C1 (UJU)	dark greenish gray Chart 1 Gley (4/15GY) loam diamicton; prominent yellowish brown (10YR5/6-5/8) iron segregations on vertical joint faces; strong effervescence; clear boundary
410-472	3C2 (UU)	dark greenish gray Chart 1 Gley (4/15GY) loam diamicton; strong effervescence; gradual boundary
472-560	4C3 (UU)	dark gray (5Y4/1 loam diamicton; strong effervescence

Cemetery Landfill - View to east from Des Moines Ave.

Range Dump Landfill - View toward north from dirt road.

IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

MONTGOMERY WATSON

PHOTOGRAPHIC LOG

Scrap Iron Landfill - View toward south from access road.

Scrap Iron Landfill - View toward north from access road.

IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

MONTGOMERY WATSON

PHOTOGRAPHIC LOG

Scrap Iron Landfill - View toward north from southernmost extent.

Scrap Iron Landfill - Former coal dock foundation.

IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

MONTGOMERY WATSON

PHOTOGRAPHIC LOG

LAW Range Landfill - View toward northwest from southernmost extent.

LAW Range Landfill - View toward southwest from northernmost extent.

IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

MONTGOMERY WATSON

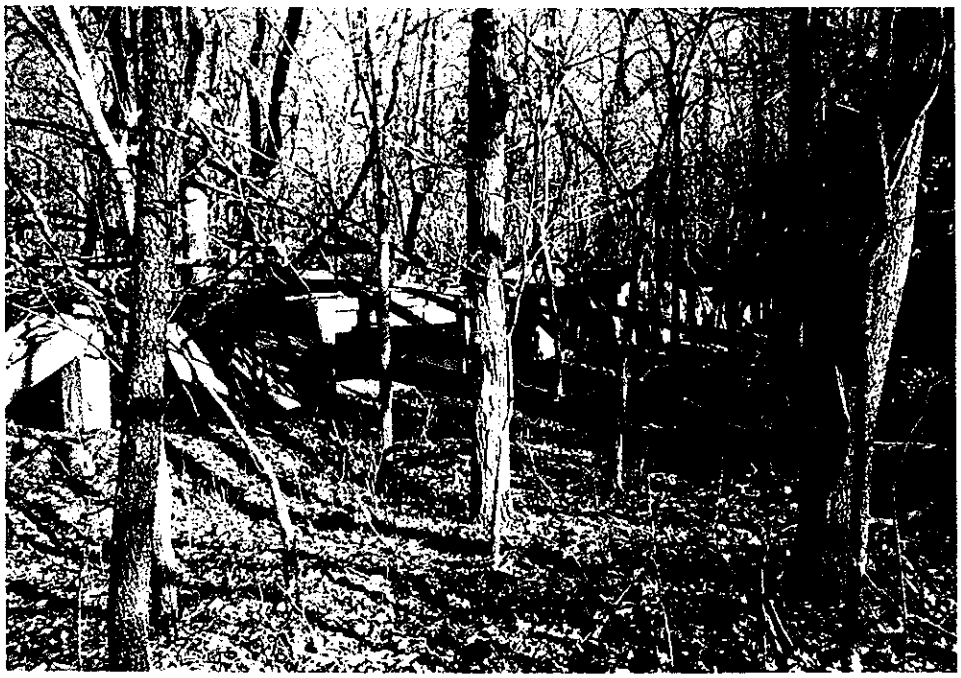
PHOTOGRAPHIC LOG

Gravel Pit Dump - View toward west from gravel road.

Gravel Pit Dump - View toward north.

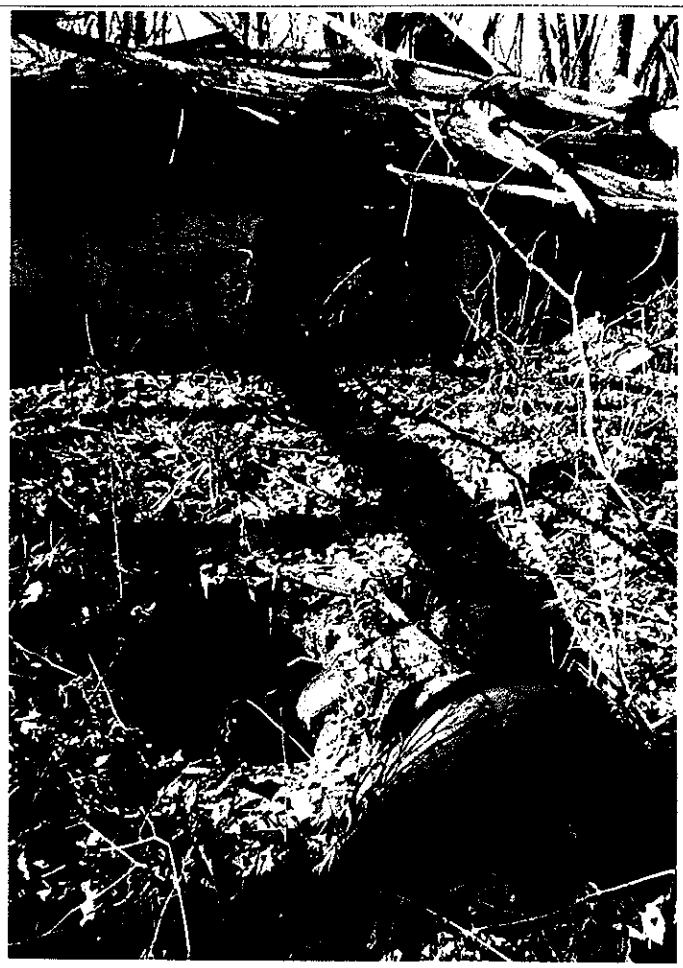
Kitchen Landfill - View toward west from Main Street. Site is located in field to right of building and trees.

Pond Landfill - View toward west, site located in tree area.



Incinerator area platform and foundation.

Incinerator foundation – note reinforced concrete beams fallen into foundation.



Brick manhole east of Incinerator foundation.

Hillslope east of Incinerator. Standing on floodplain of Beaver Creek.

IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

MONTGOMERY WATSON

PHOTOGRAPHIC LOG

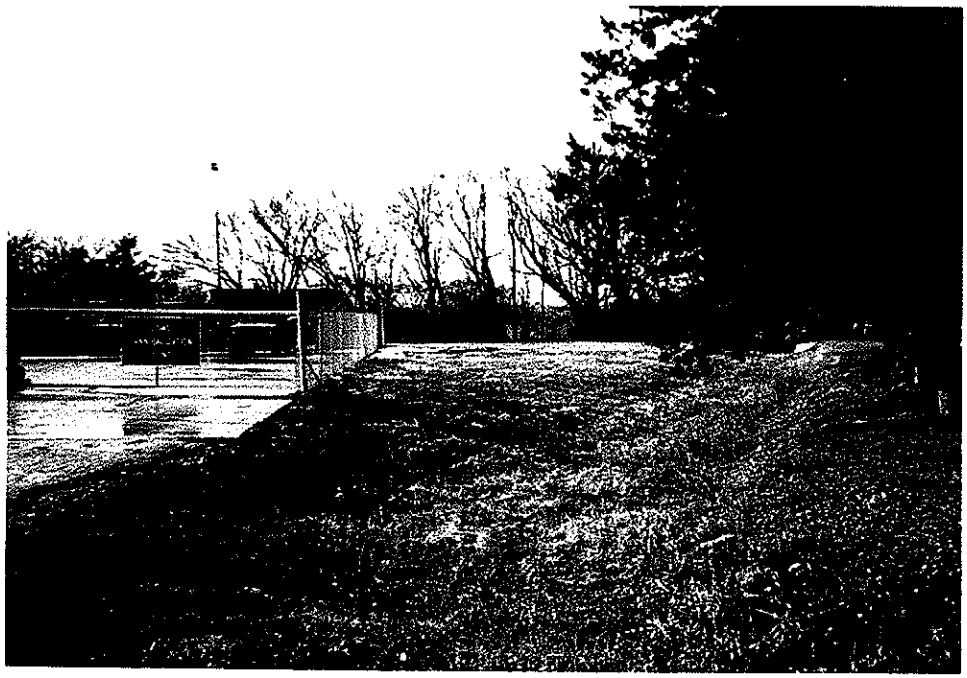
Demolition Pit - View toward north from LAW Range Landfill.

Demolition Pit - View to east toward locked gate and fence.

IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

MONTGOMERY WATSON

PHOTOGRAPHIC LOG



Former WWTP - View toward west.

Former WWTP - View toward east.

IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

MONTGOMERY WATSON

PHOTOGRAPHIC LOG

Ordnance building near Town of Herrold.

Monitoring well P-10.

IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

MONTGOMERY WATSON

PHOTOGRAPHIC LOG

Town of Herrold - EM31 Survey in vicinity of maintenance garage.

Town of Herrold - Corner lot associated with former gas station.

Container Storage Area in alley of Building S-4.

Fuel Product Pipeline area south of Building S-4.

IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

MONTGOMERY WATSON

PHOTOGRAPHIC LOG

Leach Bed Site - note flush mount monitoring well located in left portion of photo.

Camp Dodge well no. 8.

Betz Farm Site - View from NW 70th Ave.

Melos Farm Site - View toward west.

IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

MONTGOMERY WATSON

PHOTOGRAPHIC LOG

Grief Farm Site.

Grief Farm Site.

IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

MONTGOMERY WATSON

PHOTOGRAPHIC LOG

Herrold Farm - House and shed.

Herrold Farm - View of hillslope behind house from floodplain.

The EDR-Radius Map
with GeoCheck™

Camp Dodge
7700 NW Beaver Dr
Johnston, IA 50131

Inquiry Number: 0210347.1r

November 11, 1997

edr
e data resources, inc.

***The* Source For Environmental Risk Management Data**

3530 Post Road
Southport, Connecticut 06490

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

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APPENDICES

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Government Records Searched / Data Currency Tracking Addendum	A4

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 meets the government records search requirements of ASTM Standard Practice for Environmental Site Assessments, E 1527-97. Search distances are per ASTM standard or custom distances requested by the user.

The address of the subject property for which the search was intended is:

7700 NW BEAVER DR
JOHNSTON, IA 50131

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the subject property or within the ASTM E 1527-97 search radius around the subject property for the following Databases:

NPL:..... National Priority List
Delisted NPL:..... NPL Deletions
SHWS:..... Registry of Hazardous Waste or Hazardous Substance Disposal Sites
CERCLIS:..... Comprehensive Environmental Response, Compensation, and Liability Information System
CERC-NFRAP:..... Comprehensive Environmental Response, Compensation, and Liability Information System
SWF/LF:..... Permitted Solid Waste Management Facilities
LUST:..... Leaking Underground Storage Tank Data
RCRIS-SQG:..... Resource Conservation and Recovery Information System
HMIRS:..... Hazardous Materials Information Reporting System
PADS:..... PCB Activity Database System
TRIS:..... Toxic Chemical Release Inventory System
NPL Lien:..... Federal Superfund Liens
TSCA:..... Toxic Substances Control Act
MLTS:..... Material Licensing Tracking System
ROD:..... Records Of Decision
CONSENT:..... Superfund (CERCLA) Consent Decrees
Coal Gas:..... Former Manufactured gas (Coal Gas) Sites.

Unmapped (orphan) sites are not considered in the foregoing analysis.

Search Results:

Search results for the subject property and the search radius, are listed below:

Subject Property:

The subject property was identified in the following government records. For more information on this property see page 9 of the attached EDR Radius Map report:

Site	Database(s)	EPA ID
CAMP DODGE TRAINING SITE BLDG W 46, 7700 NW BEAVER DR JOHNSTON, IA 50131	UST	N/A
CAMP DODGE, 7700 NW BEAVER DR. CAMP DODGE, 7700 NW BEAVER DR. JOHNSTON, IA 50131	ERNS	N/A

EXECUTIVE SUMMARY

IOWA NATIONAL GUARD - CAMP DODGE 7700 NW BEAVER DR JOHNSTON, IA 50131	FINDS RCRIS-LQG RCRIS-TSD RAATS CORRACTS	IAD981504285
CAMP DODGE TRAINING SITE 7700 NW BEAVER DR BLDG AB JOHNSTON, IA 50131	FINDS	IA2211819220
STATE OF IOWA MAINTENANCE SHOP 7700 NW BEAVER DR CAMP DODGE JOHNSTON, IA 50131	FINDS	IAD981712698

EXECUTIVE SUMMARY

Surrounding Properties:

Elevations have been determined from the USGS 1 degree 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. EDR's definition of a site with an elevation equal to the subject property includes a tolerance of -10 feet. Sites with an elevation equal to or higher than the subject property have been differentiated below from sites with an elevation lower than the subject property (by more than 10 feet). 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.

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 comes from the Department of Natural Resources' Underground Storage Tank Data list.

A review of the UST list, as provided by EDR, and dated 07/01/1997 has revealed that there is 1 UST site within approximately 0.75 Miles of the subject property.

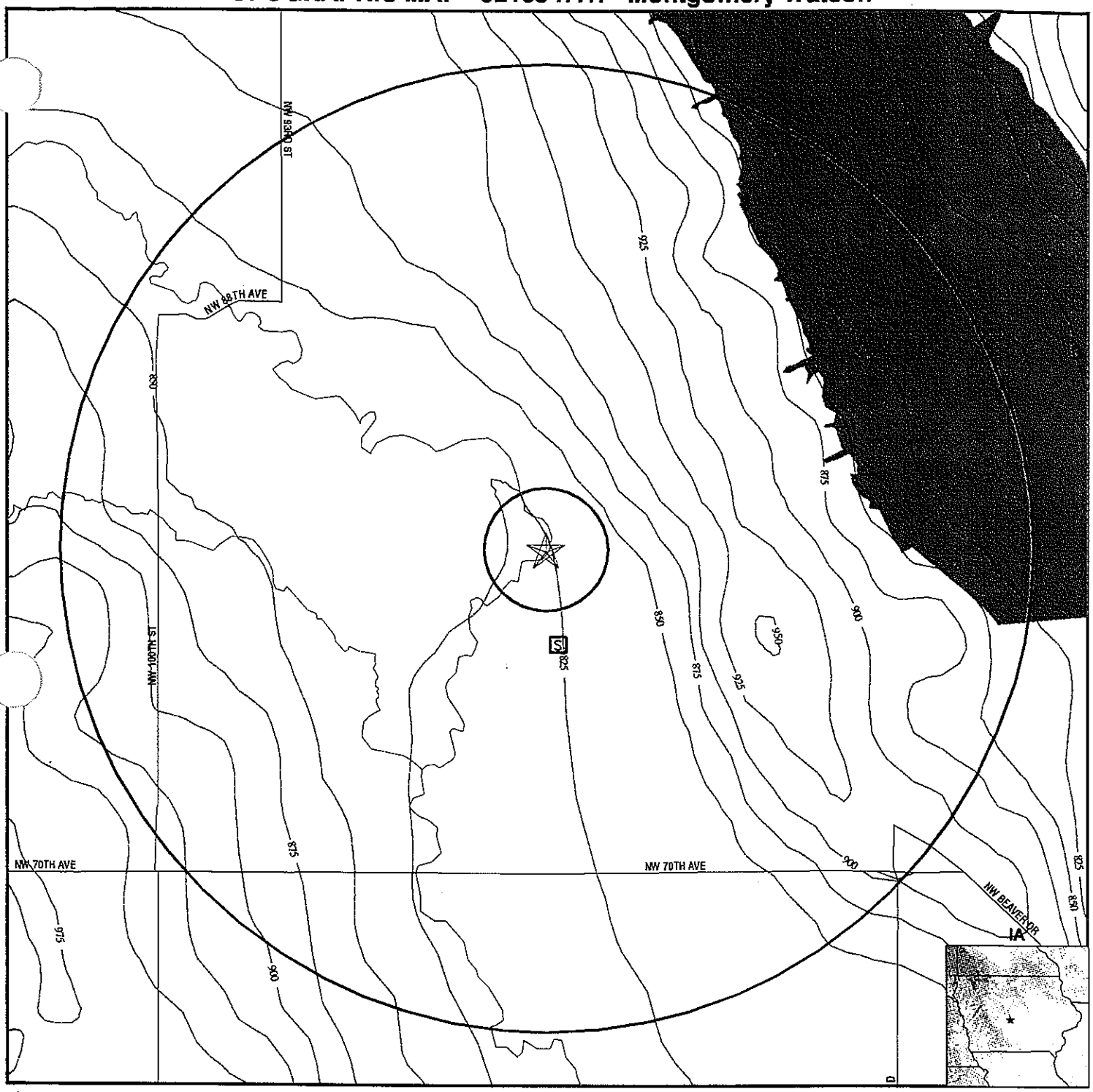
Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
Not reported	8348 NW 86	1/2 - 1 WNW	6	19

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped:

Site Name	Database(s)
SAFETY-KLEEN-GRIMES/FORMER SITE OF	RCRIS-SQG,FINDS,RCRIS-TSD RAATS,CORRACTS
CENTRAL C&D RECYCLING, INC. SI	SWF/LF
METROPOLITAN TRANSFER STATION	SWF/LF
RAYMOND M URFER	UST
PETERS CONSTRUCTION	UST
CAMP DODGE NATIONAL GUARD	FINDS

TOPOGRAPHIC MAP - 0210347.1r - Montgomery Watson



- Major Roads
- Contour Lines
- Waterways
- Earthquake epicenter, Richter 5 or greater
- Federal Wells
- State Wells
- Public Water Supply Wells

0 1/2 1 2 Miles

TARGET PROPERTY:	Camp Dodge	CUSTOMER:	Montgomery Watson
ADDRESS:	7700 NW Beaver Dr	CONTACT:	Keith Schilling
CITY/STATE/ZIP:	Johnston IA 50131	INQUIRY #:	0210347.1r
LAT/LONG:	41.7075 / 93.7251	DATE:	November 11, 1997 12:13 pm

GEOCHECK VERSION 2.1
SUMMARY

TARGET PROPERTY COORDINATES

Latitude (North):	41.707539 - 41˚ 42' 27.1"
Longitude (West):	93.725098 - 93˚ 43' 30.4"
Universal Transverse Mercator:	Zone 15
UTM X (Meters):	439672.9
UTM Y (Meters):	4617346.5

GEOLOGIC AGE IDENTIFICATION†

Geologic Code:	PP2
Era:	Paleozoic
System:	Pennsylvanian
Series:	Des Moinesian Series

ROCK STRATIGRAPHIC UNIT†

Category:	Stratifed Sequence

GROUNDWATER FLOW 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, including well data collected on nearby properties, regional groundwater flow information (from deep aquifers), or surface topography.‡

General Topographic Gradient:	General SW
General Hydrogeologic Gradient:	No hydrogeologic data available.

USGS TOPOGRAPHIC MAP ASSOCIATED WITH THIS SITE

Target Property:	2441093-F6 DES MOINES NW, IA

SEARCH DISTANCE RADIUS INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal Database	0.500
State Database	0.500
PWS Database	0.500

FEDERAL DATABASE WELL INFORMATION

WELL DIRECTION	DISTANCE FROM TP	LITHOLOGY	DEPTH TO WATER TABLE
NO WELLS FOUND			

STATE DATABASE WELL INFORMATION

WELL DIRECTION	DISTANCE FROM TP
South	1/4 - 1/2 Mile

† 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).
‡ U.S. EPA Ground Water Handbook, Vol I: Ground Water and Contamination. Office of Research and development EPA/625/6-90/016a,Chapter 4, page 78. September 1990.

GEOCHECK VERSION 2.1
SUMMARY

PUBLIC WATER SUPPLY SYSTEM INFORMATION

NO WELLS FOUND

AREA RADON INFORMATION

EPA Radon Zone for POLK County: 1 .

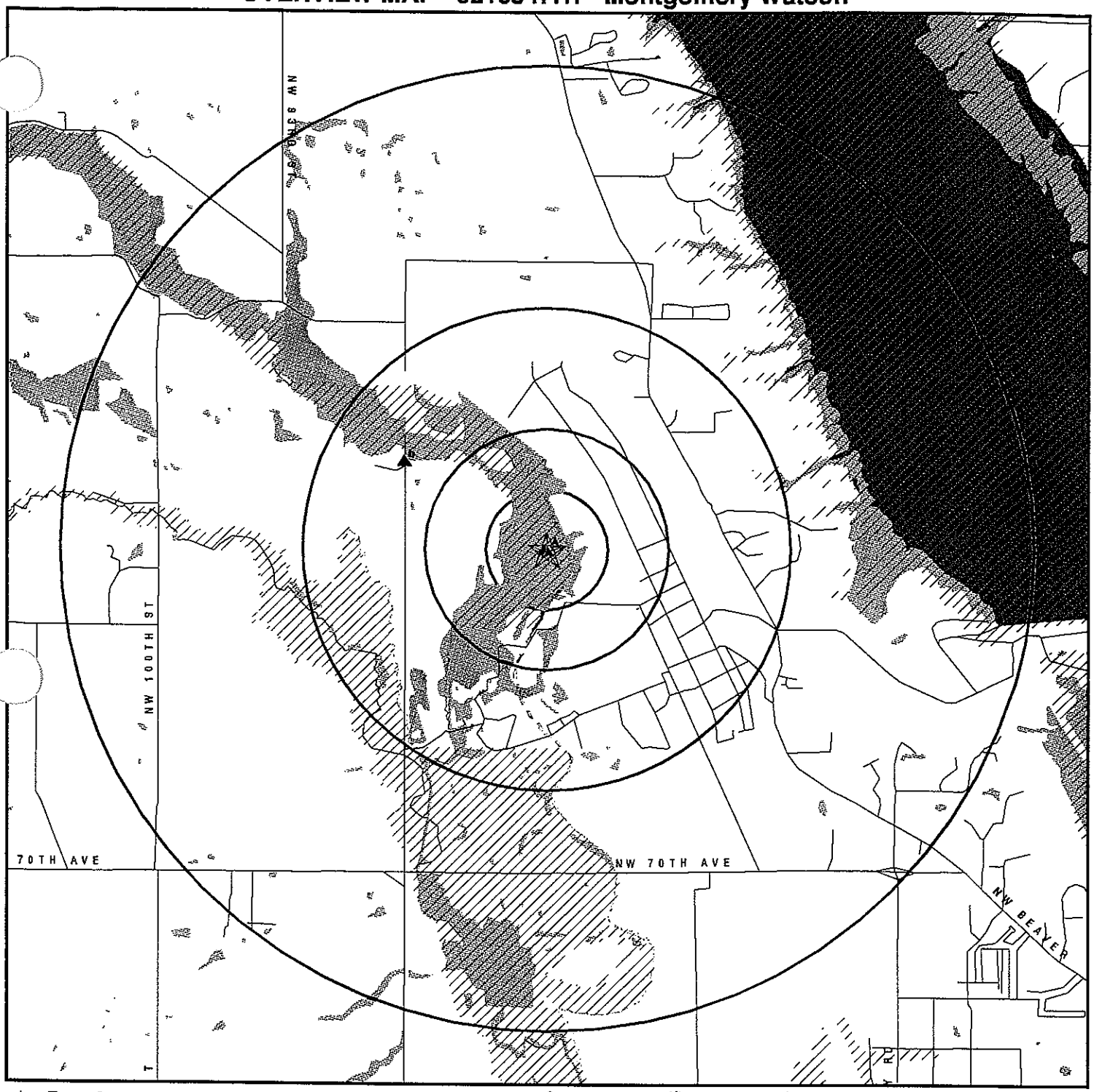
Note: Zone 1 indoor average level > 4pCi/L.
: Zone 2 indoor average level >= 2pCi/L.
: Zone 3 indoor average level < 2pCi/L.

Zip Code: 50131

Number of sites tested: 1

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	Not Reported	Not Reported	Not Reported	Not Reported
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	13.100 pCi/L	0%	100%	0%

OVERVIEW MAP - 0210347.1r - Montgomery Watson



★ Target Property

▲ Sites at elevations higher than or equal to the target property

◆ Sites at elevations lower than the target property

Coal Gasification Sites (if requested)

National Priority List Sites

Landfill Sites

Power transmission lines

Oil & Gas pipelines

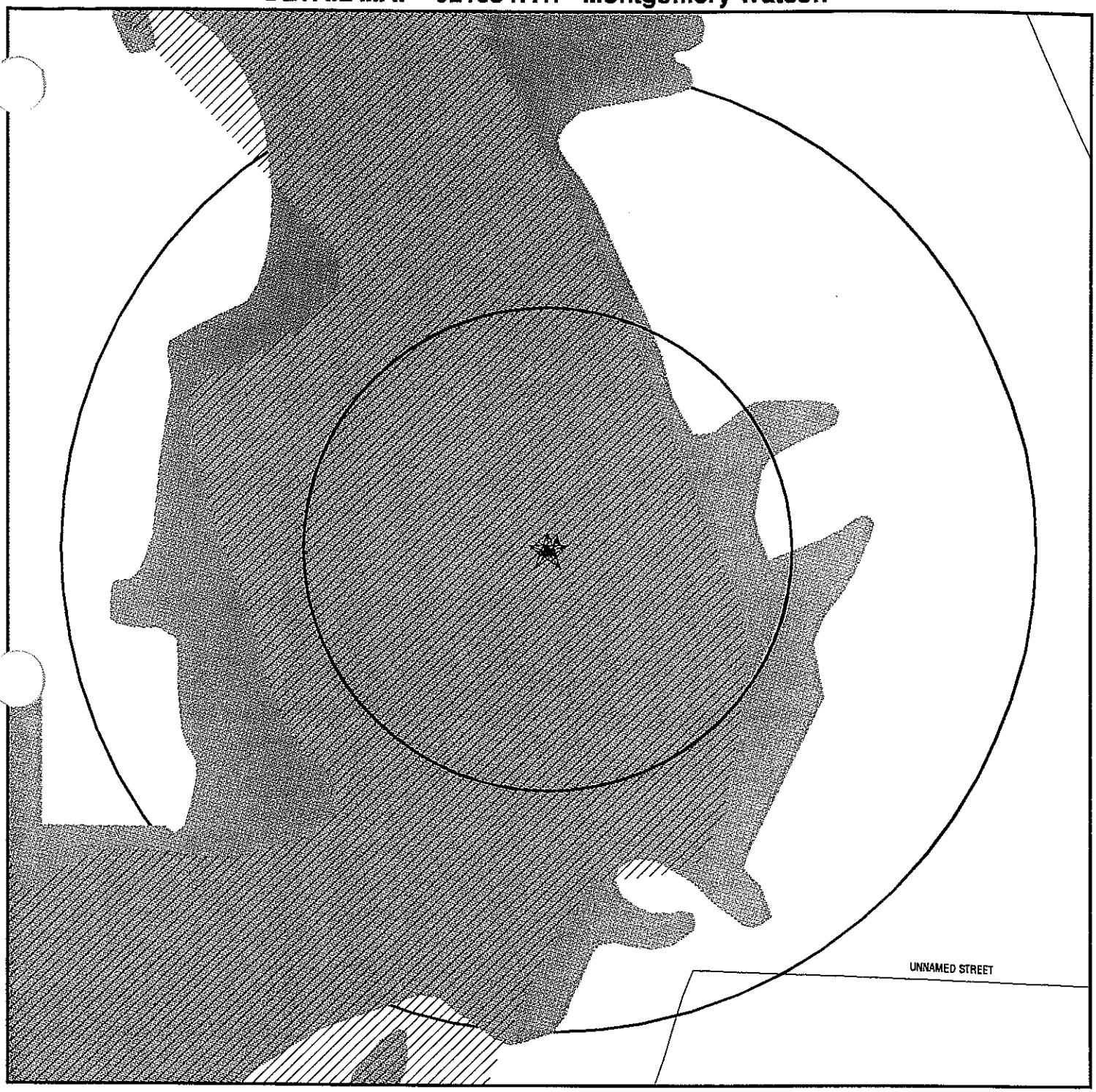
100-year flood zone

500-year flood zone

Wetlands per National Wetlands Inventory (1994)

TARGET PROPERTY:	Camp Dodge	CUSTOMER:	Montgomery Watson
ADDRESS:	7700 NW Beaver Dr	CONTACT:	Keith Schilling
CITY/STATE/ZIP:	Johnston IA 50131	INQUIRY #:	0210347.1r
LAT/LONG:	41.7075 / 93.7251	DATE:	November 11, 1997 12:11 pm

DETAIL MAP - 0210347.1r - Montgomery Watson



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

Coal Gasification Sites (if requested)

Sensitive Receptors

National Priority List Sites

Landfill Sites

Power transmission lines

Oil & Gas pipelines

100-year flood zone

500-year flood zone

Wetlands per National Wetlands Inventory (1994)

TARGET PROPERTY:	Camp Dodge	CUSTOMER:	Montgomery Watson
ADDRESS:	7700 NW Beaver Dr	CONTACT:	Keith Schilling
CITY/STATE/ZIP:	Johnston IA 50131	INQUIRY #:	0210347.1r
LAT/LONG:	41.7075 / 93.7251	DATE:	November 11, 1997 12:12 pm

MAP FINDINGS SUMMARY SHOWING ALL SITES

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
NPL		1.500	0	0	0	0	0	0
Delisted NPL		0.500	0	0	0	NR	NR	0
RCRIS-TSD	X	1.500	0	0	0	0	0	0
State Haz. Waste		1.500	0	0	0	0	0	0
CERCLIS		1.000	0	0	0	0	NR	0
CERC-NFRAP		0.500	0	0	0	NR	NR	0
CORRACTS	X	1.500	0	0	0	0	0	0
State Landfill		1.000	0	0	0	0	NR	0
LUST	-	1.000	0	0	0	0	NR	0
UST	X	0.750	0	0	0	1	NR	1
RAATS	X	0.500	0	0	0	NR	NR	0
RCRIS Sm. Quan. Gen.		0.750	0	0	0	0	NR	0
RCRIS Lg. Quan. Gen.	X	0.750	0	0	0	0	NR	0
HMIRS		0.500	0	0	0	NR	NR	0
PADS		0.500	0	0	0	NR	NR	0
ERNS	X	0.500	0	0	0	NR	NR	0
FINDS	X	0.500	0	0	0	NR	NR	0
TRIS		0.500	0	0	0	NR	NR	0
NPL Liens		0.500	0	0	0	NR	NR	0
TSCA		0.500	0	0	0	NR	NR	0
MLTS		0.500	0	0	0	NR	NR	0
ROD		1.500	0	0	0	0	0	0
CONSENT		1.500	0	0	0	0	0	0
Coal Gas		1.500	0	0	0	0	0	0

TP = Target Property

NR = Not Requested at this Search Distance

* Sites may be listed in more than one database

MAP FINDINGS SUMMARY SHOWING ONLY SITES HIGHER THAN OR THE SAME ELEVATION AS TP

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
NPL		1.500	0	0	0	0	0	0
Delisted NPL		0.500	0	0	0	NR	NR	0
RCRIS-TSD	X	1.500	0	0	0	0	0	0
State Haz. Waste		1.500	0	0	0	0	0	0
CERCLIS		1.000	0	0	0	0	NR	0
CERC-NFRAP		0.500	0	0	0	NR	NR	0
CORRACTS	X	1.500	0	0	0	0	0	0
State Landfill		1.000	0	0	0	0	NR	0
LUST	-	1.000	0	0	0	0	NR	0
UST	X	0.750	0	0	0	1	NR	1
RAATS	X	0.500	0	0	0	NR	NR	0
RCRIS Sm. Quan. Gen.		0.750	0	0	0	0	NR	0
RCRIS Lg. Quan. Gen.	X	0.750	0	0	0	0	NR	0
HMIRS		0.500	0	0	0	NR	NR	0
PADS		0.500	0	0	0	NR	NR	0
ERNS	X	0.500	0	0	0	NR	NR	0
FINDS	X	0.500	0	0	0	NR	NR	0
TRIS		0.500	0	0	0	NR	NR	0
NPL Liens		0.500	0	0	0	NR	NR	0
TSCA		0.500	0	0	0	NR	NR	0
MLTS		0.500	0	0	0	NR	NR	0
ROD		1.500	0	0	0	0	0	0
CONSENT		1.500	0	0	0	0	0	0
Coal Gas		1.500	0	0	0	0	0	0

TP = Target Property

NR = Not Requested at this Search Distance

* Sites may be listed in more than one database

Coal Gas Site Search: No site was found in a search of Real Property Scan's ENVIROHAZ database.

A3 Target Property | **CAMP DODGE TRAINING SITE**
BLDG W 46, 7700 NW BEAVER DR
JOHNSTON, IA 50131 | **UST** | **U001869598**
N/A

UST:

Facility ID:	8605890	Owner Tel:	(515) 242-5557
Facility Tel:	Not reported	Total Tanks:	6
Facility Contact:	Not reported		
Facility Status:	Regulated tanks - active		
Owner Name:	AGIA-FAC-E BLDG B-61, 7700 NW BEAVER DR JOHNSTON, IA 50131 - 1902		
Business Tel:	Not reported		
Business Name:	AGO IOWA BLDG 46, 7700 NW BEAVER DR JOHNSTON, IA 50131 - 1902		
Auth. Person Tel:	Not reported		
Authorized Person:	Not reported Not reported Not reported		
Owner Status:	Current	Owner Type:	Federal
Receiving Person:	CURTIS L MADSEN, ENIVORNMENTAL SPECIALIST		
Reg. Form Signed:	Yes		
Tank Number:	1		
Tank Status:	Regulated tanks - removed or filled		
Use of Tank:	Permanently closed	Capacity (gal):	1000
Tank Closed/Inert:	Not reported	Tank Removed:	Yes
Closure Report:	Has been received and reviewed		
Ref. as Leaking:	Not reported	Tank Substance:	Gasoline
Tank Type:	Other		
Tank Constr.:	Steel		
Piping Type:	Galvanized Steel		
Replaced pip.:	Not reported		
Tank Lined:	Not reported		
Tank Int. Prot.:	Not reported		
Tank Ext. Prot.:	Not reported		
Line Leak Det.:	Not reported		
Release Det.:	Not reported		
Install. Method:	Not reported		
Corrosion Prot.:	Not reported		
Policy Date:	Not reported	Policy Type:	Not reported
Policy Number:	Not reported	Financial Resp:	Not reported
Insurer Name:	Not reported		
Start Date:	Not reported	DNR Name:	Not reported
Date Recorded:	Not reported	Recorder Location:	Not reported
Reporting Person:	Not reported	Business Name:	Not reported
Report Date:	Not reported	Rep. Person Tel:	Not reported
Rep. Person Addr:	Not reported Not reported		
DNR Notified:	Not reported	Date Leak Found:	Not reported
Record Status:	Not reported		
Resp. Entity:	Not Defined	Resp. Staff:	Not reported
Resp. Field Person:	Not reported		
Contact Person:	Not reported	Contact Tel:	Not reported
Leak Discovery:	Not reported	Leak Cause:	Not reported

CAMP DODGE TRAINING SITE (Continued) U001869598

Released Product:	Not reported		
Leak Status:	Not reported		
Device Status:	Not reported	Monitor Method:	Not reported
Leak Location:	Not reported		
Threatened Res.:	Not reported	Official:	Not reported
Lab Analysis:	Not reported	Due Date Chngs:	Not reported
Analysis Due:	//	Analysis Rcvd:	//
Start Assess.:	//	Consult. Assess.:	//
Ass. Due Chngs:	Not reported	Assess. Recvd:	//
Assess. Plan:	Not reported	Ass. Plan Due:	//
Plan Due Chngs:	Not reported		
Report Due Chngs:	Not reported	Report Recvd:	//
Report Approved:	//	Ass. Completed:	//
Cleanup Achvd:	Not reported	Cleanup Date:	//
Cleanup Due Chngs:	Not reported		
Cleanup Complete:	//	Contr. Firm Tel:	Not reported
Consulting Firm:	Not reported		
Consult. Manager:	Not reported	Consl. Firm Tel:	Not reported
Consl. Addr:	Not reported		
	Not reported		
Owner ID:	Not reported		
Owner Broke:	Not reported	Resp. Party ID:	Not reported
Emergency Date:	Not reported	Resp. ID Date:	Not reported
Admin. Order Date:	Not reported	Order Date Chngs:	Not reported
Attorn. Gen. Date:	Not reported	A. Gen. Date Chngs:	Not reported
Ref. to Bur. Chief:	Not reported	Bur. Ref. Revs:	Not reported
Ref. to Legal Svc:	Not reported	Legal Ref. Revs:	Not reported
Admin. Order Issd:	Not reported	Ref. for Action:	Not reported
Ref. in Compli:	Not reported	Trst Fnd Expense:	Not reported
Cleanup Expense:	Not reported	Enfrcmnt Expense:	Not reported
Non-TF Support:	Not reported	Non-TF Cleanup:	Not reported
Non-TF Enfrcmnt:	Not reported	Priority Rank:	Not reported
Facility ID:	8605890	Owner Tel:	(515) 242-5557
Facility Tel:	Not reported	Total Tanks:	6
Facility Contact:	Not reported		
Facility Status:	Regulated tanks - active		
Owner Name:	AGIA-FAC-E		
	BLDG B-61, 7700 NW BEAVER DR		
	JOHNSTON, IA 50131 - 1902		
Business Tel:	Not reported		
Business Name:	AGO IOWA		
	BLDG 46, 7700 NW BEAVER DR		
	JOHNSTON, IA 50131 - 1902		
Auth. Person Tel:	Not reported		
Authorized Person:	Not reported		
	Not reported		
	Not reported		
Owner Status:	Current	Owner Type:	Federal
Receiving Person:	CURTIS L MADSEN, ENIVORNMENTAL SPECIALIST		
Reg. Form Signed:	Yes		
Tank Number:	2		
Tank Status:	Regulated tanks - removed or filled		
Use of Tank:	Permanently closed	Capacity (gal):	1000
Tank Closed/Inert:	Not reported	Tank Removed:	Yes
Closure Report:	Has been received and reviewed		
Ref. as Leaking:	Not reported	Tank Substance:	Diesel

CAMP DODGE TRAINING SITE (Continued) — U001869598

Tank Type:	Other		
Tank Constr.:	Steel		
Piping Type:	Galvanized Steel		
Replaced pip.:	Not reported		
Tank Lined:	Not reported		
Tank Int. Prot.:	Not reported		
Tank Ext. Prot.:	Not reported		
Line Leak Det.:	Not reported		
Release Det.:	Not reported		
Install. Method:	Not reported		
Corrosion Prot.:	Not reported		
Policy Date:	Not reported	Policy Type:	Not reported
Policy Number:	Not reported	Financial Resp:	Not reported
Insurer Name:	Not reported		
Start Date:	Not reported	DNR Name:	Not reported
Date Recorded:	Not reported	Recorder Location:	Not reported
Reporting Person:	Not reported	Business Name:	Not reported
Report Date:	Not reported	Rep. Person Tel:	Not reported
Rep. Person Addr:	Not reported		
	Not reported		
DNR Notified:	Not reported	Date Leak Found:	Not reported
Record Status:	Not reported		
Resp. Entity:	Not Defined	Resp. Staff:	Not reported
Resp. Field Person:	Not reported		
Contact Person:	Not reported	Contact Tel:	Not reported
Leak Discovery:	Not reported	Leak Cause:	Not reported
Released Product:	Not reported		
Leak Status:	Not reported		
Device Status:	Not reported	Monitor Method:	Not reported
Leak Location:	Not reported		
Threatened Res.:	Not reported	Official:	Not reported
Lab Analysis:	Not reported	Due Date Chngs:	Not reported
Analysis Due:	//	Analysis Rcvd:	//
Start Assess.:	//	Consult. Assess.:	//
Ass. Due Chngs:	Not reported	Assess. Recvd:	//
Assess. Plan:	Not reported	Ass. Plan Due:	//
Plan Due Chngs:	Not reported		
Report Due Chngs:	Not reported	Report Recvd:	//
Report Approved:	//	Ass. Completed:	//
Cleanup Achvd:	Not reported	Cleanup Date:	//
Cleanup Due Chngs:	Not reported		
Cleanup Complete:	//	Contr. Firm Tel:	Not reported
Consulting Firm:	Not reported		
Consult. Manager:	Not reported	Consl. Firm Tel:	Not reported
Consl. Addr:	Not reported		
	Not reported		
Owner ID:	Not reported		
Owner Broke:	Not reported	Resp. Party ID:	Not reported
Emergency Date:	Not reported	Resp. ID Date:	Not reported
Admin. Order Date:	Not reported	Order Date Chngs:	Not reported
Attorn. Gen. Date:	Not reported	A. Gen. Date Chngs:	Not reported
Ref. to Bur. Chief:	Not reported	Bur. Ref. Revs:	Not reported
Ref. to Legal Svc:	Not reported	Legal Ref. Revs:	Not reported
Admin. Order Issd:	Not reported	Ref. for Action:	Not reported
Ref. in Compli:	Not reported	Trst Fnd Expense:	Not reported
Cleanup Expense:	Not reported	Enfrcmnt Expense:	Not reported
Non-TF Support:	Not reported	Non-TF Cleanup:	Not reported

CAMP DODGE TRAINING SITE (Continued) U001869598

Non-TF Enfrcmnt:	Not reported	Priority Rank:	Not reported
Facility ID:	8605890	Owner Tel:	(515) 242-5557
Facility Tel:	Not reported	Total Tanks:	6
Facility Contact:	Not reported		
Facility Status:	Regulated tanks - active		
Owner Name:	AGIA-FAC-E BLDG B-61, 7700 NW BEAVER DR JOHNSTON, IA 50131 - 1902		
Business Tel:	Not reported		
Business Name:	AGO IOWA BLDG 46, 7700 NW BEAVER DR JOHNSTON, IA 50131 - 1902		
Auth. Person Tel:	Not reported		
Authorized Person:	Not reported Not reported Not reported		
Owner Status:	Current	Owner Type:	Federal
Receiving Person:	CURTIS L MADSEN, ENIVORNMENTAL SPECIALIST		
Reg. Form Signed:	Yes		
Tank Number:	3		
Tank Status:	Regulated tanks - removed or filled		
Use of Tank:	Permanently closed	Capacity (gal):	5000
Tank Closed/Inert:	N	Tank Removed:	Yes
Closure Report:	Not reported		
Ref. as Leaking:	Not reported	Tank Substance:	Gasoline
Tank Type:	Other		
Tank Constr.:	Steel		
Piping Type:	Galvanized Steel		
Replaced pip.:	Not reported		
Tank Lined:	Not reported		
Tank Int. Prot.:	Not reported		
Tank Ext. Prot.:	Not reported		
Line Leak Det.:	Not reported		
Release Det.:	Not reported		
Install. Method:	Not reported		
Corrosion Prot.:	Not reported		
Policy Date:	Not reported	Policy Type:	Not reported
Policy Number:	Not reported	Financial Resp:	Not reported
Insurer Name:	Not reported		
Start Date:	Not reported	DNR Name:	Not reported
Date Recorded:	Not reported	Recorder Location:	Not reported
Reporting Person:	Not reported	Business Name:	Not reported
Report Date:	Not reported	Rep. Person Tel:	Not reported
Rep. Person Addr:	Not reported Not reported		
DNR Notified:	Not reported	Date Leak Found:	Not reported
Record Status:	Not reported		
Resp. Entity:	Not Defined	Resp. Staff:	Not reported
Resp. Field Person:	Not reported		
Contact Person:	Not reported	Contact Tel:	Not reported
Leak Discovery:	Not reported	Leak Cause:	Not reported
Released Product:	Not reported		
Leak Status:	Not reported		
Device Status:	Not reported	Monitor Method:	Not reported
Leak Location:	Not reported		
Threatened Res.:	Not reported	Official:	Not reported

CAMP DODGE TRAINING SITE (Continued) **U001869598**

Lab Analysis:	Not reported	Due Date Chngs:	Not reported
Analysis Due:	//	Analysis Rcvd:	//
Start Assess.:	//	Consult. Assess.:	//
Ass. Due Chngs:	Not reported	Assess. Recvd:	//
Assess. Plan:	Not reported	Ass. Plan Due:	//
Plan Due Chngs:	Not reported		
Report Due Chngs:	Not reported	Report Recvd:	//
Report Approved:	//	Ass. Completed:	//
Cleanup Achvd:	Not reported	Cleanup Date:	//
Cleanup Due Chngs:	Not reported		
Cleanup Complete:	//	Contr. Firm Tel:	Not reported
Consulting Firm:	Not reported		
Consult. Manager:	Not reported	Consl. Firm Tel:	Not reported
Consl. Addr:	Not reported		
	Not reported		
Owner ID:	Not reported		
Owner Broke:	Not reported	Resp. Party ID:	Not reported
Emergency Date:	Not reported	Resp. ID Date:	Not reported
Admin. Order Date:	Not reported	Order Date Chngs:	Not reported
Attorn. Gen. Date:	Not reported	A. Gen. Date Chngs:	Not reported
Ref. to Bur. Chief:	Not reported	Bur. Ref. Revs:	Not reported
Ref. to Legal Svc:	Not reported	Legal Ref. Revs:	Not reported
Admin. Order Issd:	Not reported	Ref. for Action:	Not reported
Ref. in Compli:	Not reported	Trst Fnd Expense:	Not reported
Cleanup Expense:	Not reported	Enfrcmnt Expense:	Not reported
Non-TF Support:	Not reported	Non-TF Cleanup:	Not reported
Non-TF Enfrcmnt:	Not reported	Priority Rank:	Not reported
Facility ID:	8605890	Owner Tel:	(515) 242-5557
Facility Tel:	Not reported	Total Tanks:	6
Facility Contact:	Not reported		
Facility Status:	Regulated tanks - active		
Owner Name:	AGIA-FAC-E		
	BLDG B-61, 7700 NW BEAVER DR		
	JOHNSTON, IA 50131 - 1902		
Business Tel:	Not reported		
Business Name:	AGO IOWA		
	BLDG 46, 7700 NW BEAVER DR		
	JOHNSTON, IA 50131 - 1902		
Auth. Person Tel:	Not reported		
Authorized Person:	Not reported		
	Not reported		
	Not reported		
Owner Status:	Current	Owner Type:	Federal
Receiving Person:	CURTIS L MADSEN. ENIVORNMENTAL SPECIALIST		
Reg. Form Signed:	Yes		
Tank Number:	4		
Tank Status:	Regulated tanks - removed or filled		
Use of Tank:	Permanently closed	Capacity (gal):	5000
Tank Closed/Inert:	N	Tank Removed:	Yes
Closure Report:	Not reported		
Ref. as Leaking:	Not reported	Tank Substance:	Diesel
Tank Type:	Other		
Tank Constr.:	Steel		
Piping Type:	Galvanized Steel		
Replaced pip.:	Not reported		
Tank Lined:	Not reported		

CAMP DODGE TRAINING SITE (Continued) — **U001869598**

Tank Int. Prot.:	Not reported		
Tank Ext. Prot.:	Not reported		
Line Leak Det.:	Not reported		
Release Det.:	Not reported		
Install. Method:	Not reported		
Corrosion Prot.:	Not reported		
Policy Date:	Not reported	Policy Type:	Not reported
Policy Number:	Not reported	Financial Resp:	Not reported
Insurer Name:	Not reported		
Start Date:	Not reported	DNR Name:	Not reported
Date Recorded:	Not reported	Recorder Location:	Not reported
Reporting Person:	Not reported	Business Name:	Not reported
Report Date:	Not reported	Rep. Person Tel:	Not reported
Rep. Person Addr:	Not reported		
	Not reported		
DNR Notified:	Not reported	Date Leak Found:	Not reported
Record Status:	Not reported		
Resp. Entity:	Not Defined	Resp. Staff:	Not reported
Resp. Field Person:	Not reported		
Contact Person:	Not reported	Contact Tel:	Not reported
Leak Discovery:	Not reported	Leak Cause:	Not reported
Released Product:	Not reported		
Leak Status:	Not reported		
Device Status:	Not reported	Monitor Method:	Not reported
Leak Location:	Not reported		
Threatened Res.:	Not reported	Official:	Not reported
Lab Analysis:	Not reported	Due Date Chngs:	Not reported
Analysis Due:	//	Analysis Rcvd:	//
Start Assess.:	//	Consult. Assess.:	//
Ass. Due Chngs:	Not reported	Assess. Recvd:	//
Assess. Plan:	Not reported	Ass. Plan Due:	//
Plan Due Chngs:	Not reported		
Report Due Chngs:	Not reported	Report Recvd:	//
Report Approved:	//	Ass. Completed:	//
Cleanup Achvd:	Not reported	Cleanup Date:	//
Cleanup Due Chngs:	Not reported		
Cleanup Complete:	//	Contr. Firm Tel:	Not reported
Consulting Firm:	Not reported		
Consult. Manager:	Not reported	Consl. Firm Tel:	Not reported
Consl. Addr:	Not reported		
	Not reported		
Owner ID:	Not reported		
Owner Broke:	Not reported	Resp. Party ID:	Not reported
Emergency Date:	Not reported	Resp. ID Date:	Not reported
Admin. Order Date:	Not reported	Order Date Chngs:	Not reported
Attorn. Gen. Date:	Not reported	A. Gen. Date Chngs:	Not reported
Ref. to Bur. Chief:	Not reported	Bur. Ref. Revs:	Not reported
Ref. to Legal Svc:	Not reported	Legal Ref. Revs:	Not reported
Admin. Order Issd:	Not reported	Ref. for Action:	Not reported
Ref. in Compli:	Not reported	Trst Fnd Expense:	Not reported
Cleanup Expense:	Not reported	Enfrcmnt Expense:	Not reported
Non-TF Support:	Not reported	Non-TF Cleanup:	Not reported
Non-TF Enfrcmnt:	Not reported	Priority Rank:	Not reported
Facility ID:	8605890	Owner Tel:	(515) 242-5557
Facility Tel:	Not reported	Total Tanks:	6
Facility Contact:	Not reported		

CAMP DODGE TRAINING SITE (Continued) U001869598

Facility Status:	Regulated tanks - active		
Owner Name:	AGIA-FAC-E BLDG B-61, 7700 NW BEAVER DR JOHNSTON, IA 50131 - 1902		
Business Tel:	Not reported		
Business Name:	AGO IOWA BLDG 46, 7700 NW BEAVER DR JOHNSTON, IA 50131 - 1902		
Auth. Person Tel:	Not reported		
Authorized Person:	Not reported Not reported Not reported		
Owner Status:	Current	Owner Type:	Federal
Receiving Person:	CURTIS L MADSEN, ENIVORNMENTAL SPECIALIST		
Reg. Form Signed:	Yes		
Tank Number:	5		
Tank Status:	Regulated tanks - active		
Use of Tank:	In use	Capacity (gal):	2500
Tank Closed/Inert:	Not reported	Tank Removed:	Not reported
Closure Report:	Not reported		
Ref. as Leaking:	Not reported	Tank Substance:	Diesel
Tank Type:	Other, GOVT		
Tank Constr.:	Fiberglass reinforced plastic, Double Walled		
Piping Type:	Fiberglass Reinforced Plastic		
Replaced pip.:	Not reported		
Tank Lined:	Not reported		
Tank Int. Prot.:	No Internal Protection		
Tank Ext. Prot.:	No External Protection		
Line Leak Det.:	No Line Release Detection Implemented		
Release Det.:	Vapor Monitoring Well, Monitoring Space on Double Wall		
Install. Method:	Tank Installer is Certified by Tank and Piping Manufacturer, Manufacturer Supplied Check Lists of Installation Procedures Were Completed, Tank and Piping Tested for Leaks During and After Installation		
Corrosion Prot.:	Tank Installer Signed Forms Certifying Methods Used to Install Tanks and Piping		
Policy Date:	Not reported	Policy Type:	Not reported
Policy Number:	Not reported	Financial Resp:	Not reported
Insurer Name:	Not reported		
Start Date:	Not reported	DNR Name:	Not reported
Date Recorded:	Not reported	Recorder Location:	Not reported
Reporting Person:	Not reported	Business Name:	Not reported
Report Date:	Not reported	Rep. Person Tel:	Not reported
Rep. Person Addr:	Not reported Not reported		
DNR Notified:	Not reported	Date Leak Found:	Not reported
Record Status:	Not reported		
Resp. Entity:	Not Defined	Resp. Staff:	Not reported
Resp. Field Person:	Not reported		
Contact Person:	Not reported	Contact Tel:	Not reported
Leak Discovery:	Not reported	Leak Cause:	Not reported
Released Product:	Not reported		
Leak Status:	Not reported		
Device Status:	Not reported	Monitor Method:	Not reported
Leak Location:	Not reported		
Threatened Res.:	Not reported	Official:	Not reported
Lab Analysis:	Not reported	Due Date Chngs:	Not reported
Analysis Due:	//	Analysis Rcvd:	//
Start Assess.:	//	Consult. Assess.:	//

CAMP DODGE TRAINING SITE (Continued) U001869598

Ass. Due Chngs:	Not reported	Assess. Recvd:	//
Assess. Plan:	Not reported	Ass. Plan Due:	//
Plan Due Chngs:	Not reported		
Report Due Chngs:	Not reported	Report Recvd:	//
Report Approved:	//	Ass. Completed:	//
Cleanup Achvd:	Not reported	Cleanup Date:	//
Cleanup Due Chngs:	Not reported		
Cleanup Complete:	//	Contr. Firm Tel:	Not reported
Consulting Firm:	Not reported		
Consult. Manager:	Not reported	Consl. Firm Tel:	Not reported
Consl. Addr:	Not reported		
	Not reported		
Owner ID:	Not reported		
Owner Broke:	Not reported	Resp. Party ID:	Not reported
Emergency Date:	Not reported	Resp. ID Date:	Not reported
Admin. Order Date:	Not reported	Order Date Chngs:	Not reported
Attorn. Gen. Date:	Not reported	A. Gen. Date Chngs:	Not reported
Ref. to Bur. Chief:	Not reported	Bur. Ref. Revs:	Not reported
Ref. to Legal Svc:	Not reported	Legal Ref. Revs:	Not reported
Admin. Order Issd:	Not reported	Ref. for Action:	Not reported
Ref. in Compli:	Not reported	Trst Fnd Expense:	Not reported
Cleanup Expense:	Not reported	Enfrcmnt Expense:	Not reported
Non-TF Support:	Not reported	Non-TF Cleanup:	Not reported
Non-TF Enfrcmnt:	Not reported	Priority Rank:	Not reported

Facility ID:	8605890	Owner Tel:	(515) 242-5557
Facility Tel:	Not reported	Total Tanks:	6
Facility Contact:	Not reported		
Facility Status:	Regulated tanks - active		
Owner Name:	AGIA-FAC-E		
	BLDG B-61, 7700 NW BEAVER DR		
	JOHNSTON, IA 50131 - 1902		
Business Tel:	Not reported		
Business Name:	AGO IOWA		
	BLDG 46, 7700 NW BEAVER DR		
	JOHNSTON, IA 50131 - 1902		
Auth. Person Tel:	Not reported		
Authorized Person:	Not reported		
	Not reported		
	Not reported		
Owner Status:	Current	Owner Type:	Federal
Receiving Person:	CURTIS L MADSEN, ENIVORNMENTAL SPECIALIST		
Reg. Form Signed:	Yes		
Tank Number:	6		
Tank Status:	Regulated tanks - active		
Use of Tank:	In use	Capacity (gal):	2500
Tank Closed/Inert:	Not reported	Tank Removed:	Not reported
Closure Report:	Not reported		
Ref. as Leaking:	Not reported	Tank Substance:	Gasoline
Tank Type:	Other, GOVT		
Tank Constr.:	Fiberglass reinforced plastic, Double Walled		
Piping Type:	Fiberglass Reinforced Plastic		
Replaced pip.:	Not reported		
Tank Lined:	Not reported		
Tank Int. Prot.:	No Internal Protection		
Tank Ext. Prot.:	No External Protection		
Line Leak Det.:	No Line Release Detection Implemented		

CAMP DODGE TRAINING SITE (Continued) **U001869598**

Release Det.:	Vapor Monitoring Well. Monitoring Space on Double Wall		
Install. Method:	Tank Installer is Certified by Tank and Piping Manufacturer, Manufacturer Supplied Check Lists of Installation Procedures Were Completed, Tank and Piping Tested for Leaks During and After Installation		
Corrosion Prot.:	Tank Installer Signed Forms Certifying Methods Used to Install Tanks and Piping		
Policy Date:	Not reported	Policy Type:	Not reported
Policy Number:	Not reported	Financial Resp:	Not reported
Insurer Name:	Not reported		
Start Date:	Not reported	DNR Name:	Not reported
Date Recorded:	Not reported	Recorder Location:	Not reported
Reporting Person:	Not reported	Business Name:	Not reported
Report Date:	Not reported	Rep. Person Tel:	Not reported
Rep. Person Addr:	Not reported Not reported		
DNR Notified:	Not reported	Date Leak Found:	Not reported
Record Status:	Not reported		
Resp. Entity:	Not Defined	Resp. Staff:	Not reported
Resp. Field Person:	Not reported		
Contact Person:	Not reported	Contact Tel:	Not reported
Leak Discovery:	Not reported	Leak Cause:	Not reported
Released Product:	Not reported		
Leak Status:	Not reported		
Device Status:	Not reported	Monitor Method:	Not reported
Leak Location:	Not reported		
Threatened Res.:	Not reported	Official:	Not reported
Lab Analysis:	Not reported	Due Date Chngs:	Not reported
Analysis Due:	//	Analysis Rcvd:	//
Start Assess.:	//	Consult. Assess.:	//
Ass. Due Chngs:	Not reported	Assess. Recvd:	//
Assess. Plan:	Not reported	Ass. Plan Due:	//
Plan Due Chngs:	Not reported		
Report Due Chngs:	Not reported	Report Recvd:	//
Report Approved:	//	Ass. Completed:	//
Cleanup Achvd:	Not reported	Cleanup Date:	//
Cleanup Due Chngs:	Not reported		
Cleanup Complete:	//	Contr. Firm Tel:	Not reported
Consulting Firm:	Not reported		
Consult. Manager:	Not reported	Consl. Firm Tel:	Not reported
Consl. Addr:	Not reported Not reported		
Owner ID:	Not reported		
Owner Broke:	Not reported	Resp. Party ID:	Not reported
Emergency Date:	Not reported	Resp. ID Date:	Not reported
Admin. Order Date:	Not reported	Order Date Chngs:	Not reported
Attorn. Gen. Date:	Not reported	A. Gen. Date Chngs:	Not reported
Ref. to Bur. Chief:	Not reported	Bur. Ref. Revs:	Not reported
Ref. to Legal Svc:	Not reported	Legal Ref. Revs:	Not reported
Admin. Order Issd:	Not reported	Ref. for Action:	Not reported
Ref. in Compli:	Not reported	Trst Fnd Expense:	Not reported
Cleanup Expense:	Not reported	Enfrcmnt Expense:	Not reported
Non-TF Support:	Not reported	Non-TF Cleanup:	Not reported
Non-TF Enfrcmnt:	Not reported	Priority Rank:	Not reported

A4	CAMP DODGE, 7700 NW BEAVER DR.	ERNS	8910714
Target	CAMP DODGE, 7700 NW BEAVER DR.		N/A
Property	JOHNSTON, IA 50131		

Map ID Direction Distance Elevation	Site	Database(s)	EDR ID Number EPA ID Number
A1 Target Property	IOWA NATIONAL GUARD - CAMP DODGE 7700 NW BEAVER DR JOHNSTON, IA 50131	FINDS RCRIS-LQG RCRIS-TSD RAATS CORRACTS	1000142942 IAD981504285

CORRACTS Data:
Prioritization: Medium
Status: Not reported

RCRIS:
Owner: STATE OF IOWA
(515) 242-5557

Contact: JERRY THOMSON
(515) 278-9438

Record Date: 02/28/96

Classification: Large Quantity Generator, TSDF, Hazardous Waste Transporter

BIENNIAL REPORTS:
Last Biennial Reporting Year: 1993

Waste	Quantity (Lbs)	Waste	Quantity (Lbs)
D001	31089.00	D002	852.00
D003	222.00	D006	14414.00
D007	12880.00	D008	10345.00
D009	258.00	D011	310.00
D018	25635.00	D021	575.00
D027	575.00	D035	384.00
D039	25003.00	D040	575.00
F002	62.00	F003	4349.00
F005	4733.00	P042	40.00
U103	4.00		

Used Oil Recyc: No

TSDF Activities: Not reported

Violation Status: Violations exist

There are 1 compliance/violation record(s) reported at this site:

Evaluation	Area of Violation	Date of Compliance
Compliance Evaluation Inspection (CEI)	Generator-All Requirements	11/19/90
	TSD-Other Requirements	04/25/90
	TSD-Other Requirements	04/25/90

A2 Target Property	CAMP DODGE TRAINING SITE 7700 NW BEAVER DR BLDG AB JOHNSTON, IA 50131	FINDS	1000606346 IA2211819220

FINDS:
Other Pertinent Environmental Activity Identified at Site:
- Facility is monitored or permitted for air emissions under the Clean Air Act (under AFS/AIRS)
- Federal facility has submitted specific environmental project budget plans (under FFIS)

A5 Target Property	STATE OF IOWA MAINTENANCE SHOP 7700 NW BEAVER DR CAMP DODGE JOHNSTON, IA 50131	FINDS	1000397472 IAD98171269

STATE OF IOWA MAINTENANCE SHOP (Continued) **1000397472**

FINDS:
Other Pertinent Environmental Activity Identified at Site:
- Facility is monitored or permitted for air emissions under the Clean Air Act (under AFS/AIRS)
- Federal facility has submitted specific environmental project budget plans (under FFIS)

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6 WNW 1/2-1 Higher | **8348 NW 86 JOHNSTON, IA 00000** | **UST** | **U003125385 N/A**

UST:

Facility ID:	8601965	Owner Tel:	Not reported
Facility Tel:	Not reported	Total Tanks:	1
Facility Contact:	Not reported		
Facility Status:	Non-regulated farm or residential < 1,100 gallons tanks - active		
Owner Name:	DON LINT 8348 NW 86TH JOHNSTON, IA 50131		
Business Tel:	Not reported		
Business Name:	Not reported Not reported Not reported		
Auth. Person Tel:	Not reported		
Authorized Person:	Not reported Not reported Not reported		
Owner Status:	Current	Owner Type:	Private
Receiving Person:	JIM SHATTUCK, PRES		
Reg. Form Signed:	Yes		
Tank Number:	1		
Tank Status:	Non-regulated farm or residential < 1,100 gallons tanks - active		
Use of Tank:	Temporarily closed	Capacity (gal):	4000
Tank Closed/Inert:	N	Tank Removed:	Not reported
Closure Report:	Not reported		
Ref. as Leaking:	Not reported	Tank Substance:	Gasoline
Tank Type:	Residential		
Tank Constr.:	Steel		
Piping Type:	Galvanized Steel		
Replaced pip.:	Not reported		
Tank Lined:	Not reported		
Tank Int. Prot.:	Not reported		
Tank Ext. Prot.:	Not reported		
Line Leak Det.:	Not reported		
Release Det.:	Not reported		
Install. Method:	Not reported		
Corrosion Prot.:	Not reported		
Policy Date:	Not reported	Policy Type:	Not reported
Policy Number:	Not reported	Financial Resp:	Not reported
Insurer Name:	Not reported		
Start Date:	Not reported	DNR Name:	Not reported
Date Recorded:	Not reported	Recorder Location:	Not reported
Reporting Person:	Not reported	Business Name:	Not reported
Report Date:	Not reported	Rep. Person Tel:	Not reported
Rep. Person Addr:	Not reported Not reported		
DNR Notified:	Not reported	Date Leak Found:	Not reported
Record Status:	Not reported		
Resp. Entity:	Not Defined	Resp. Staff:	Not reported

(Continued) U003125385

Resp. Field Person:	Not reported		
Contact Person:	Not reported	Contact Tel:	Not reported
Leak Discovery:	Not reported	Leak Cause:	Not reported
Released Product:	Not reported		
Leak Status:	Not reported		
Device Status:	Not reported	Monitor Method:	Not reported
Leak Location:	Not reported		
Threatened Res.:	Not reported	Official:	Not reported
Lab Analysis:	Not reported	Due Date Chngs:	Not reported
Analysis Due:	//	Analysis Rcvd:	//
Start Assess.:	//	Consult. Assess.:	//
Ass. Due Chngs:	Not reported	Assess. Recvd:	//
Assess. Plan:	Not reported	Ass. Plan Due:	//
Plan Due Chngs:	Not reported		
Report Due Chngs:	Not reported	Report Recvd:	//
Report Approved:	//	Ass. Completed:	//
Cleanup Achvd:	Not reported	Cleanup Date:	//
Cleanup Due Chngs:	Not reported		
Cleanup Complete:	//	Contr. Firm Tel:	Not reported
Consulting Firm:	Not reported		
Consult. Manager:	Not reported	Consl. Firm Tel:	Not reported
Consl. Addr:	Not reported		
	Not reported		
Owner ID:	Not reported		
Owner Broke:	Not reported	Resp. Party ID:	Not reported
Emergency Date:	Not reported	Resp. ID Date:	Not reported
Admin. Order Date:	Not reported	Order Date Chngs:	Not reported
Attorn. Gen. Date:	Not reported	A. Gen. Date Chngs:	Not reported
Ref. to Bur. Chief:	Not reported	Bur. Ref. Revs:	Not reported
Ref. to Legal Svc:	Not reported	Legal Ref. Revs:	Not reported
Admin. Order Issd:	Not reported	Ref. for Action:	Not reported
Ref. in Compli:	Not reported	Trst Fnd Expense:	Not reported
Cleanup Expense:	Not reported	Enfrcmnt Expense:	Not reported
Non-TF Support:	Not reported	Non-TF Cleanup:	Not reported
Non-TF Enfrcmnt:	Not reported	Priority Rank:	Not reported

City	EDR ID	Site Name	Site Address	Zip	Database(s)	Facility ID
GRIMES	1000606152	CAMP DODGE NATIONAL GUARD	RR 1	50111	FINDS	
GRIMES	1000224345	SAFETY-KLEEN-GRIMES/FORMER SITE OF	5318 NW 111 DR RR 2	50111	RCRIS-SQG, FINDS, RCRIS-TSD, RAATS, CORRACTS	
GRIMES	U001733029	RAYMOND M URFER	RTE 2 BOX 22	50111	UST	8914529
JOHNSTON	U001735606	PETERS CONSTRUCTION	5105 LOWER BEAVER	50131	UST	9217474
POLK COUNTY	S102615217	CENTRAL C&D RECYCLING, INC. SI	SE 18TH STREET / HARTFORD AVEN		SWF/LF	77-SDP-17-82 P
POLK COUNTY	S101409133	METROPOLITAN TRANSFER STATION	SEC. 24, T79N, R24W, 5 ACRES (		SWF/LF	77-SDP-10-76 P

GEOCHECK VERSION 2.1 ADDENDUM
STATE DATABASE WELL INFORMATION

Well Information:

Distance from TP:	1/4 - 1/2 Mile South		
Permit Number:	2,830	Pub Water Supply Name:	CAMP DODGE FACILITIES
Depth in Feet:	70	Well or Intake Name/Num:	WELL 8
Type:	Pleistocene Well		

EPA Waste Codes Addendum

Code	Description
D001	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.
D002	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.
D003	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.
D006	CADMIUM
D007	CHROMIUM
D008	LEAD
D009	MERCURY
D011	SILVER
D018	BENZENE
D021	CHLOROBENZENE
D027	1,4-DICHLOROBENZENE
D035	METHYL ETHYL KETONE
D039	TETRACHLOROETHYLENE
D040	TRICHLOROETHYLENE
F002	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.
F003	THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL

EPA Waste Codes Addendum

Code	Description
	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.
F005	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.
P042	1,2-BENZENEDIOL, 4-[1-HYDROXY-2-(METHYLAMINO)ETHYL]-, (R)-
P042	EPINEPHRINE
U103	DIMETHYL SULFATE
U103	SULFURIC ACID, DIMETHYL ESTER

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.

Elapsed ASTM days: Provides confirmation that this EDR report meets or exceeds the 90-day updating requirement of the ASTM standard.

FEDERAL ASTM RECORDS:

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System
Source: EPA/NTIS
Telephone: 703-413-0223
CERCLIS: CERCLIS 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). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 06/01/97
Date Made Active at EDR: 10/28/97
Database Release Frequency: Monthly
Date of Data Arrival at EDR: 09/30/97
Elapsed ASTM days: 28
Date of Last EDR Contact: 09/09/97

ERNS: Emergency Response Notification System
Source: EPA/NTIS
Telephone: 202-260-2342
ERNS: Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 06/01/97
Date Made Active at EDR: 10/09/97
Database Release Frequency: Quarterly
Date of Data Arrival at EDR: 08/29/97
Elapsed ASTM days: 41
Date of Last EDR Contact: 08/26/97

NPL: National Priority List
Source: EPA
Telephone: 703-603-8852
NPL: 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).

Date of Government Version: 04/01/97
Date Made Active at EDR: 05/29/97
Database Release Frequency: Semi-Annually
Date of Data Arrival at EDR: 04/21/97
Elapsed ASTM days: 38
Date of Last EDR Contact: 09/22/97

RCRIS: Resource Conservation and Recovery Information System
Source: EPA/NTIS
Telephone: 800-424-9346
RCRIS: Resource Conservation and Recovery Information System. RCRIS 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).

Date of Government Version: 04/01/97
Date Made Active at EDR: 06/30/97
Database Release Frequency: Semi-Annually
Date of Data Arrival at EDR: 04/25/97
Elapsed ASTM days: 66
Date of Last EDR Contact: 08/04/97

CORRACTS: Corrective Action Report
Source: EPA
Telephone: 800-424-9346
CORRACTS: CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 12/01/96
Date Made Active at EDR: 03/03/97
Database Release Frequency: Semi-Annually
Date of Data Arrival at EDR: 12/30/96
Elapsed ASTM days: 63
Date of Last EDR Contact: 10/24/97

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

FEDERAL NON-ASTM RECORDS:

BRS: Biennial Reporting System
Source: EPA/NTIS
Telephone: 800-424-9346
BRS: 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: 12/31/93
Database Release Frequency: Biennially
Date of Last EDR Contact: 10/22/97
Date of Next Scheduled EDR Contact: 12/22/97

CONSENT: Superfund (CERCLA) Consent Decrees
Source: EPA Regional Offices
Telephone: Varies
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: Varies
Database Release Frequency: Varies
Date of Last EDR Contact: Varies
Date of Next Scheduled EDR Contact: N/A

FINDS: Facility Index System
Source: EPA/NTIS
Telephone: 703-908-2493
FINDS: 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: 04/01/97
Database Release Frequency: Quarterly
Date of Last EDR Contact: 09/29/97
Date of Next Scheduled EDR Contact: 01/05/98

HMIRS: Hazardous Materials Information Reporting System
Source: U.S. Department of Transportation
Telephone: 202-366-4526
HMIRS: Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/31/96
Database Release Frequency: Annually
Date of Last EDR Contact: 10/27/97
Date of Next Scheduled EDR Contact: 01/26/98

MLTS: Material Licensing Tracking System
Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
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: 07/28/97
Database Release Frequency: Quarterly
Date of Last EDR Contact: 10/14/97
Date of Next Scheduled EDR Contact: 01/12/98

NPL LIENS: Federal Superfund Liens
Source: EPA
Telephone: 205-564-4267
NPL LIENS: Federal Superfund Liens. Under the authority granted the USEPA by the Comprehensive Environmental Response, Compensation and Liability Act (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 receives notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/91
Database Release Frequency: No Update Planned
Date of Last EDR Contact: 08/25/97
Date of Next Scheduled EDR Contact: 11/24/97

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

PADS: PCB Activity Database System
Source: EPA
Telephone: 202-260-3936
PADS: 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: 03/27/97
Database Release Frequency: Semi-Annually
Date of Last EDR Contact: 09/22/97
Date of Next Scheduled EDR Contact: 11/17/97

RAATS: RCRA Administrative Action Tracking System
Source: EPA
Telephone: 202-564-4104
RAATS: 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: 04/17/95
Database Release Frequency: No Update Planned
Date of Last EDR Contact: 09/15/97
Date of Next Scheduled EDR Contact: 12/15/97

ROD: Records Of Decision
Source: NTIS
Telephone: 703-416-0223
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: 03/31/95
Database Release Frequency: Annually
Date of Last EDR Contact: 09/03/97
Date of Next Scheduled EDR Contact: 12/01/97

TRIS: Toxic Chemical Release Inventory System
Source: EPA/NTIS
Telephone: 202-260-1531
TRIS: 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: 12/31/92
Database Release Frequency: Annually
Date of Last EDR Contact: 09/29/97
Date of Next Scheduled EDR Contact: 12/29/97

TSCA: Toxic Substances Control Act
Source: EPA/NTIS
Telephone: 202-260-1444
TSCA: 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. USEPA has no current plan to update and/or re-issue this database.

Date of Government Version: 01/31/95
Database Release Frequency: Annually
Date of Last EDR Contact: 09/18/97
Date of Next Scheduled EDR Contact: 12/15/97

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

STATE OF IOWA ASTM RECORDS:

LUST: Leaking Underground Storage Tank Data
Source: Department of Natural Resources
Telephone: 515-281-6001
LUST: 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: 07/01/97
Date Made Active at EDR: 10/15/97
Database Release Frequency: Quarterly

Date of Data Arrival at EDR: 08/07/97
Elapsed ASTM days: 69
Date of Last EDR Contact: 10/14/97

SHWS: Registry of Hazardous Waste or Hazardous Substance Disposal Sites
Source: Department of Natural Resources
Telephone: 515-281-8801
SHWS: State Hazardous Waste Sites. State hazardous waste site records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. Available information varies by state.

Date of Government Version: 01/01/97
Date Made Active at EDR: 02/19/97
Database Release Frequency: Annually

Date of Data Arrival at EDR: 01/16/97
Elapsed ASTM days: 34
Date of Last EDR Contact: 10/14/97

SWF/LF: Permitted Solid Waste Management Facilities
Source: Department of Natural Resources
Telephone: 515-281-8801
SWF/LF: 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: 08/11/97
Date Made Active at EDR: 10/23/97
Database Release Frequency: Quarterly

Date of Data Arrival at EDR: 08/18/97
Elapsed ASTM days: 66
Date of Last EDR Contact: 08/14/97

UST: Underground Storage Tank Data
Source: Department of Natural Resources
Telephone: 515-281-6001
UST: 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: 07/01/97
Date Made Active at EDR: 10/16/97
Database Release Frequency: Quarterly

Date of Data Arrival at EDR: 08/07/97
Elapsed ASTM days: 70
Date of Last EDR Contact: 10/14/97

Historical and 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.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Former Manufactured Gas (Coal Gas) Sites: The existence and location of Coal Gas sites is provided exclusively to EDR by Real Property Scan, Inc. ©Copyright 1993 Real Property Scan, Inc. For a technical description of the types of hazards which may be found at such sites, contact your EDR customer service representative.

Disclaimer Provided by Real Property Scan, Inc.

The information contained in this report has predominantly been obtained from publicly available sources produced by entities other than Real Property Scan. While reasonable steps have been taken to insure the accuracy of this report, Real Property Scan does not guarantee the accuracy of this report. Any liability on the part of Real Property Scan is strictly limited to a refund of the amount paid. No claim is made for the actual existence of toxins at any site. This report does not constitute a legal opinion.

DELISTED NPL: Delisted NPL Sites
Source: EPA
Telephone: 703-603-8769
DELISTED NPL: 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.

NFRAP: No Further Remedial Action Planned
Source: EPA/NTIS
Telephone: 703-413-0223
NFRAP: As of February 1995, CERCLIS sites designated "No Further Remedial Action Planned" (NFRAP) have been removed from CERCLIS. NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly without the need for the site to be placed on the NPL, or the contamination was not serious enough to require Federal Superfund action or NPL consideration. EPA has removed approximately 25,000 NFRAP sites to lift the unintended barriers to the redevelopment of these properties and has archived them as historical records so EPA does not needlessly repeat the investigations in the future. This policy change is part of the EPA's Brownfields Redevelopment Program to help cities, states, private investors and affected citizens to promote economic redevelopment of unproductive urban sites.

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-260-2805
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: 202-260-2805
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SWDIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

Area Radon Information: 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.

Oil/Gas Pipelines/Electrical Transmission Lines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines and electrical transmission lines.

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.

USGS Water Wells: In November 1971 the United States Geological Survey (USGS) implemented a national water resource information tracking system. 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 more than 900,000 wells, springs, and other sources of groundwater.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1994 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

Water Dams: National Inventory of Dams
Source: Federal Emergency Management Agency
Telephone: 202-646-2801
WATER DAMS: National computer database of more than 74,000 dams maintained by the Federal Emergency Management Agency.

Iowa Wells and Intakes for Public Water Supplies and Registered Private Wells since 1987
Source: Iowa Department of Natural Resources
Telephone: 319-335-1575

The EDR-Historical Topographic Map Report

Camp Dodge
7700 NW Beaver Dr
Johnston, IA 50131

November 17, 1997

Inquiry Number: 210347-4

EDR Sanborn, Inc.

***The* Source For Environmental Risk Management Data**

3530 Post Road
Southport, Connecticut 06490

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802

EDR Sanborn, Inc.
Historical Topographic Map Report

EDR Sanborn, Inc.'s (EDR Sanborn) Historical Topographic Map Report is designed to assist professionals in evaluating potential liability on a target property, and its surrounding area, resulting from past activities. ASTM E 1527-97, Section 7.3 on Historical Use Information, identifies the prior use requirements for a Phase I environmental site assessment. The ASTM standard requires a review of *reasonably ascertainable standard historical sources. Reasonably ascertainable is defined as information that is publicly available, obtainable from a source with reasonable time and cost constraints, and practically reviewable.*

To meet the prior use requirements of ASTM E 1527-97, Section 7.3.2, the following *standard historical sources* may be used: aerial photographs, city directories, fire insurance maps, topographic maps, property tax files, land title records (although these cannot be the sole historical source consulted), building department records, or zoning/and use records. ASTM E 1527-97 requires *"All obvious uses of the property shall be identified from the present, back to the property's obvious first developed use, or back to 1940, whichever is earlier. This task requires reviewing only as many of the standard historical sources as are necessary, and that are reasonably ascertainable and likely to be useful."* (ASTM E 1527-97, Section 7.3.2 page 11.)

EDR Sanborn's Historical Topographic Map Report includes a search of available public and private color historical topographic map collections.

Topographic Maps

A topographic map (topo) is a color coded line-and-symbol representation of natural and selected artificial features plotted to a scale. Topos show the shape, elevation, and development of the terrain in precise detail by using contour lines and color coded symbols. Many features are shown by lines that may be straight, curved, solid, dashed, dotted, or in any combination. The colors of the lines usually indicate similar classes of information. For example, topographic contours (brown); lakes, streams, irrigation ditches, etc. (blue); land grids and important roads (red); secondary roads and trails, railroads, boundaries, etc. (black); and features that have been updated using aerial photography, but not field verified, such as disturbed land areas (e.g., gravel pits) and newly developed water bodies (purple).

For more than a century, the USGS has been creating and revising topographic maps for the entire country at a variety of scales. There are about 60,000 U.S. Geological Survey (USGS) produced topo maps covering the United States. Each map covers a specific quadrangle (quad) defined as a four-sided area bounded by latitude and longitude. Historical topographic maps are a valuable historical resource for documenting the prior use of a property and its surrounding area, and due to their frequent availability can be particularly helpful when other standard historical sources (such as city directories, fire insurance maps, or aerial photographs) are not reasonably ascertainable.

Please call EDR Sanborn, Inc. Nationwide Customer Service at
1-800-352-0050 (8am-8pm ET)
with questions or comments about your report.
Thank you for your business!

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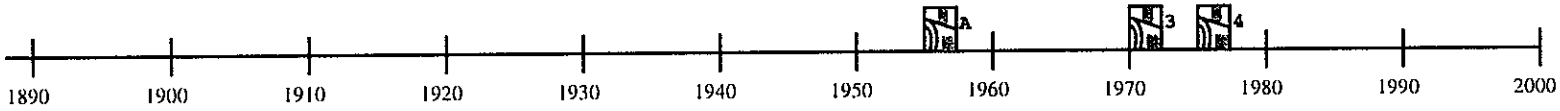
EDR Sanborn, Inc.

Prior Use Report™ Timeline

Target Property



Search Not Requested

Search Not Requested

Search Not Requested

Search Not Requested

Legend:

= Historical Topographic Map (**HT**) *

= National Wetland Inventory Map (**WT**) *

= Flood Prone/FEMA Maps (**FP/FR**) *

= Aerial Photos Included (**P**) *

= Aerial Photos Available *

= Residential (**R**)

= Commercial or Industrial (**C**)

Superscript number corresponds to graph ID in text

**Displayed on timeline when aerial photos, historical topos, flood prone, FEMA, wetland maps, or Aerial Research Summary are purchased.*

Target Property: Camp Dodge
Address: 7700 NW Beaver Dr
City/State/Zip Johnston, IA 50131

Customer: Montgomery Watson
Contact: Keith Schilling
Inquiry #: 210
Date: 11/1

SUMMARY

- ***Historical Topographic Maps:***

For the state of Iowa, local collections of historical U.S.G.S. topographic maps were searched based on client-supplied information, and identified for the following years:

Historical Topographic Maps:
- 1956 Scale: 1:24,000
- 1956 Scale: 1:62,500
- 1971 Scale: 1:24,000
- 1976 Scale: 1:24,000

- **General Scale Information**

Scale	Conversion Factor
1:24,000	1 inch = 2000 feet
1:62,500	1 inch = 1 mile
1:250,000	1 inch = 4 miles
1:1,000,000	1 inch = about 16 miles
1:125,000	1 inch = about 2 miles

Date EDR Searched Historical Sources:
Historical Topo Maps November 12, 1997

Target Property:
7700 NW Beaver Dr
Johnston, IA 50131

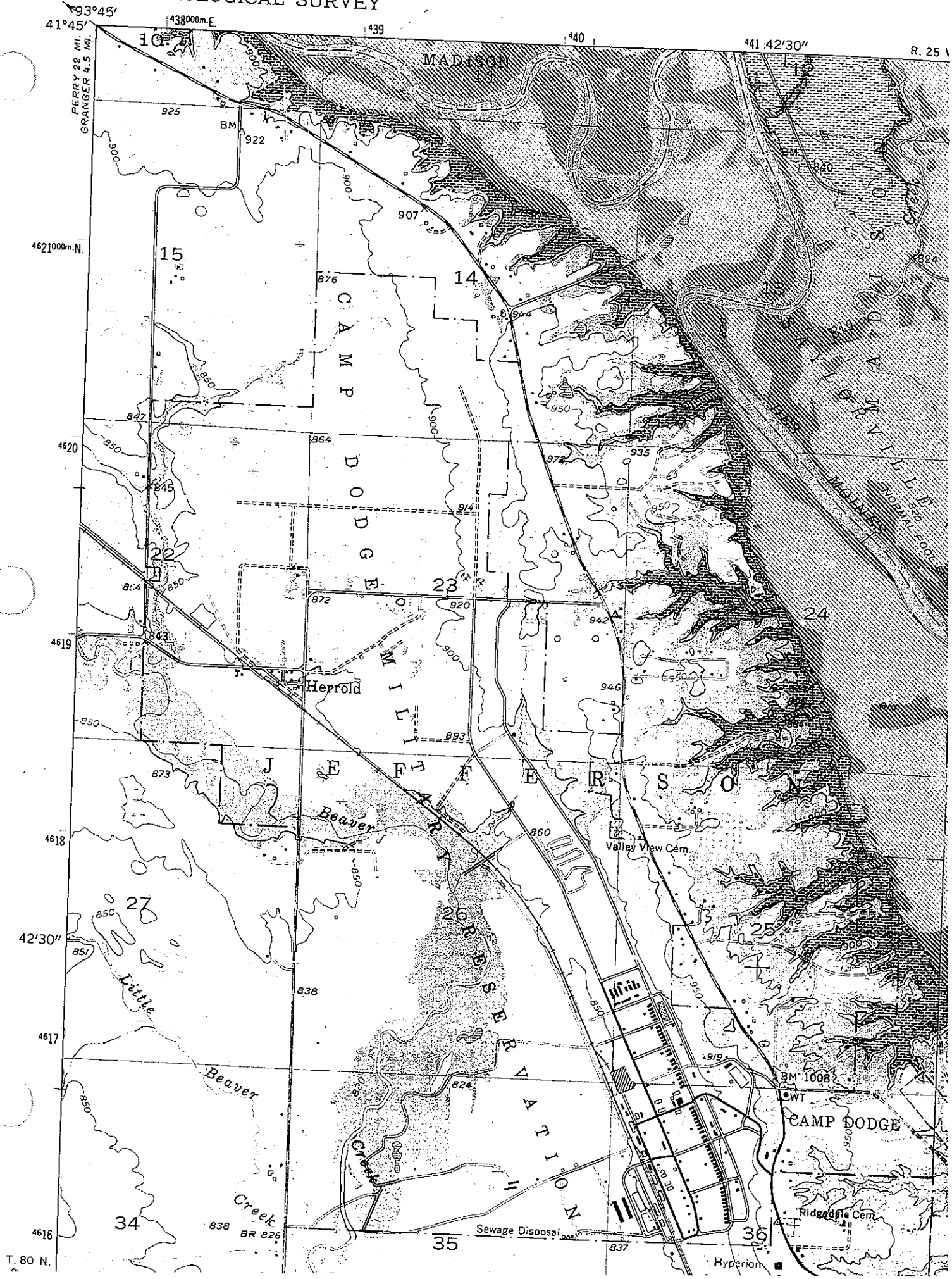
PUR ID / *Year*		*Source*
A 1 / 1956	QUAD: Des Moines NW, IA. SERIES: 7.5 minutes. SCALE: 1:24,000. MAP MAINTENANCE: 1956	U.S.G.S. Topo Map
A 2 / 1956	QUAD: Des Moines, IA. SERIES: 15 minutes. SCALE: 1:62,500. MAP MAINTENANCE: 1956	U.S.G.S. Topo Map
3 / 1971	QUAD: Des Moines NW, IA. SERIES: 7.5 minutes. SCALE: 1:24,000. MAP MAINTENANCE: 1956 Photo revised 1971	U.S.G.S. Topo Map
4 / 1976	QUAD: Des Moines NW, IA. SERIES: 7.5 minutes. SCALE: 1:24,000. MAP MAINTENANCE: 1956 Photo revised 1976	U.S.G.S. Topo Map

Quadrangle Relation Chart

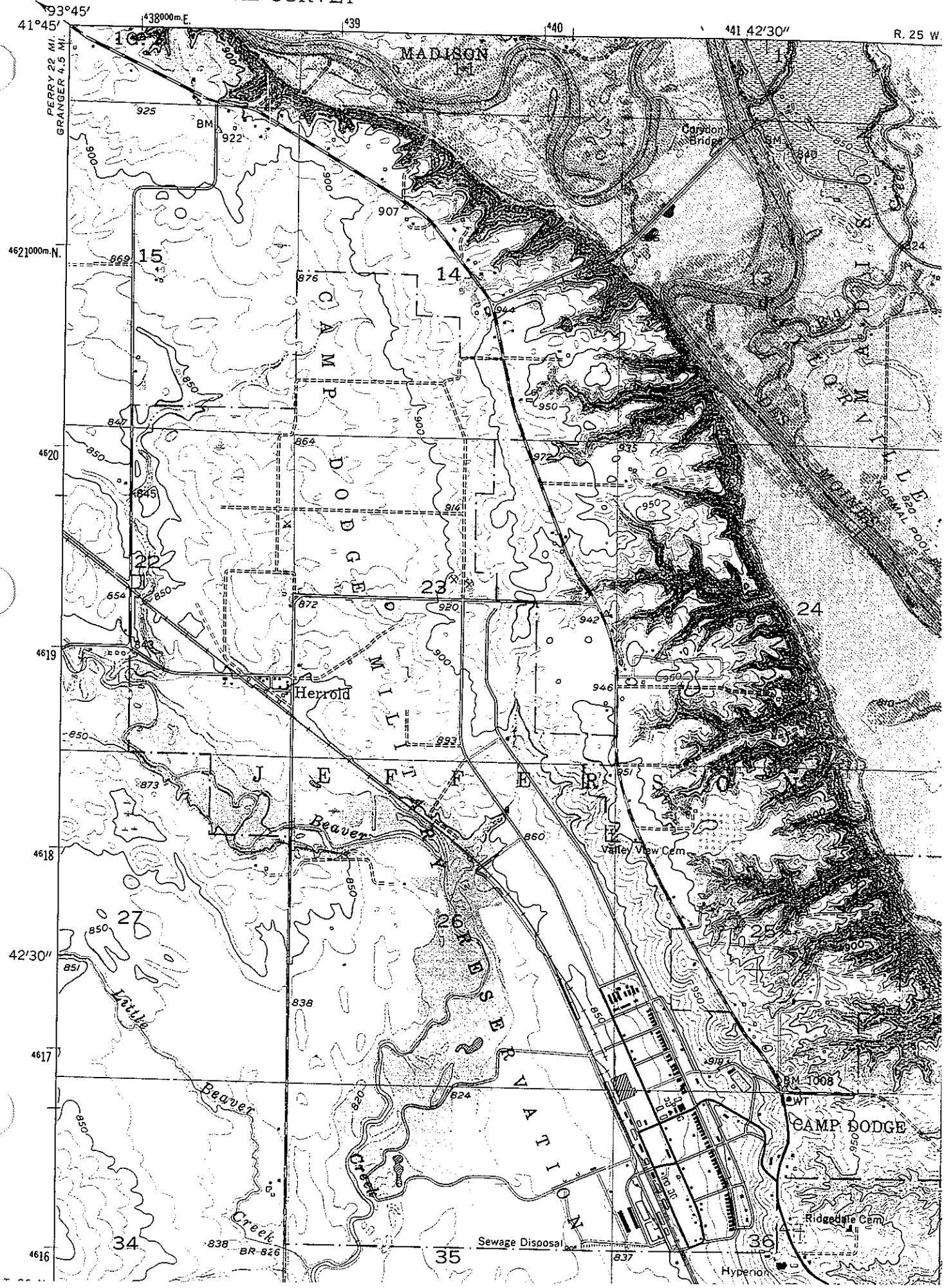
Inquiry # 210347-4

GRIMES, IA. (WAUKEE, IA.) →	DES MOINES NW, IA. (DES MOINES, IA.) T

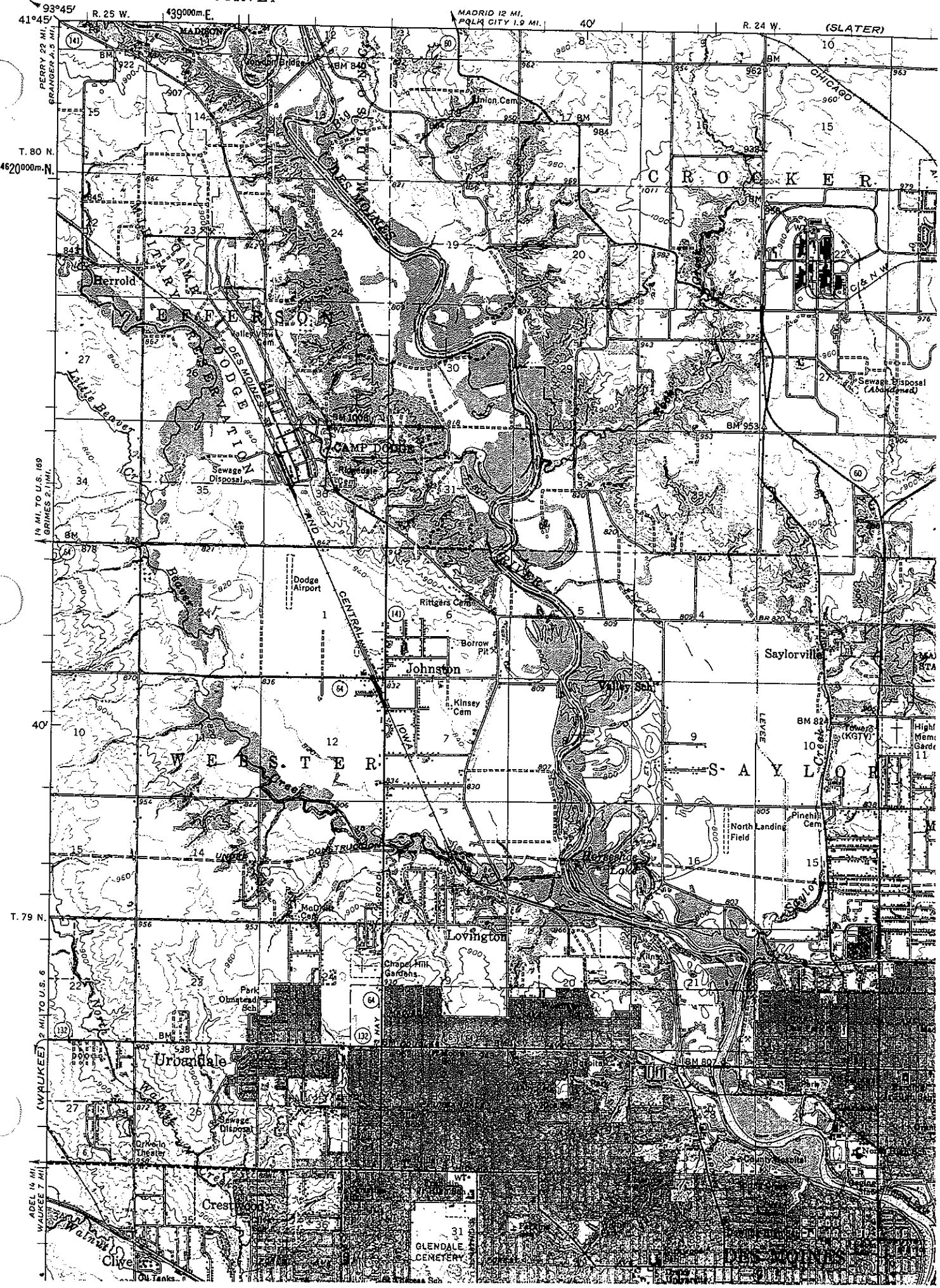
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY



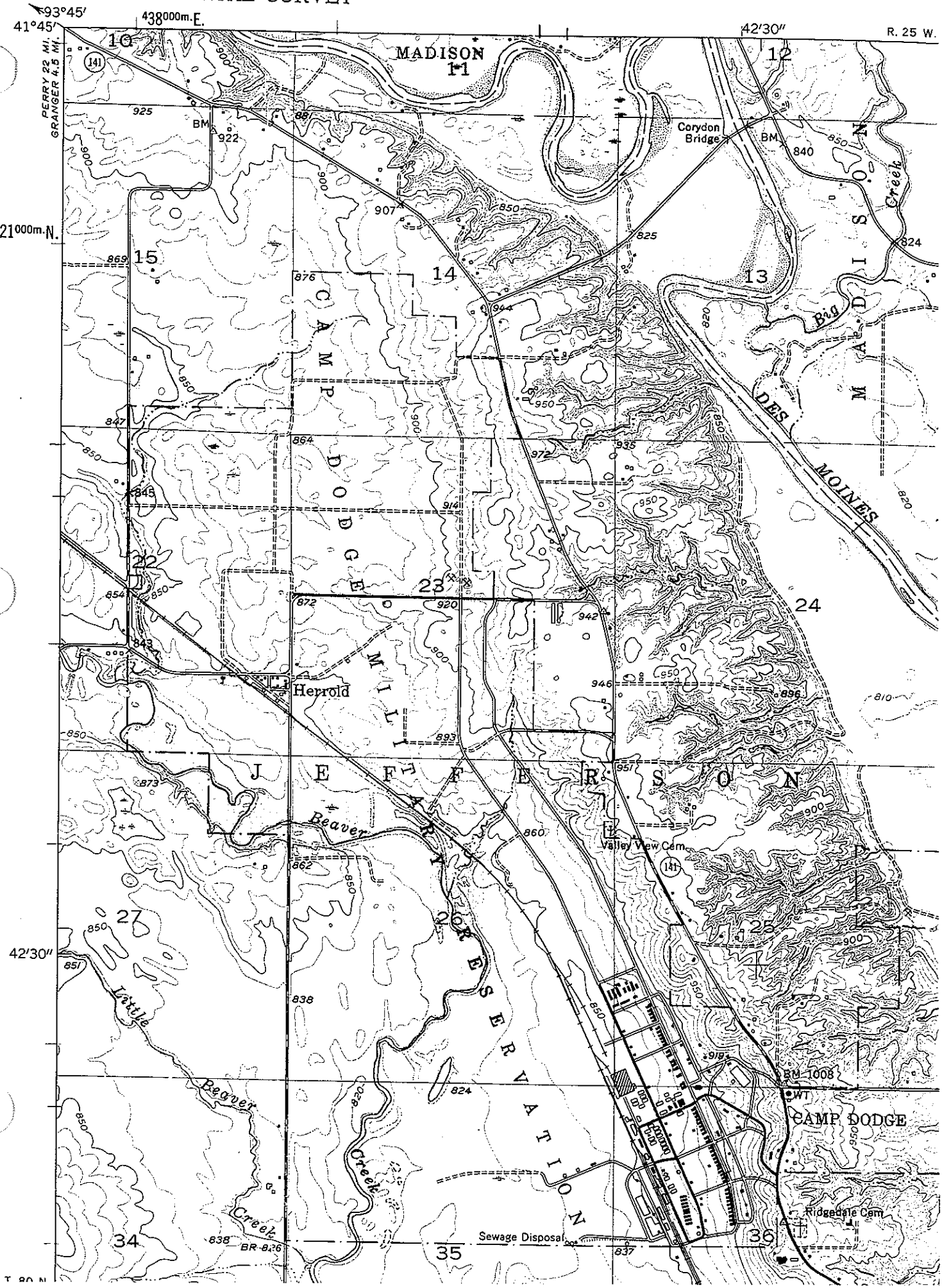
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY



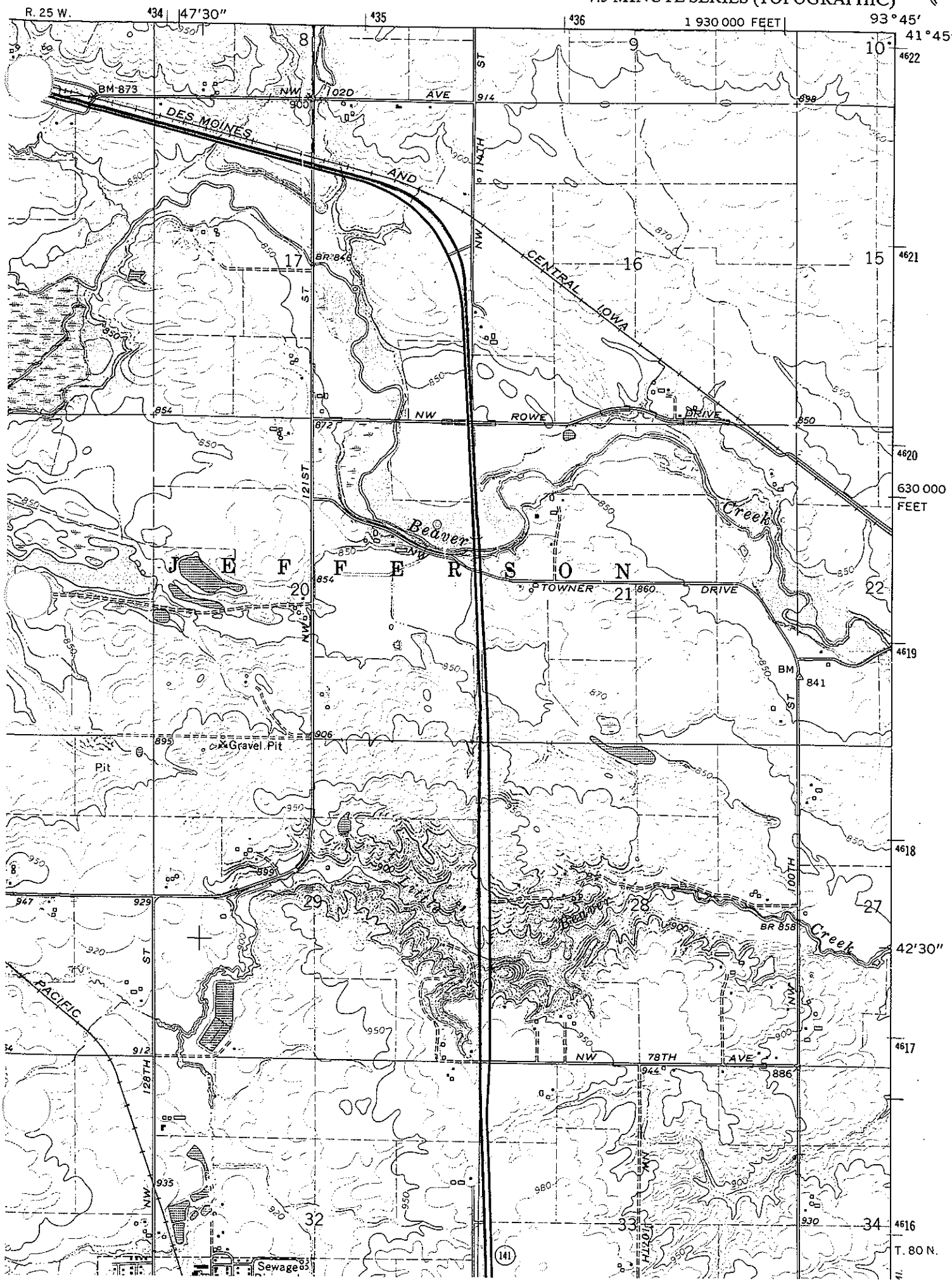
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY



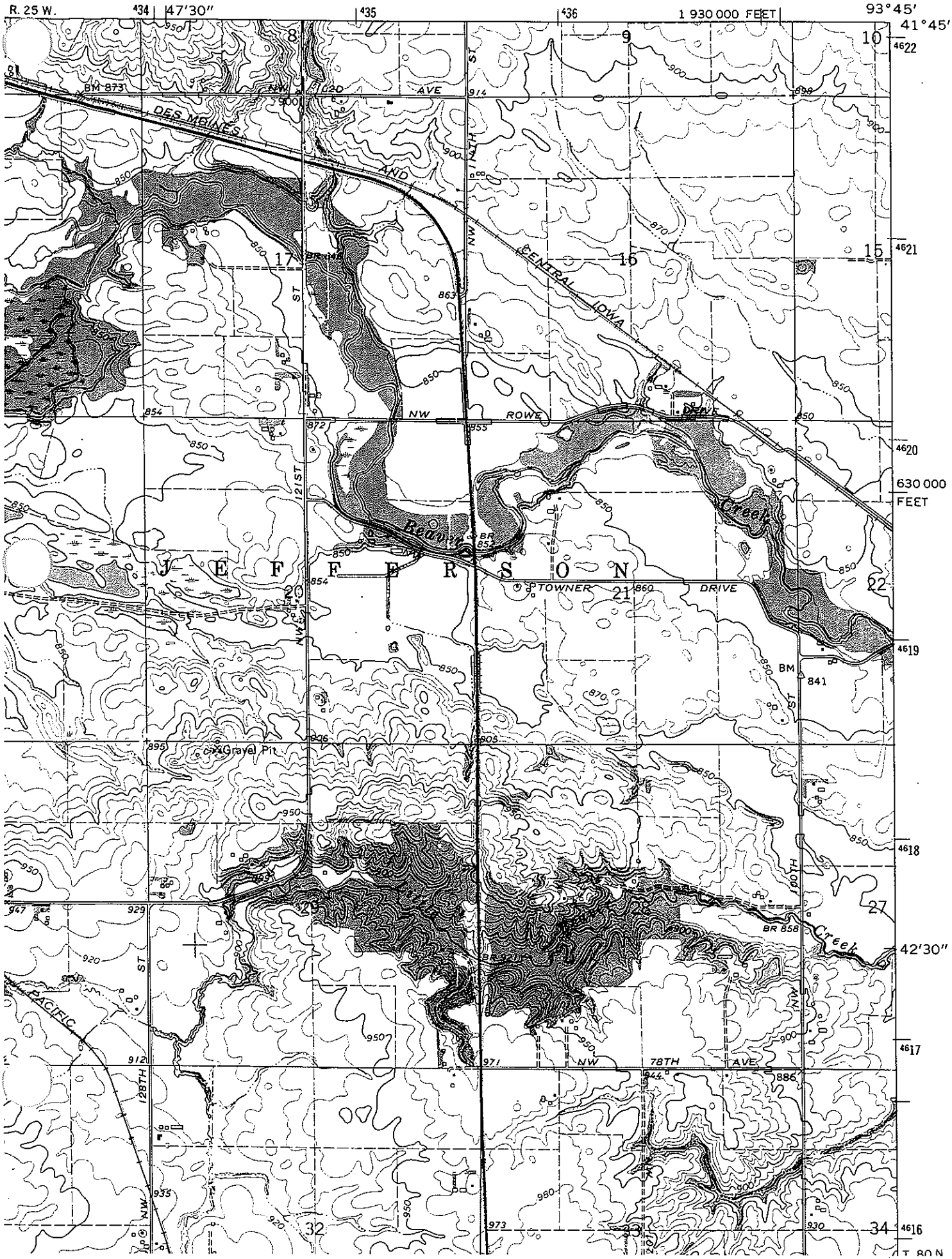
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY



7.5 MINUTE SERIES (TOPOGRAPHIC)

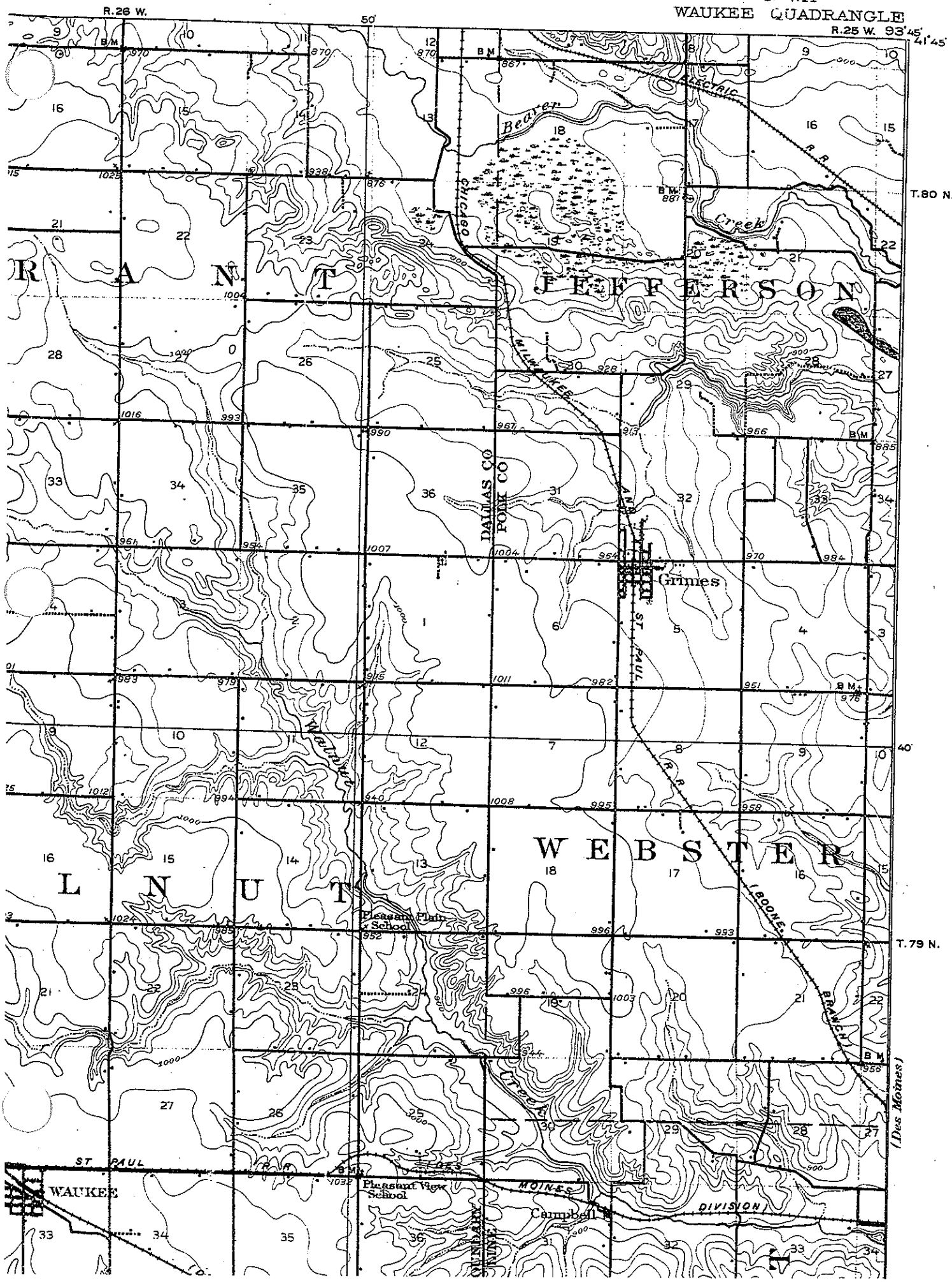


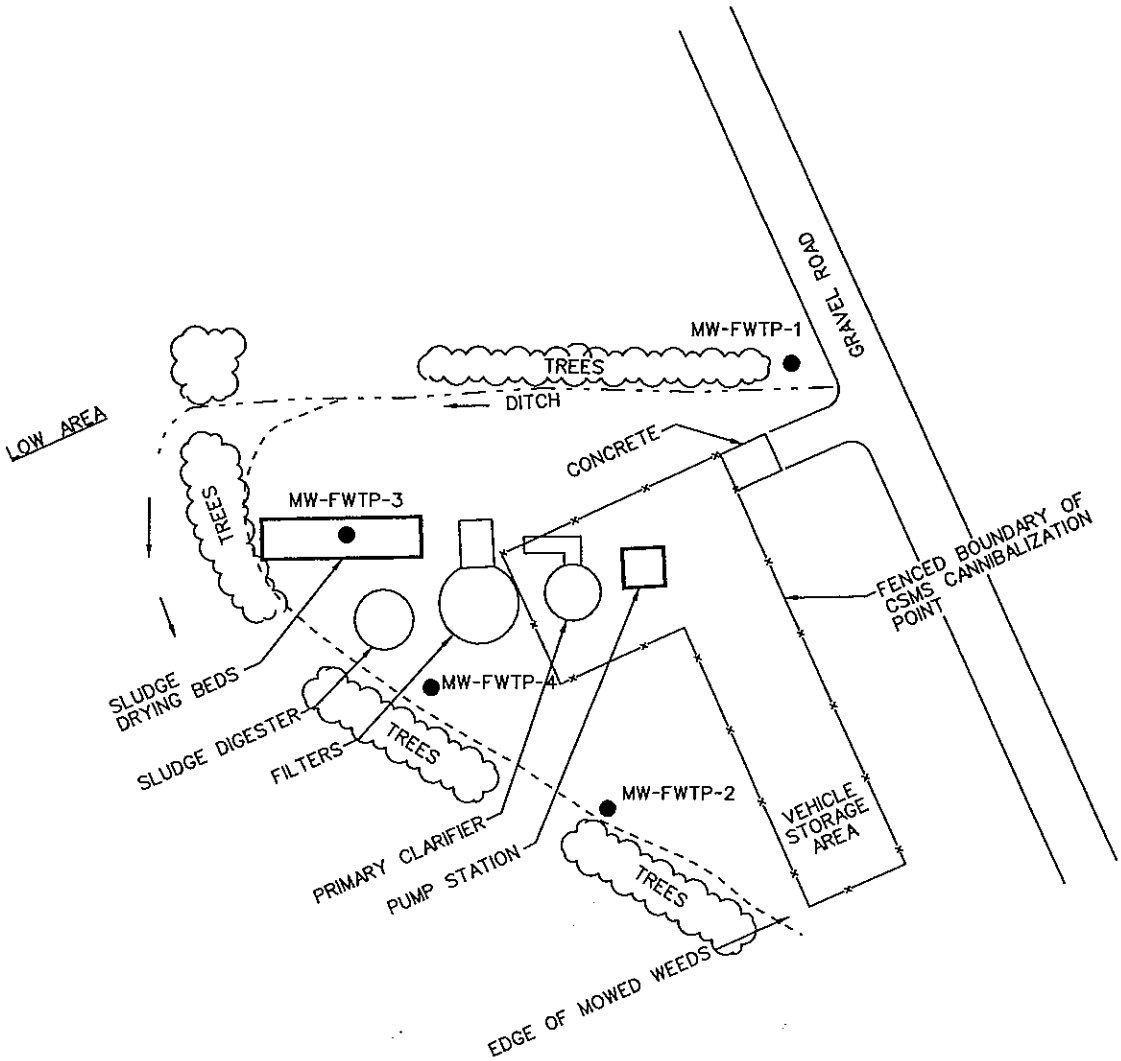
IOWA
7.5 MINUTE SERIES (TOPOGRAPHIC)
NE/4 WAUKEE 15' QUADRANGLE



OPOGRAPHY

IOWA
WAUKEE QUADRANGLE





LEGEND:

● MONITORING WELL

N

0 80

SCALE IN FEET

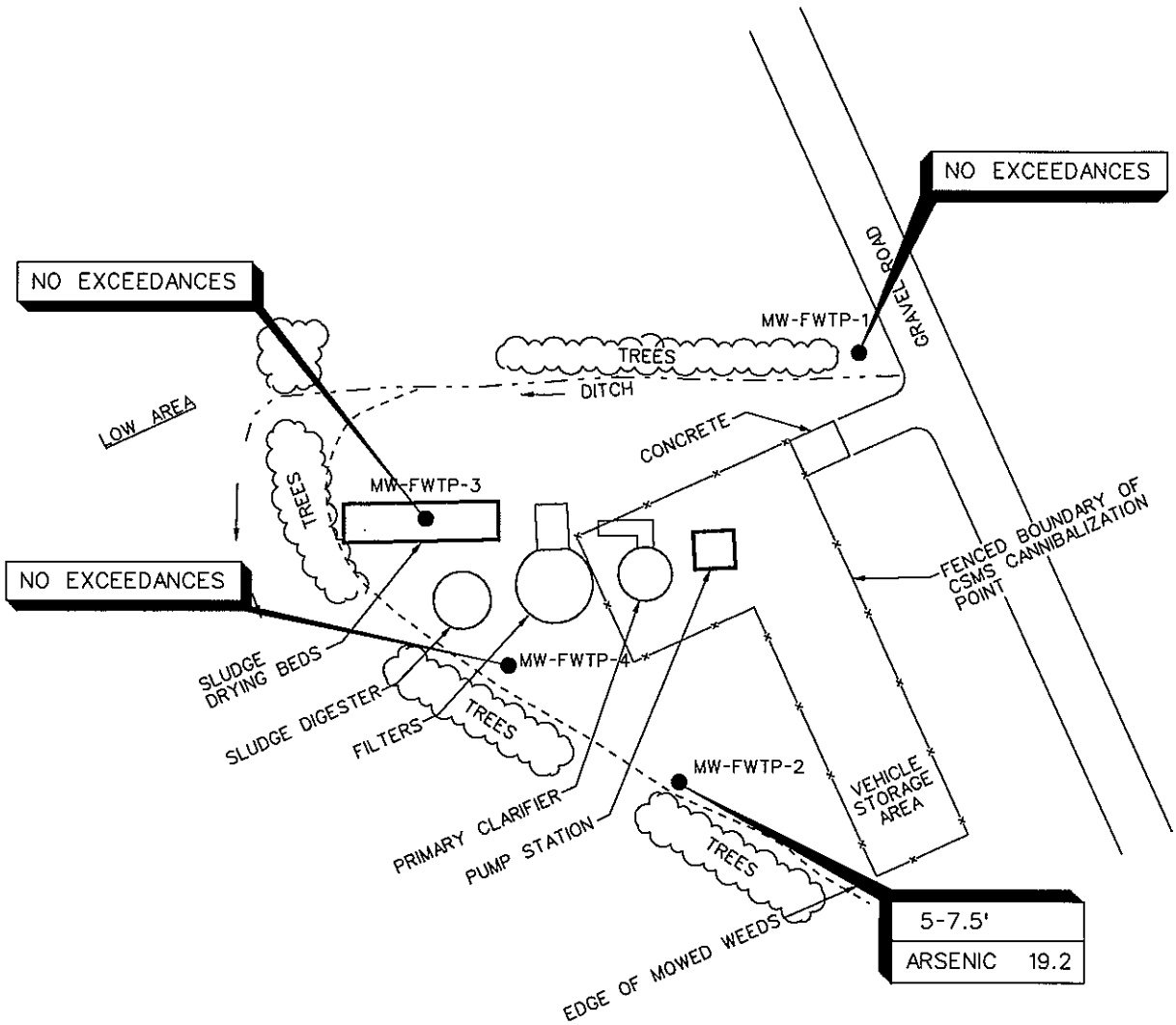
MONTGOMERY WATSON

IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

SITE LAYOUT AND SAMPLE LOCATION MAP FORMER WASTEWATER TREATMENT PLANT

FIGURE 4-7a

p:\cad\...ny\johnston\sireport\sislm_fwtp.dgn 15-MAR-2001



LEGEND:

● MONITORING WELL

NOTES:

SAMPLES WERE COLLECTED ON AUGUST 18, 2000.

RESULTS ARE IN MILLIGRAMS PER KILOGRAM.

RESULTS SHOWN EXCEED AN IOWA DEPARTMENT OF NATURAL RESOURCES STATEWIDE STANDARD.

N

0 80

SCALE IN FEET

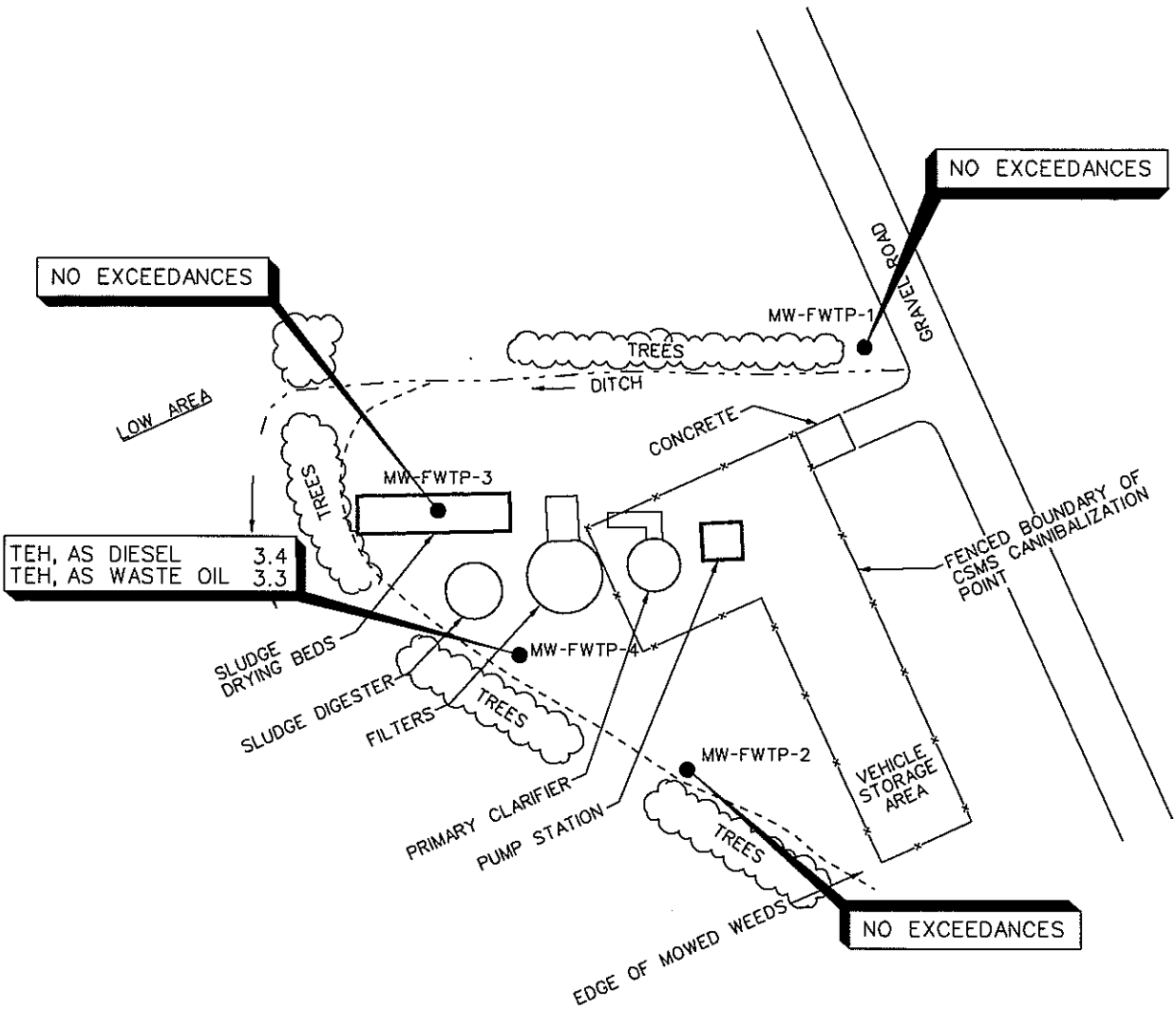
IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

EXCEEDANCES IN SOIL FORMER WASTEWATER TREATMENT PLANT

FIGURE 4-7b

MONTGOMERY WATSON

p:\cad\ny\johnston\airport\eis_fwtp.dgn 15-MAR-2001



LEGEND:

● MONITORING WELL

NOTES:

SAMPLES WERE COLLECTED ON AUGUST 18, 2000.

RESULTS ARE IN MICROGRAMS PER LITER.

RESULTS SHOWN EXCEED AN IOWA DEPARTMENT OF NATURAL RESOURCES TIER 1 CLEAN UP LEVEL.

N

0 80

SCALE IN FEET

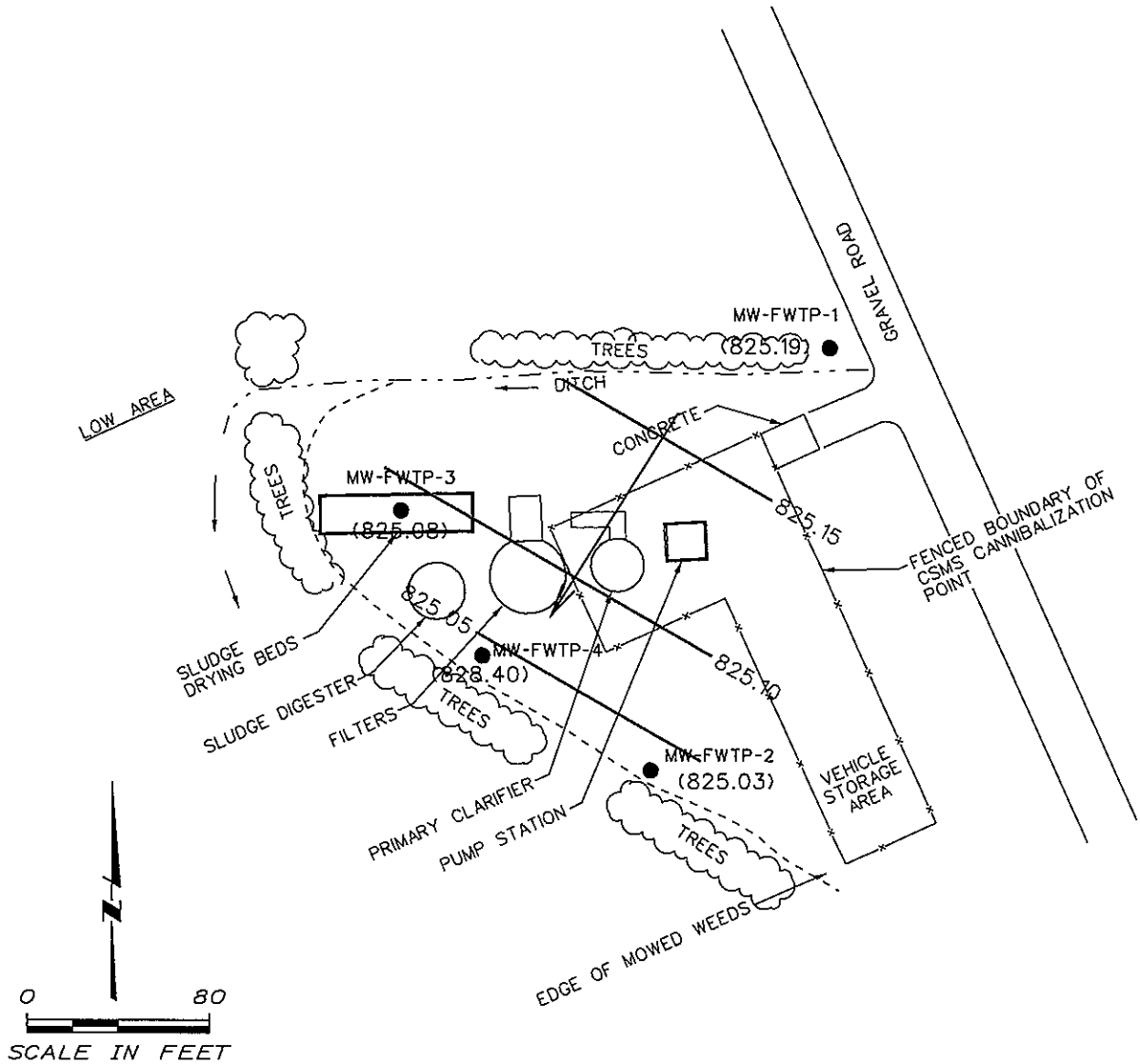
IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

EXCEEDANCES IN GROUNDWATER FORMER WASTEWATER TREATMENT PLANT

FIGURE 4-7c

MONTGOMERY WATSON

p:\cad\ny\johnston\sireport\eig_fwtp.dgn 15-MAR-2001



LEGEND:

- ● MONITORING WELL
- ⟵ INFERRED DIRECTION OF GROUNDWATER FLOW
- —— WATER TABLE CONTOUR
- (825.03) WATER TABLE ELEVATION

NOTE:

THE WATER TABLE ELEVATION AT MW-FWTP-4 APPEARED ANOMALOUS AND WAS NOT USED TO DETERMINE GROUNDWATER FLOW DIRECTION.

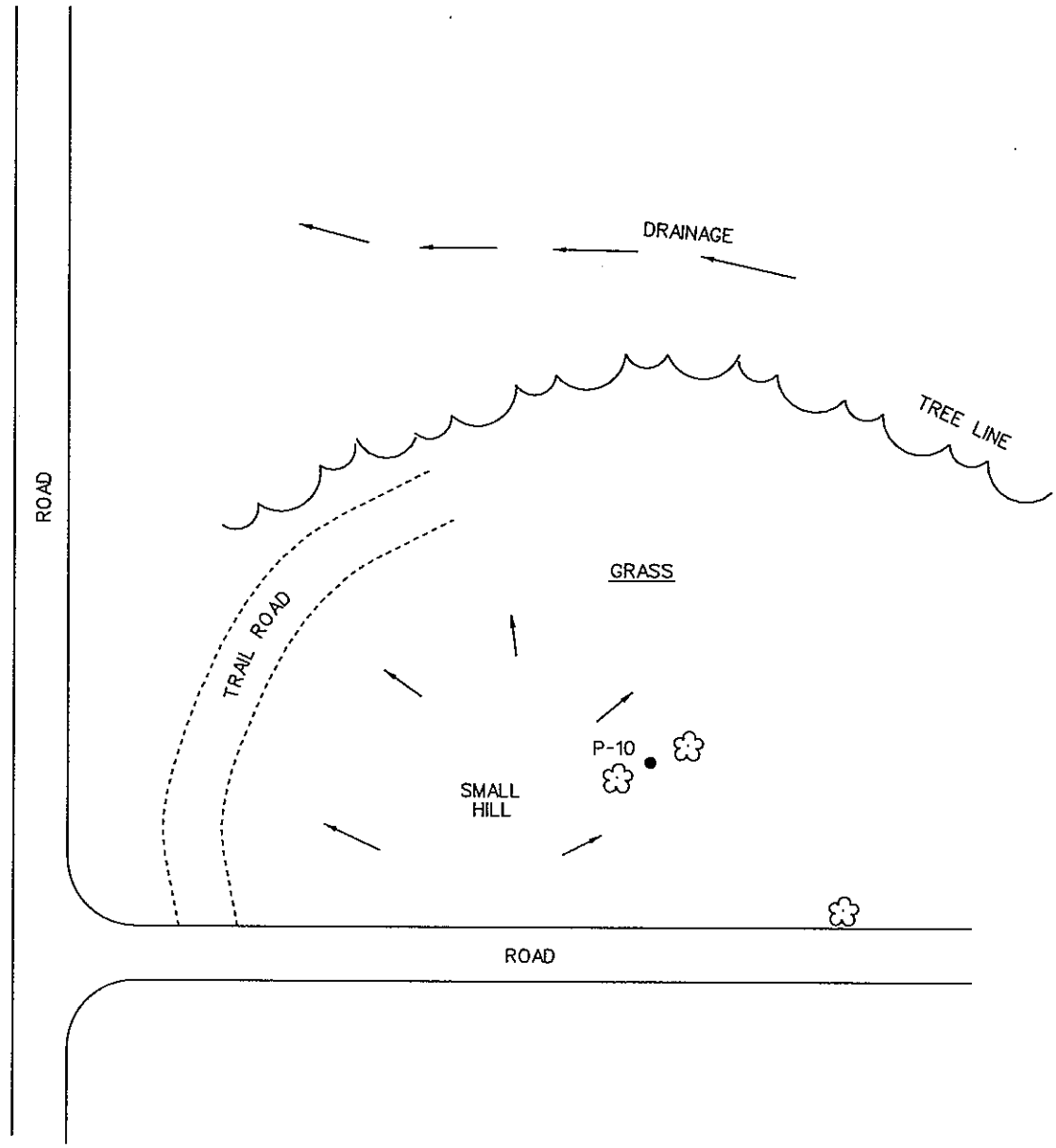
IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

GROUNDWATER FLOW DIRECTION MAP NOVEMBER 16, 2000 FORMER WASTEWATER TREATMENT PLANT

FIGURE 4-7d

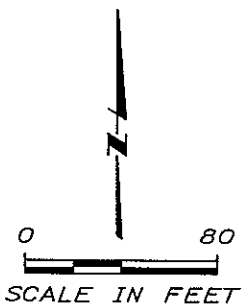
MONTGOMERY WATSON

p:\cad my\johnston\sireport\gfdm_fwtp.dgn 16-MAR-2001



LEGEND:

- PIEZOMETER

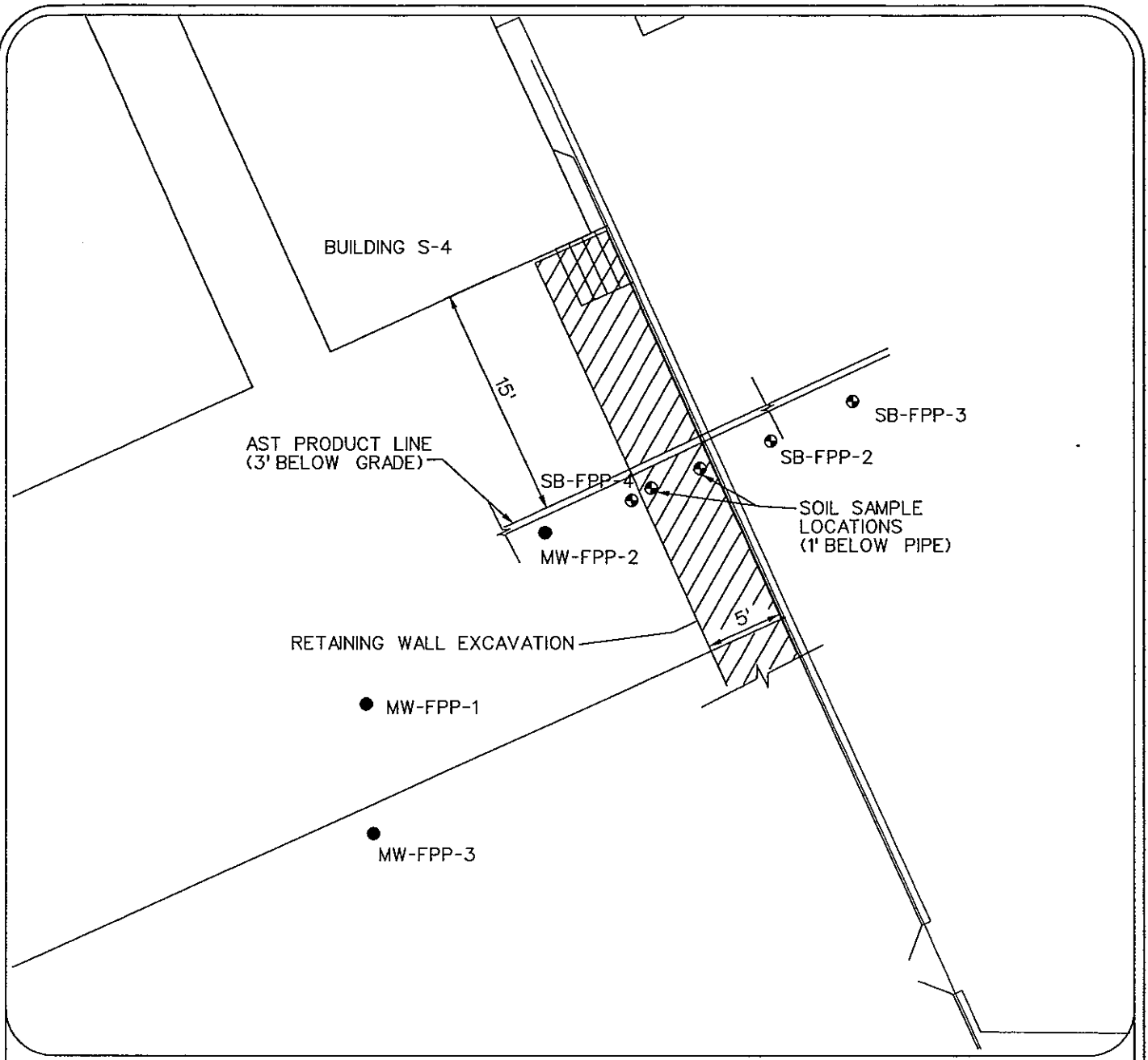


MONTGOMERY WATSON

IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

SITE LAYOUT AND SAMPLE LOCATION MAP MONITORING WELL P-10

FIGURE 4-8a



LEGEND:

- ● MONITORING WELL
- ⊕ SOIL BORING

N

0 10

SCALE IN FEET

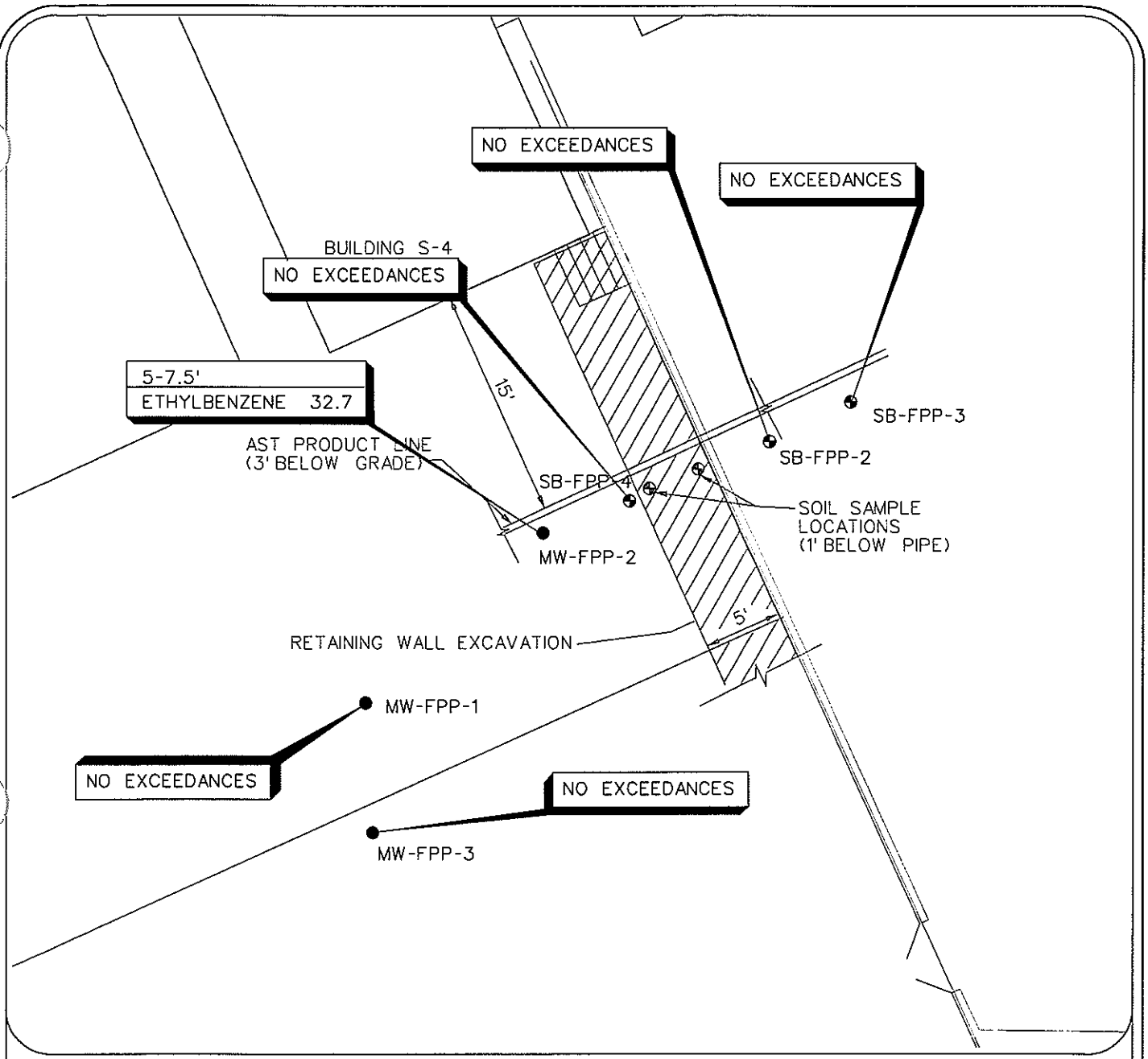
IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

SITE LAYOUT AND SAMPLE LOCATION MAP FUEL PRODUCT PIPELINE

FIGURE 4-10a

MONTGOMERY WATSON

p:\cad\...rmy\johnston\sireport\slslm_fpps.dgn 15-MAR-2001

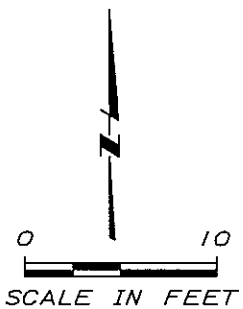


LEGEND:

- ● MONITORING WELL
- ⊕ SOIL BORING

NOTES:

SAMPLES WERE COLLECTED ON AUGUST 22, 2000.



IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

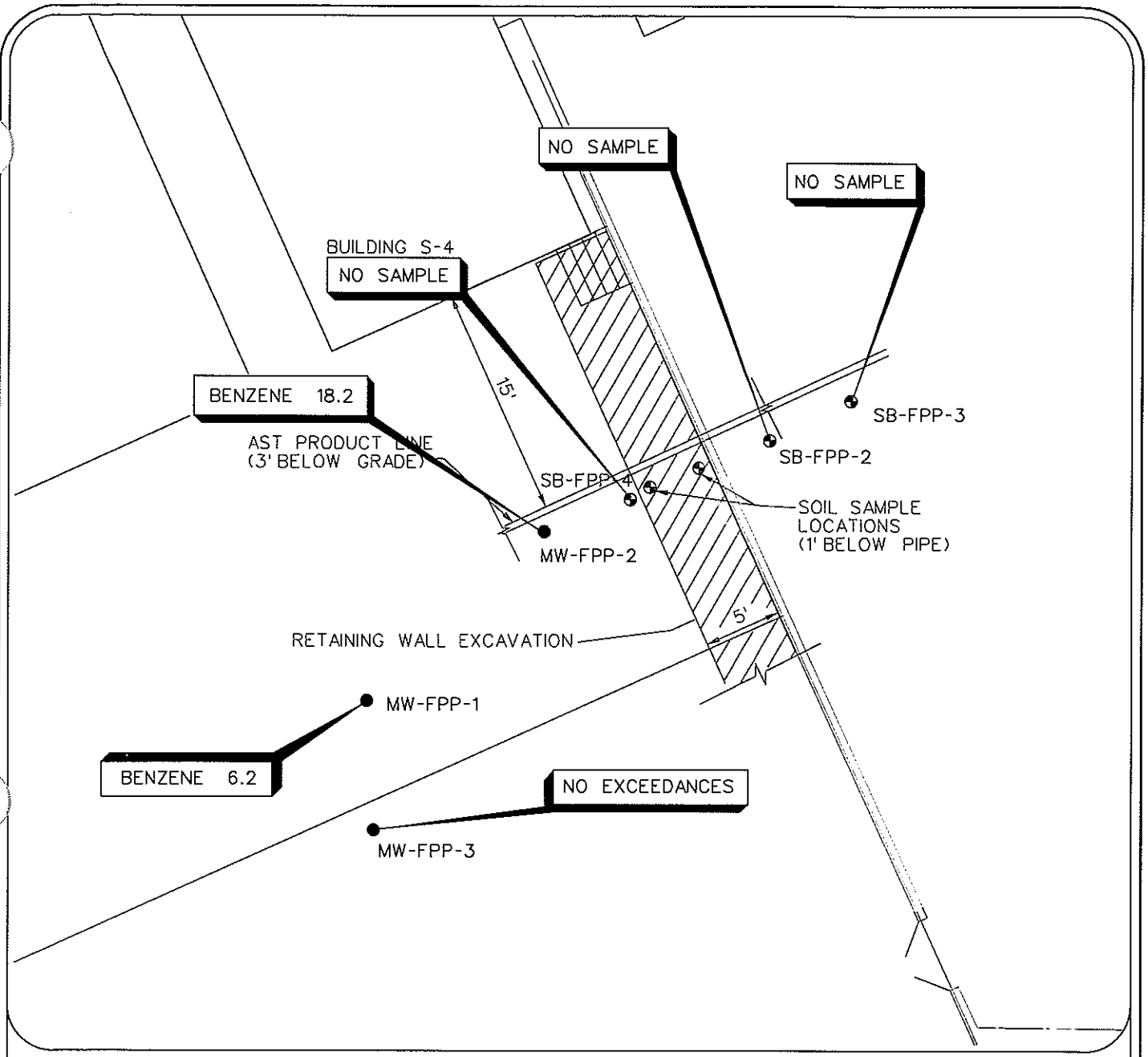
MONTGOMERY WATSON

EXCEEDANCES IN SOIL
FUEL PRODUCT PIPELINE

FIGURE 4-10b

17-APR-2001

p:\cad\gi...\johnston\airport\eis_fpps.dgn



LEGEND:

- ● MONITORING WELL
- ◐ SOIL BORING

PIEZOMETER INSTALLED AND ABANDONED DURING THE PRELIMINARY ASSESSMENT

NOTES:

SAMPLES WERE COLLECTED ON AUGUST 22, 2000.

N

0 10

SCALE IN FEET

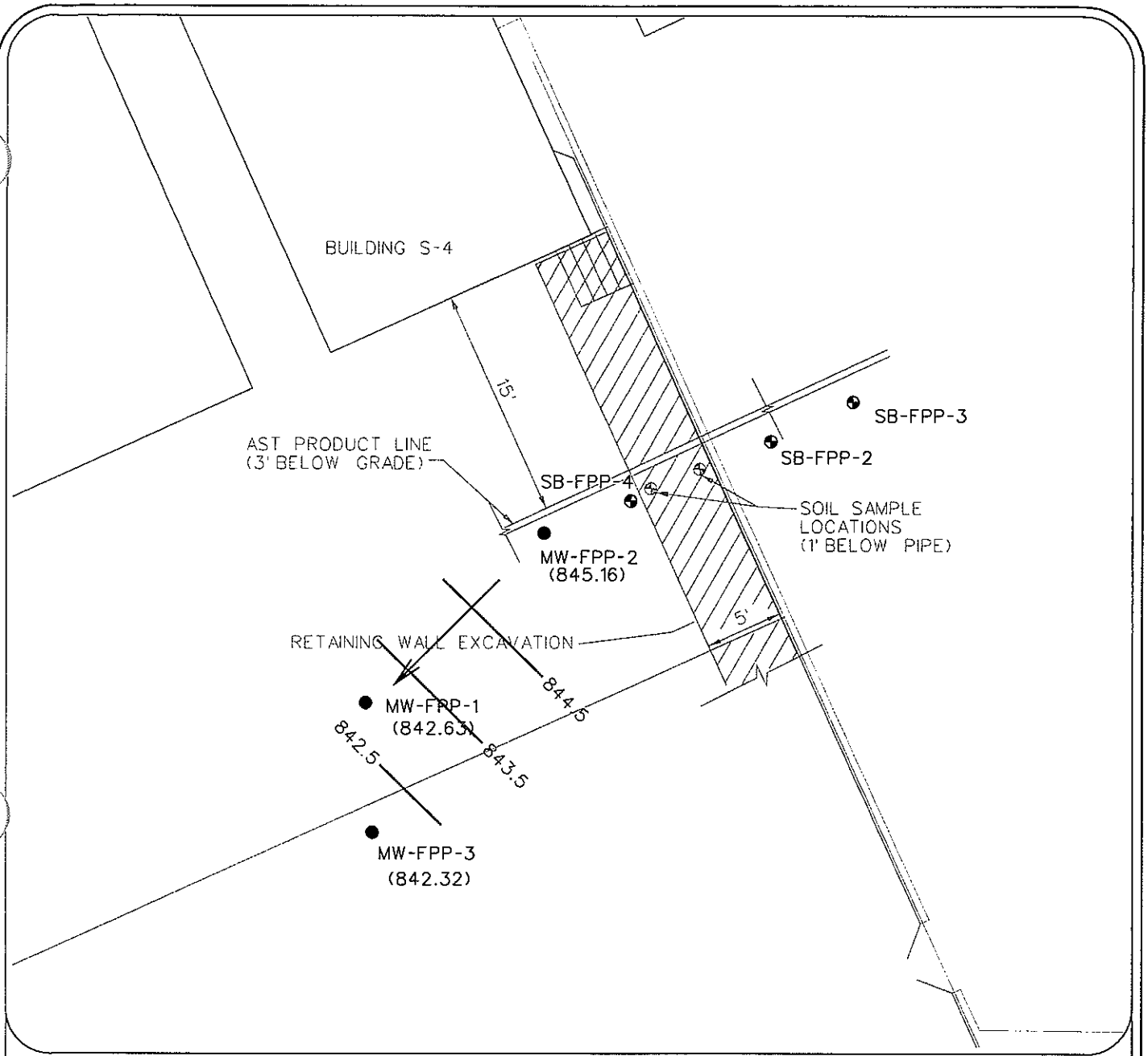
IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

EXCEEDANCES IN GROUNDWATER FUEL PRODUCT PIPELINE

FIGURE 4-10c

MONTGOMERY WATSON

p:\cad\gi /\johnston\sireport\eig_fpps.dgn 17-APR-2001



LEGEND:

- ● MONITORING WELL
- ⊕ SOIL BORING
- ⟵ INFERRED DIRECTION OF GROUNDWATER FLOW
- —— WATER TABLE CONTOUR
- (842.32) WATER TABLE ELEVATION

N

0 10

SCALE IN FEET

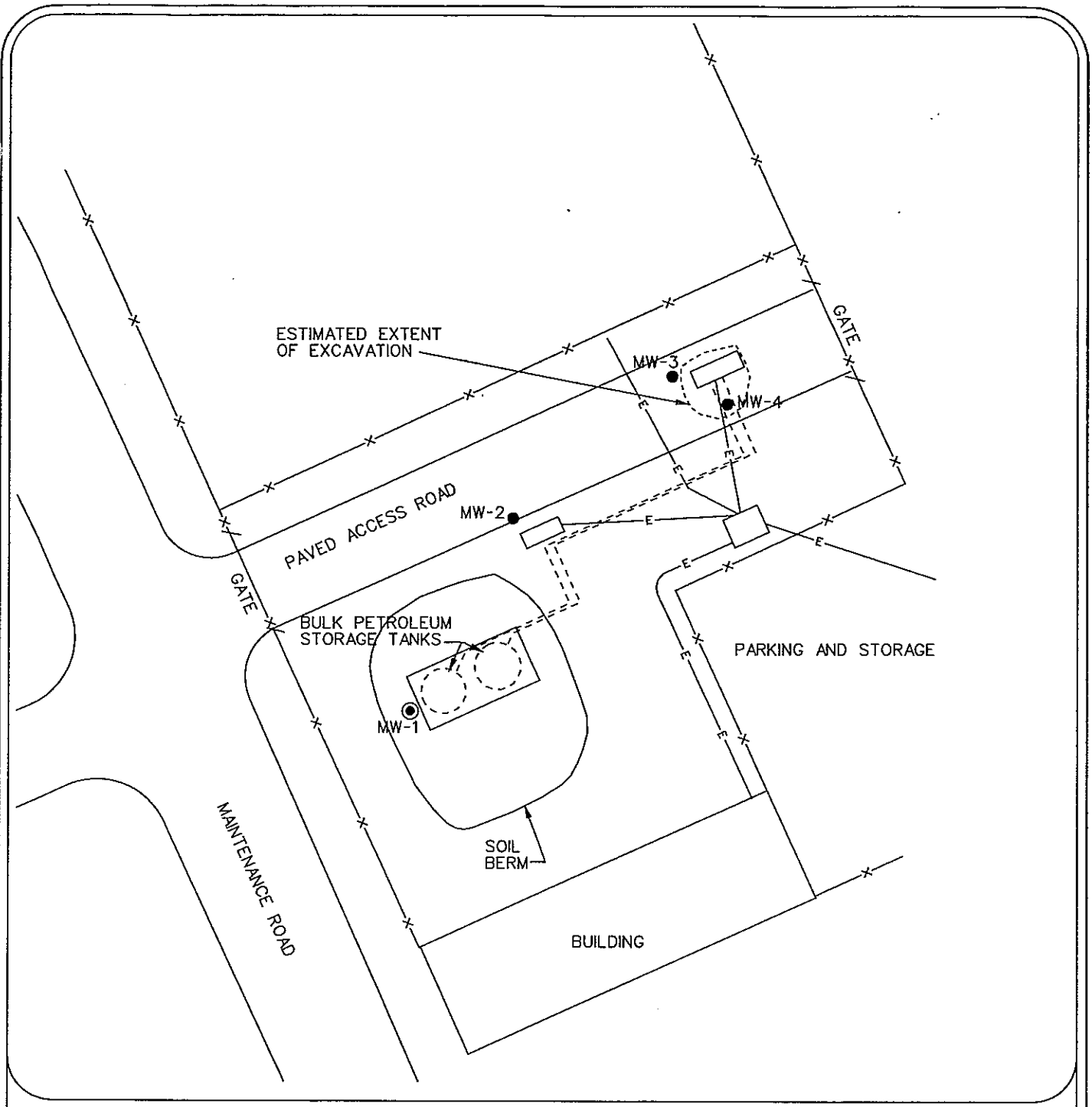
IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

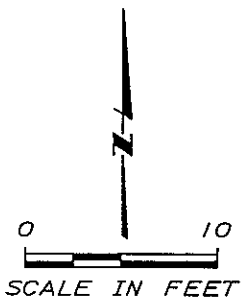
GROUNDWATER FLOW DIRECTION MAP FUEL PRODUCT PIPELINE

FIGURE 4–10d

MONTGOMERY WATSON

p:\cad\ ny\johnston\sireport\gfdm_fpps.dgn 15-MAR-2001





LEGEND:

- ◉ MONITORING WELL
- ● FORMER MONITORING WELL

MONTGOMERY WATSON

IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

SITE LAYOUT AND SAMPLE LOCATION MAP FORMER BULK FUEL POINT

FIGURE 4-11a

A01

Keystone
LABORATORIES, INC.

ANALYTICAL REPORT

July 31, 1997

Report To

Keith Schilling
Montgomery-Watson
11107 Aurora Avenue

Des Moines, IA 50322

Sample Information

Work Order: 1707.0774
Sample No: 1717298
Date Collected: 07/25/97 10:00 AM
Date Received: 07/28/97 12:30 PM
Collector: Keith Schilling
Collector Phone: 515-253-0830
Matrix: water

Site Information/Sample Description

Camp Dodge PA

P-10

Comments

Analyte	Analysis Result		Detection Limit	Method	Analyst	Date Analyzed
Determination of volatile organic compounds.						
1,1,1-Trichloroethane	< 1.	ug/L	1.	EPA 8260	EPP	07/29/97
1,1,2,2-Tetrachloroethane	< 1.	ug/L	1.	EPA 8260	EPP	07/29/97
1,1,2-Trichloroethane	< 1.	ug/L	1.	EPA 8260	EPP	07/29/97
1,1-Dichloroethane	< 1.	ug/L	1.	EPA 8260	EPP	07/29/97
1,1-Dichloroethylene	< 1.	ug/L	1.	EPA 8260	EPP	07/29/97
1,2-Dichlorobenzene	< 1.	ug/L	1.	EPA 8260	EPP	07/29/97
1,2-Dichloroethane	< 0.4	ug/L	0.4	EPA 8260	EPP	07/29/97
1,2-Dichloropropane	< 1.	ug/L	1.	EPA 8260	EPP	07/29/97
1,3-Dichlorobenzene	< 1.	ug/L	1.	EPA 8260	EPP	07/29/97
1,4-Dichlorobenzene	< 1.	ug/L	1.	EPA 8260	EPP	07/29/97
2-Butanone (MEK)	< 5.	ug/L	5.	EPA 8260	EPP	07/29/97
2-Hexanone (MBK)	< 5.	ug/L	5.	EPA 8260	EPP	07/29/97
4-Methyl-2-pentanone (MIBK)	< 5.	ug/L	5.	EPA 8260	EPP	07/29/97
Acetone	624.	ug/L	10.	EPA 8260	EPP	07/29/97
Benzene	< 1.	ug/L	1.	EPA 8260	EPP	07/29/97
Bromodichloromethane	< 1.	ug/L	1.	EPA 8260	EPP	07/29/97
Bromoform	< 1.	ug/L	1.	EPA 8260	EPP	07/29/97
momethane	< 1.	ug/L	1.	EPA 8260	EPP	07/29/97

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

Note: This report may not be reproduced except in full, without written approval of the laboratory.

600 East 17th Street South, Suite B, Newton, Iowa 50208 Toll Free: (800) 858-5227 Phone: (515) 792-8451 FAX: (515) 792-7989

Keystone
LABORATORIES, INC.

Work Order: 1707.0774
Sample No: 1717298
Report Date: 7/31/97

Site Name / Sample Description
Camp Dodge PA
P-10

Analyte	Analysis Result		Detection Limit	Method	Analyst	Date Analyzed
Carbon Disulfide	< 1.	ug/L	1.	EPA 8260	EPP	07/29/97
Carbon Tetrachloride	< 0.3	ug/L	0.3	EPA 8260	EPP	07/29/97
Chlorobenzene	< 1.	ug/L	1.	EPA 8260	EPP	07/29/97
Chloroethane	< 1.	ug/L	1.	EPA 8260	EPP	07/29/97
Chloroform	< 1.	ug/L	1.	EPA 8260	EPP	07/29/97
Chloromethane	< 1.	ug/L	1.	EPA 8260	EPP	07/29/97
cis-1,2-Dichloroethylene	< 1.	ug/L	1.	EPA 8260	EPP	07/29/97
cis-1,3-Dichloropropene	< 1.	ug/L	1.	EPA 8260	EPP	07/29/97
Dibromochloromethane	< 1.	ug/L	1.	EPA 8260	EPP	07/29/97
Ethylbenzene	< 1.	ug/L	1.	EPA 8260	EPP	07/29/97
Methylene Chloride	< 5.	ug/L	5.	EPA 8260	EPP	07/29/97
Naphthalene	< 1.	ug/L	1.	EPA 8260	EPP	07/29/97
Tetrachloroethylene	< 1.	ug/L	1.	EPA 8260	EPP	07/29
Toluene	< 1.	ug/L	1.	EPA 8260	EPP	07/29/
trans-1,2-Dichloroethylene	< 1.	ug/L	1.	EPA 8260	EPP	07/29/97
trans-1,3-Dichloropropene	< 1.	ug/L	1.	EPA 8260	EPP	07/29/97
Trichloroethylene	< 1.	ug/L	1.	EPA 8260	EPP	07/29/97
Vinyl Chloride	< 1.	ug/L	1.	EPA 8260	EPP	07/29/97
Xylenes, total	< 1.	ug/L	1.	EPA 8260	EPP	07/29/97

George Dawson
Keystone Laboratories, Inc.

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

Note: This report may not be reproduced except in full, without written approval of the laboratory.

600 East 17th Street South, Suite B, Newton, Iowa 50208 Toll Free: (800) 858-5227 Phone: (515) 792-8451 FAX: (515) 792-7989

Fed Ex. # 1707 374

Cooler #

MONTGOMERY WATSON

CHAIN OF CUSTODY RECORD

DESTINATION: MONTGOMERY LABORATORIES ☐

OTHER: ☐

PROJECT NAME: Camp Dodge PA

PROJECT JOB #:

SAMPLER(S): PRINTED NAME AND SIGNATURE: Keith Schilling

ANALYSES REQUIRED

TIME	DATE	LOCATION	IDENTIFIER	QA/OC	GRAB	COMP	NUMBER/SIZE OF CONTAINERS	VOC's 8260	Semi-Volatiles									REMARKS
1000	7/25	P-10			X		3-40ml	X									X	1717298
							1-amber qt.		X									

	SIGNATURE	PRINT NAME	COMPANY/TITLE	DATE	TIME
RELINQUISHED BY:	Keith Schilling	Keith Schilling	Montgomery Watson Sr Hydrogeologist	7/28/97	0930
RECEIVED BY:	Bill Bush	Bill Bush	Keystone Labs/Courier	7-28-97	12:30
RELINQUISHED BY:					
RECEIVED BY:					
RELINQUISHED BY:					
RECEIVED BY:					

C-O-C No. ORIGINAL COPY: SEND WITH SAMPLE YELLOW COPY: RETAINED BY SAMPLER PINK: OFFICE COPY PAGE ____ OF ____

Keystone LABORATORIES, INC.

MEMBER ACIL

ANALYTICAL REPORT

Report To

Kevin Armstrong
Montgomery-Watson
11107 Aurora Avenue

Des Moines, IA 50322

Sample Information

Work Order: 1806.0634
Date Received: 06/18/98 11:30 AM
Collector: Kevin Armstrong
Collector Phone: 515-253-0830
Report Date: 06/23/98

Site Information

Camp Dodge Preliminary Assessment
Proj. #1217117.051801

Comments

Specific sample comments (if any) are shown below.

Sample No : Description : Date Collected : Matrix Analyte	Analysis Result		Detection Limit	Method	Analyst	Date Analyzed
[illegible]540 PZ-10 : 6/17/98 9:35:00 AM : water						
Benzene	< 1.	ug/L	1.	Iowa OA-1	TVA	06/19/98
Toluene	73.	ug/L	1.	Iowa OA-1	TVA	06/19/98
Ethylbenzene	1.	ug/L	1.	Iowa OA-1	TVA	06/19/98
Xylenes, total	3.	ug/L	1.	Iowa OA-1	TVA	06/19/98
TEH, as gasoline	< 0.1	mg/L	0.1	Iowa OA-2	CLM	06/22/98
TEH, as #2 diesel fuel	< 0.1	mg/L	0.1	Iowa OA-2	CLM	06/22/98
TEH, as waste oil	< 0.1	mg/L	0.1	Iowa OA-2	CLM	06/22/98
Total Extractable Hydrocarbons	< 0.1	mg/L	0.1	Iowa OA-2	CLM	06/22/98
Water extraction for TEH				EPA 3510	JJR	06/18/98
1813641 PZ-11 : 6/17/98 9:05:00 AM : water						
Benzene	< 1.	ug/L	1.	Iowa OA-1	TVA	06/22/98
Toluene	1.	ug/L	1.	Iowa OA-1	TVA	06/22/98
Ethylbenzene	< 1.	ug/L	1.	Iowa OA-1	TVA	06/22/98
Xylenes, total	< 1.	ug/L	1.	Iowa OA-1	TVA	06/22/98
TEH, as gasoline	< 0.1	mg/L	0.1	Iowa OA-2	CLM	06/22/98
TEH, as #2 diesel fuel	< 0.1	mg/L	0.1	Iowa OA-2	CLM	06/22/98
TEH, as waste oil	< 0.1	mg/L	0.1	Iowa OA-2	CLM	06/22/98
Total Extractable Hydrocarbons	< 0.1	mg/L	0.1	Iowa OA-2	CLM	06/22/98
Water extraction for TEH				EPA 3510	JJR	06/18/98

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

Note: This report may not be reproduced except in full, without written approval of the laboratory.

Keystone
LABORATORIES, INC.

MEMBER ACIL

Work Order: 1806.0634
Report Date: 6/23/98

Sample No : Description : Date Collected : Matrix Analyte	Analysis Result		Detection Limit	Method	Analyst	Date Analyzed
1813642 PZ-12 : 6/17/98 10:30:00 AM : water						
Benzene	188.	ug/L	1.	Iowa OA-1	TVA	06/19/98
Toluene	39.	ug/L	1.	Iowa OA-1	TVA	06/19/98
Ethylbenzene	28.	ug/L	1.	Iowa OA-1	TVA	06/19/98
Xylenes, total	455.	ug/L	1.	Iowa OA-1	TVA	06/19/98
TEH, as gasoline	5.1	mg/L	0.1	Iowa OA-2	CLM	06/22/98
TEH, as #2 diesel fuel	< 0.1	mg/L	0.1	Iowa OA-2	CLM	06/22/98
TEH, as waste oil	< 0.1	mg/L	0.1	Iowa OA-2	CLM	06/22/98
Total Extractable Hydrocarbons	5.1	mg/L	0.1	Iowa OA-2	CLM	06/22/98
Water extraction for TEH				EPA 3510	JJR	06/18/98
1813643 PZ-19 : 6/17/98 11:20:00 AM : water						
Benzene	< 1.	ug/L	1.	Iowa OA-1	TVA	06/19/98
Toluene	< 1.	ug/L	1.	Iowa OA-1	TVA	06/19/98
Ethylbenzene	< 1.	ug/L	1.	Iowa OA-1	TVA	06/19/98
Xylenes, total	< 1.	ug/L	1.	Iowa OA-1	TVA	06/19/98
TEH, as gasoline	< 0.1	mg/L	0.1	Iowa OA-2	CLM	06/22/98
TEH, as #2 diesel fuel	< 0.1	mg/L	0.1	Iowa OA-2	CLM	06/22/98
TEH, as waste oil	< 0.1	mg/L	0.1	Iowa OA-2	CLM	06/22/98
Total Extractable Hydrocarbons	< 0.1	mg/L	0.1	Iowa OA-2	CLM	06/22/98
Water extraction for TEH				EPA 3510	JJR	06/18/98
1813644 PZ-20 : 6/17/98 11:35:00 AM : water						
Benzene	< 1.	ug/L	1.	Iowa OA-1	TVA	06/19/98
Toluene	< 1.	ug/L	1.	Iowa OA-1	TVA	06/19/98
Ethylbenzene	< 1.	ug/L	1.	Iowa OA-1	TVA	06/19/98
Xylenes, total	< 1.	ug/L	1.	Iowa OA-1	TVA	06/19/98
TEH, as gasoline	< 0.1	mg/L	0.1	Iowa OA-2	CLM	06/22/98
TEH, as #2 diesel fuel	< 0.1	mg/L	0.1	Iowa OA-2	CLM	06/22/98
TEH, as waste oil	< 0.1	mg/L	0.1	Iowa OA-2	CLM	06/22/98
Total Extractable Hydrocarbons	< 0.1	mg/L	0.1	Iowa OA-2	CLM	06/22/98
Water extraction for TEH				EPA 3510	JJR	06/18/98

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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Keystone LABORATORIES, INC.

MEMBER ACIL

Work Order: 1806.0634
Report Date: 6/23/98

Sample No : Description : Date Collected : Matrix Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed

Jeff King
Keystone Laboratories, Inc.

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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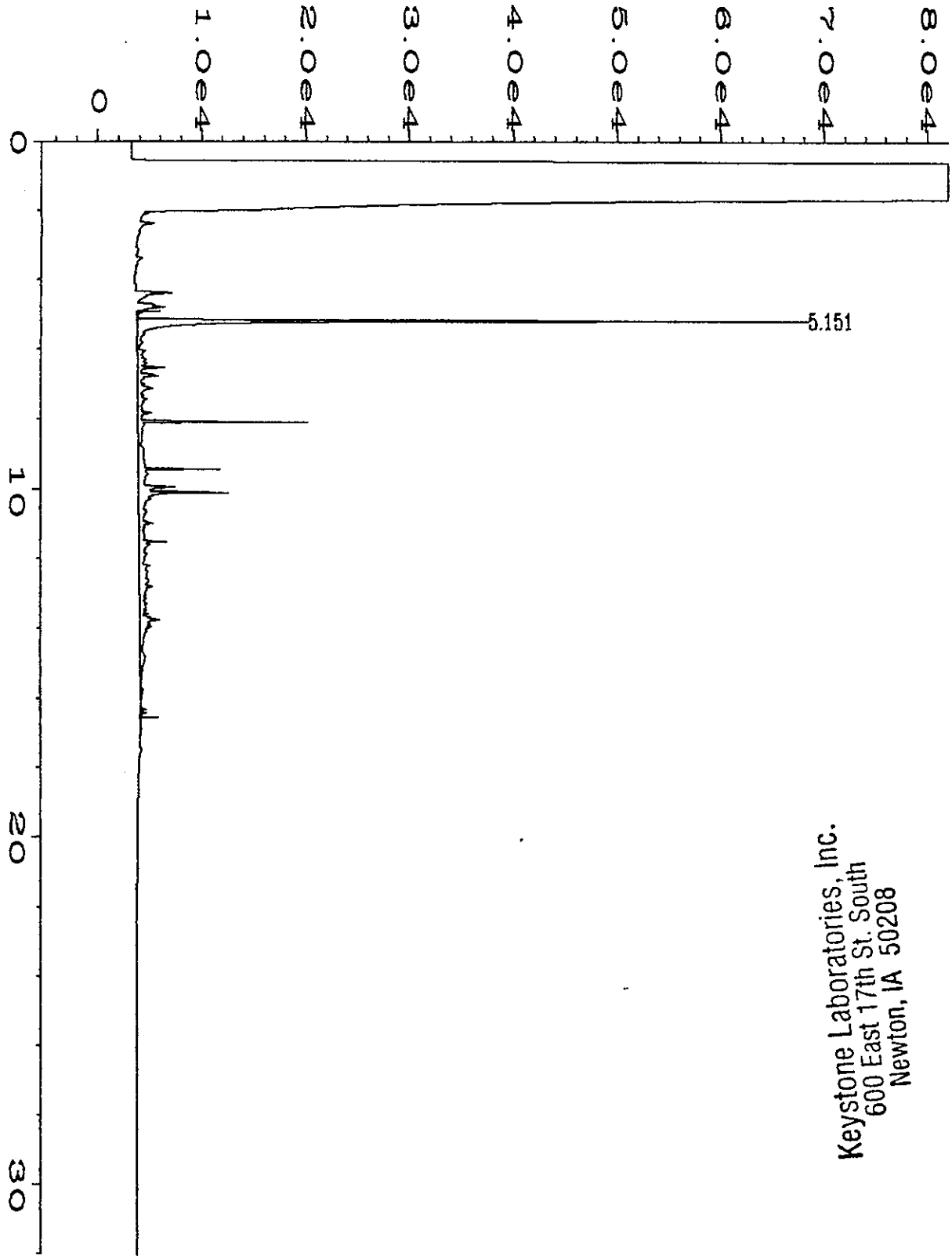
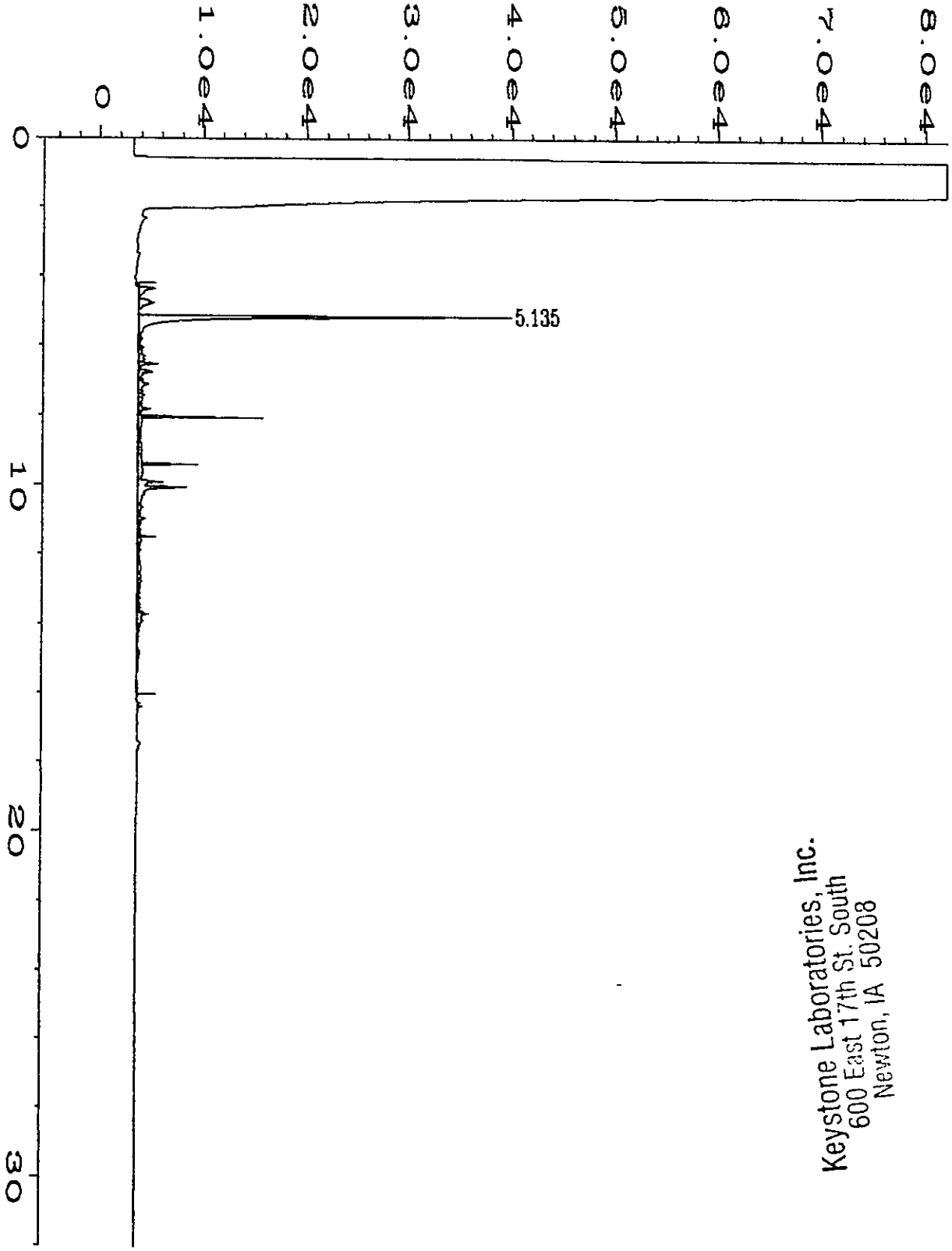


user modified

Keystone Laboratories, Inc.
600 East 17th St. South
Newton, IA 50208

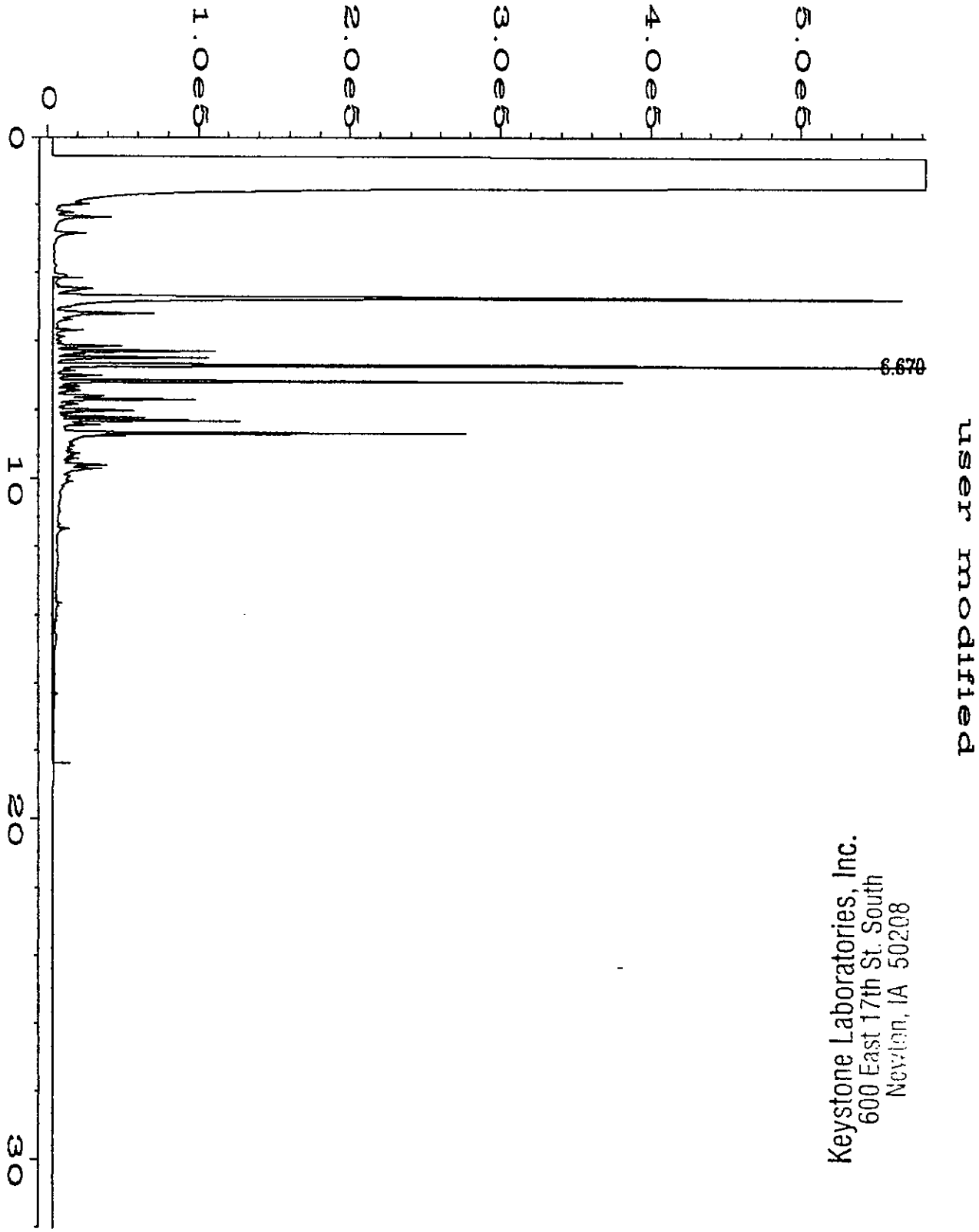
Data File Name	: F:\HPCHEM\2\DATA\062198A2\033F0101.D		
Operator	: MELTON	Page Number	: 1
Instrument	: #2 DUAL F	Vial Number	: 33
Sample Name	: 1813644 oa-2	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 22 Jun 98 06:59 AM	Instrument Method	: DIESEL.MTH
Report Created on:	22 Jun 98 09:15 AM	Analysis Method	: DIESEL.MTH



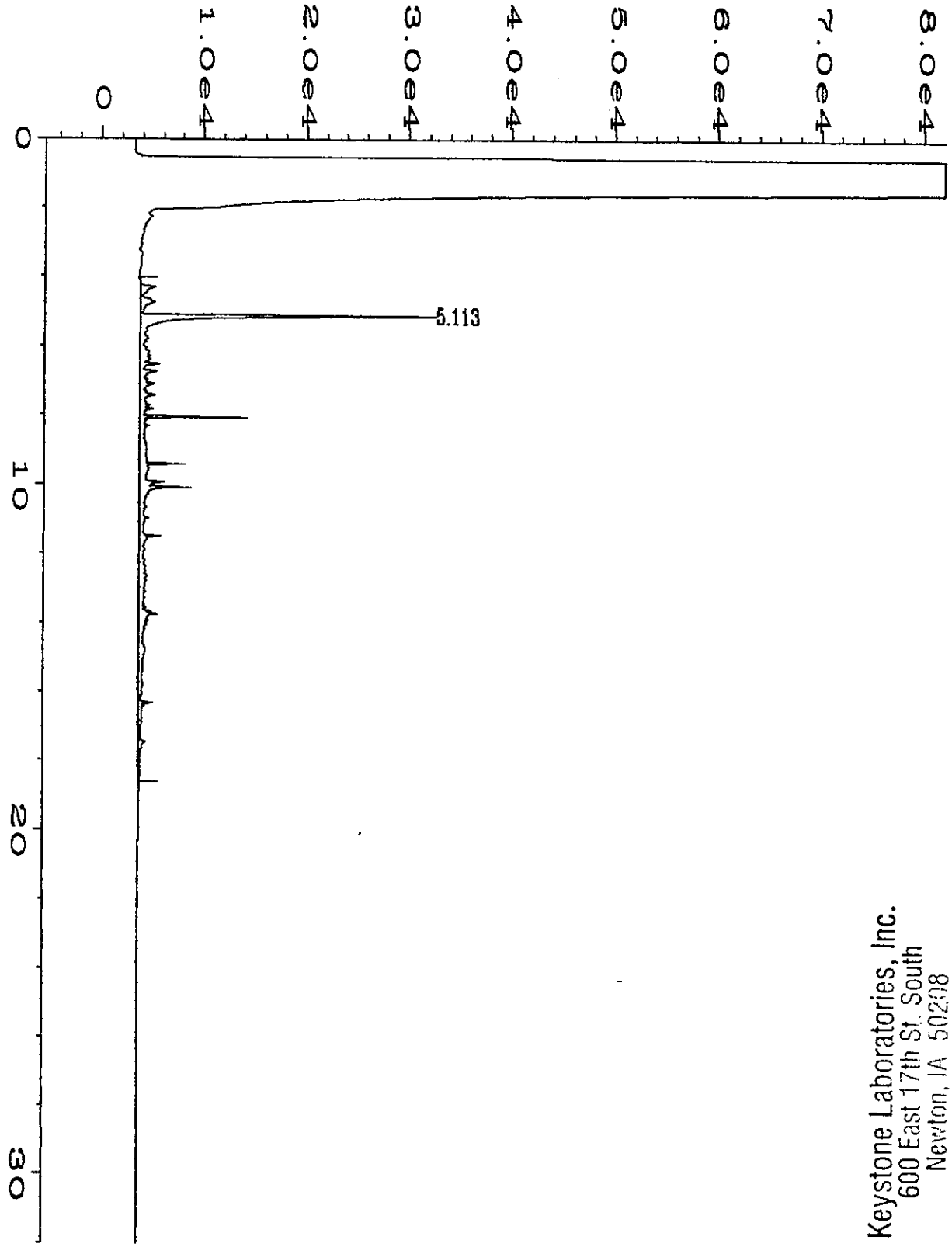
user modified

Keystone Laboratories, Inc.
600 East 17th St. South
Newton, IA 50208

Data File Name	: F:\HPCHEM\2\DATA\062198A2\032F0101.D		
Operator	: MELTON	Page Number	: 1
Instrument	: #2 DUAL F	Vial Number	: 32
Sample Name	: 1813643 oa-2	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 22 Jun 98 06:18 AM	Instrument Method	: DIESEL.MTH
Report Created on	: 22 Jun 98 09:15 AM	Analysis Method	: DIESEL.MTH



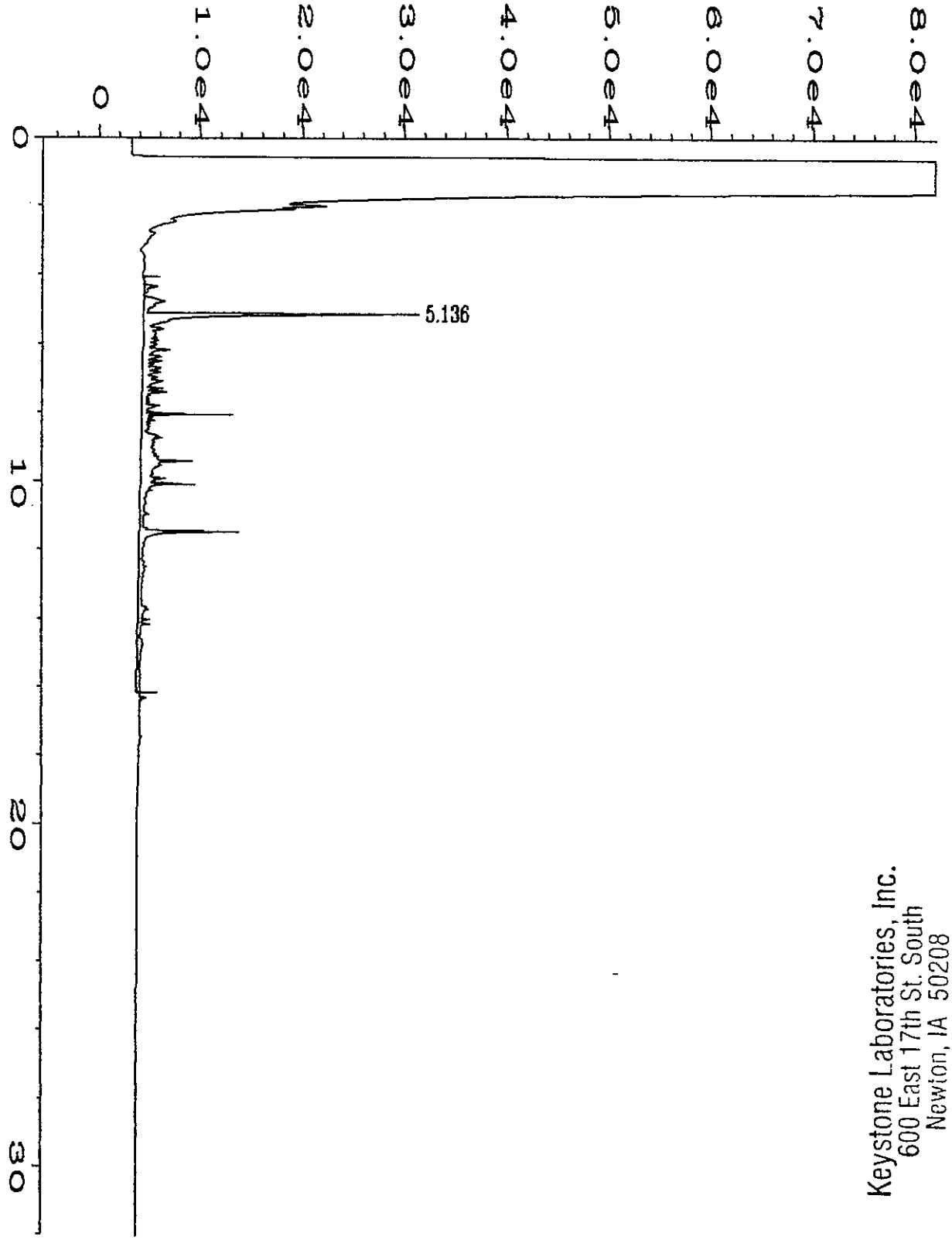
Data File Name	: F:\HPCHEM\2\DATA\062198A2\031F0101.D		
Operator	: MELTON	Page Number	: 1
Instrument	: #2 DUAL F	Vial Number	: 31
Sample Name	: 1813642 oa-2	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 22 Jun 98 05:37 AM	Instrument Method	: DIESEL.MTH
Report Created on:	22 Jun 98 09:14 AM	Analysis Method	: DIESEL.MTH



user modified

Keystone Laboratories, Inc.
600 East 17th St. South
Newton, IA 50208

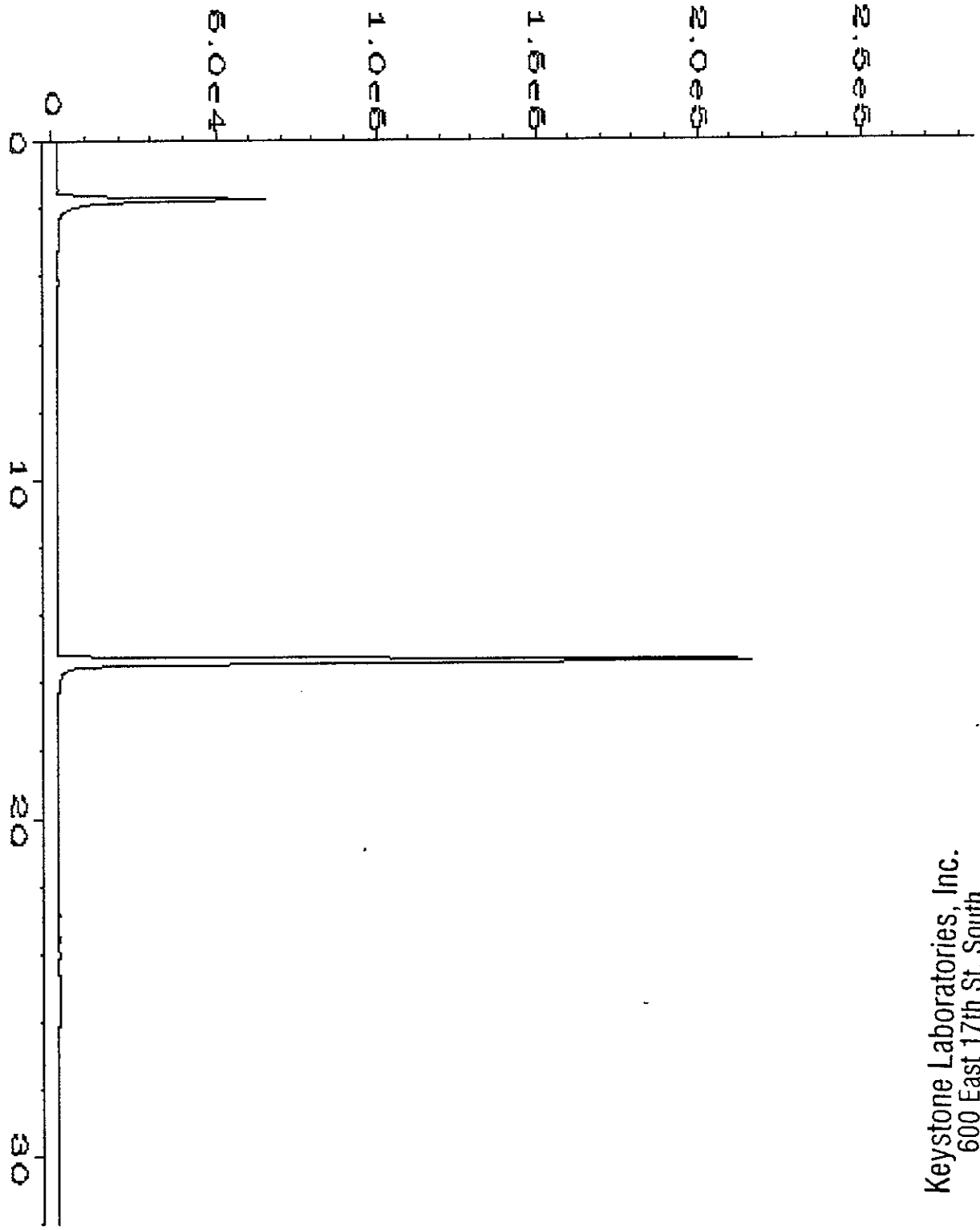
Data File Name	: F:\HPCHEM\2\DATA\062198A2\030F0101.D		
Operator	: MELTON	Page Number	: 1
Instrument	: #2 DUAL F	Vial Number	: 30
Sample Name	: 1813641 oa-2	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 22 Jun 98 04:56 AM	Instrument Method	: DIESEL.MTH
Report Created on	: 22 Jun 98 09:14 AM	Analysis Method	: DIESEL.MTH



user modified

Keystone Laboratories, Inc.
600 East 17th St. South
Newton, IA 50208

Data File Name	: F:\HPCHEM\2\DATA\062198A2\029F0101.D		
Operator	: MELTON	Page Number	: 1
Instrument	: #2 DUAL F	Vial Number	: 29
Sample Name	: 1813640 oa-2	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 22 Jun 98 04:14 AM	Instrument Method	: DIESEL.MTH
Report Created on	: 22 Jun 98 09:13 AM	Analysis Method	: DIESEL.MTH



Keystone Laboratories, Inc.
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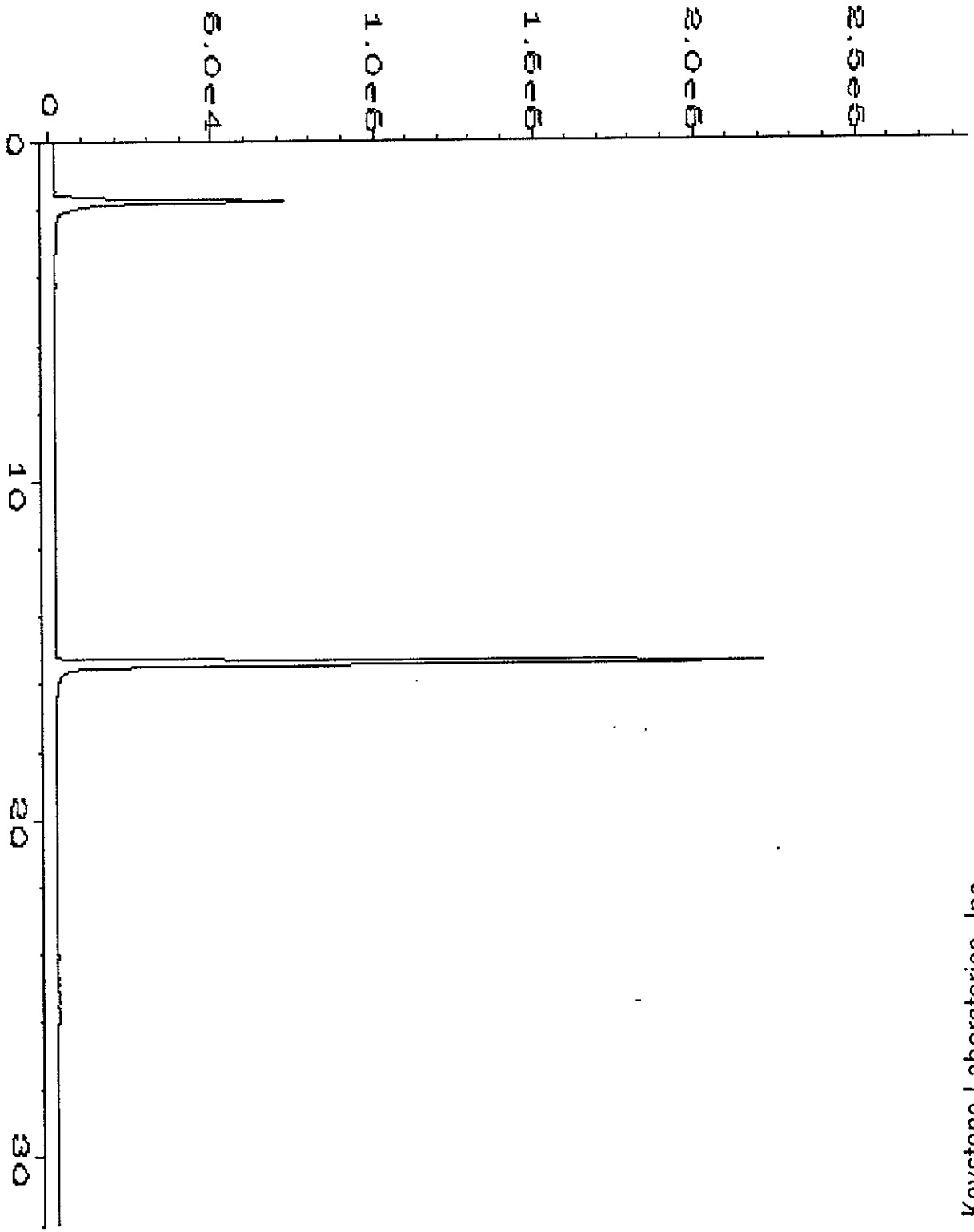
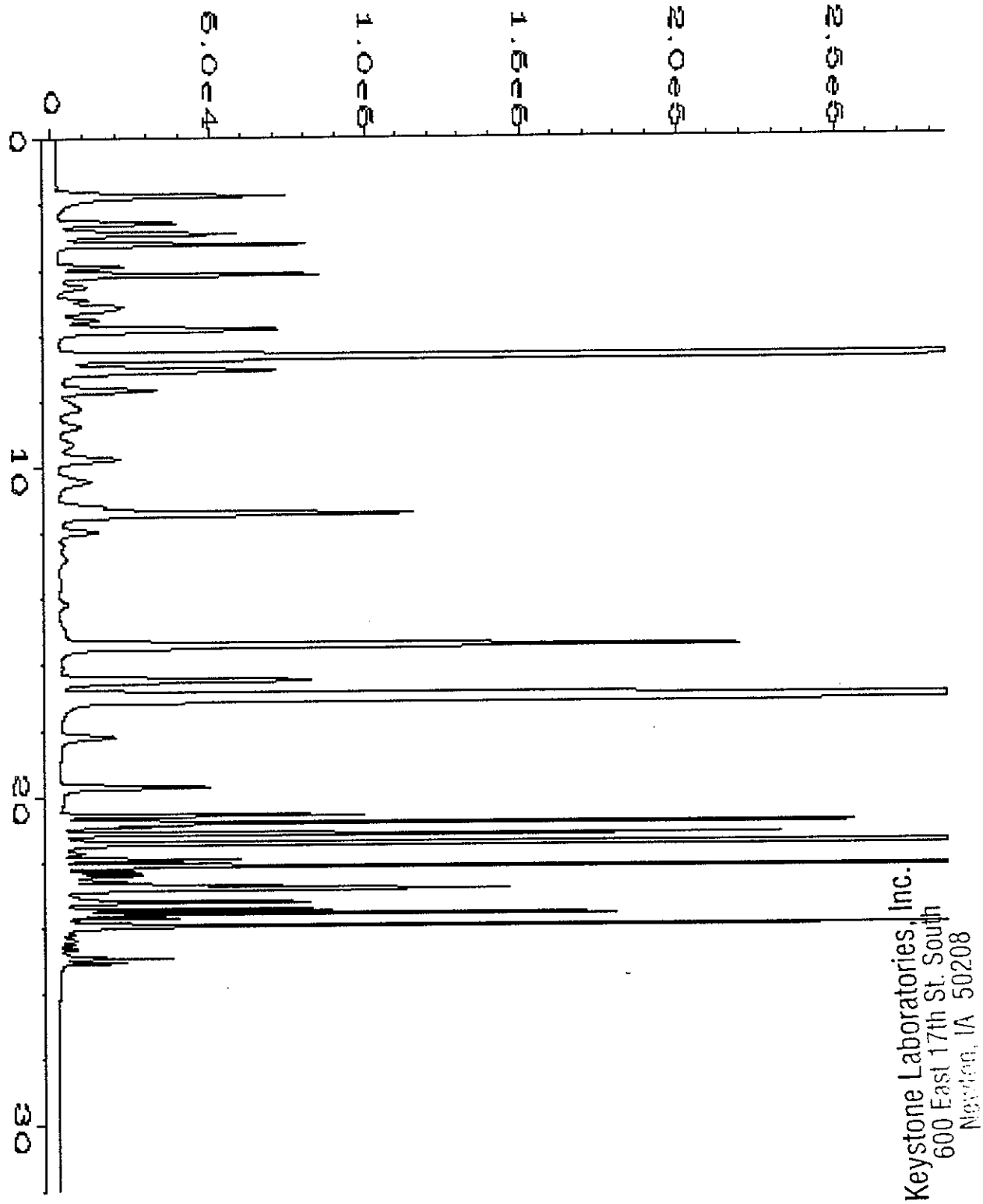
Newton, IA 50208

Data File Name	: F:\HPCHEM\1\DATA\061998A1\007F0101.D		
Operator	: Andreeva	Page Number	: 1
Instrument	: 5890 GC #	Vial Number	: 7
Sample Name	: OA1 5ml 1813644	Injection Number	: 1
Run Time Bar Code	:	Sequence Line	: 1
Acquired on	: 19 Jun 98 07:49 PM	Instrument Method	: BTEX.MTH
Report Created on	: 22 Jun 98 02:20 PM	Analysis Method	: BTEX.MTH
Last Recalib on	: 25 MAR 98 07:50 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

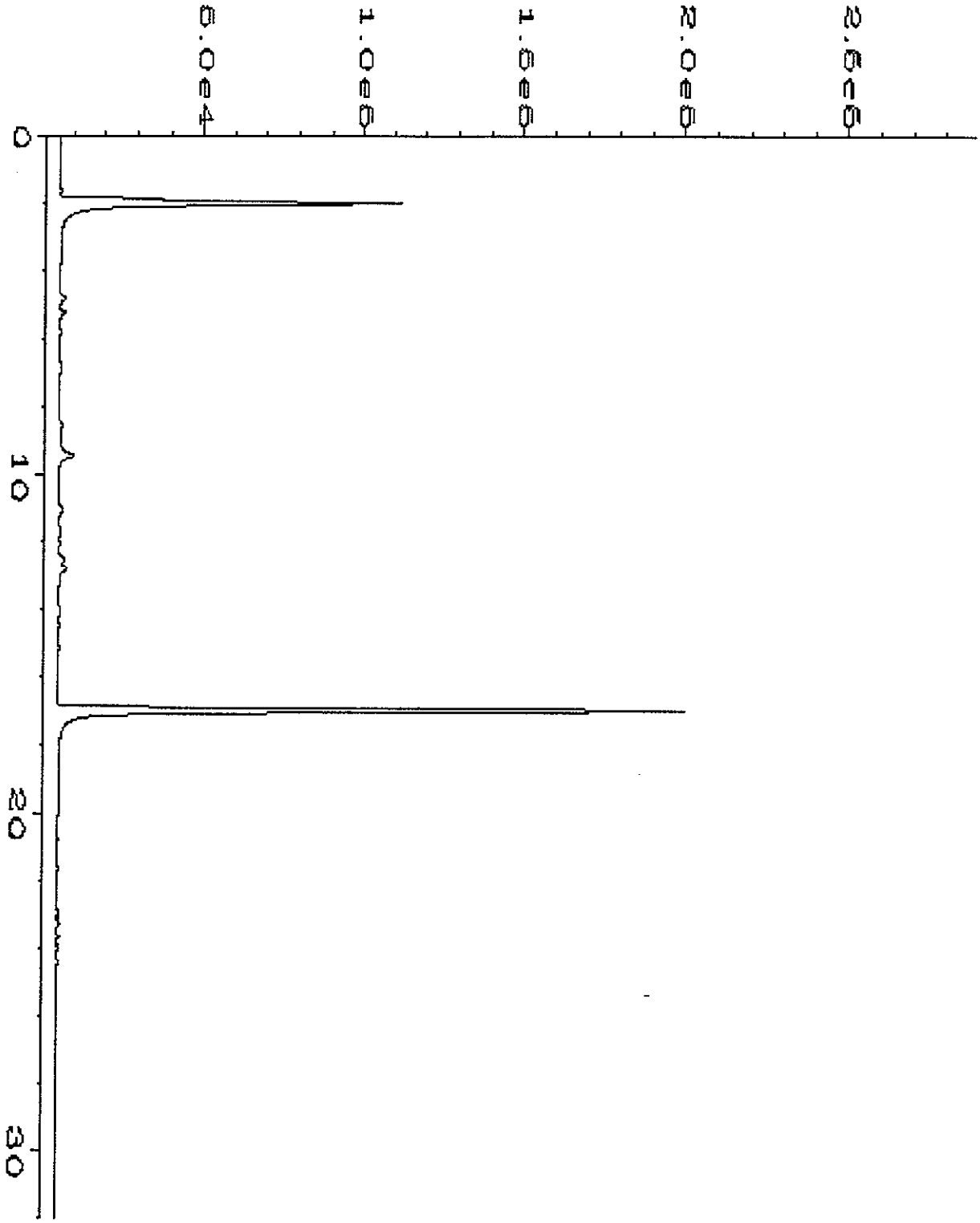


Keystone Laboratories, Inc.
600 East 17th St. South
Newton, IA 50208

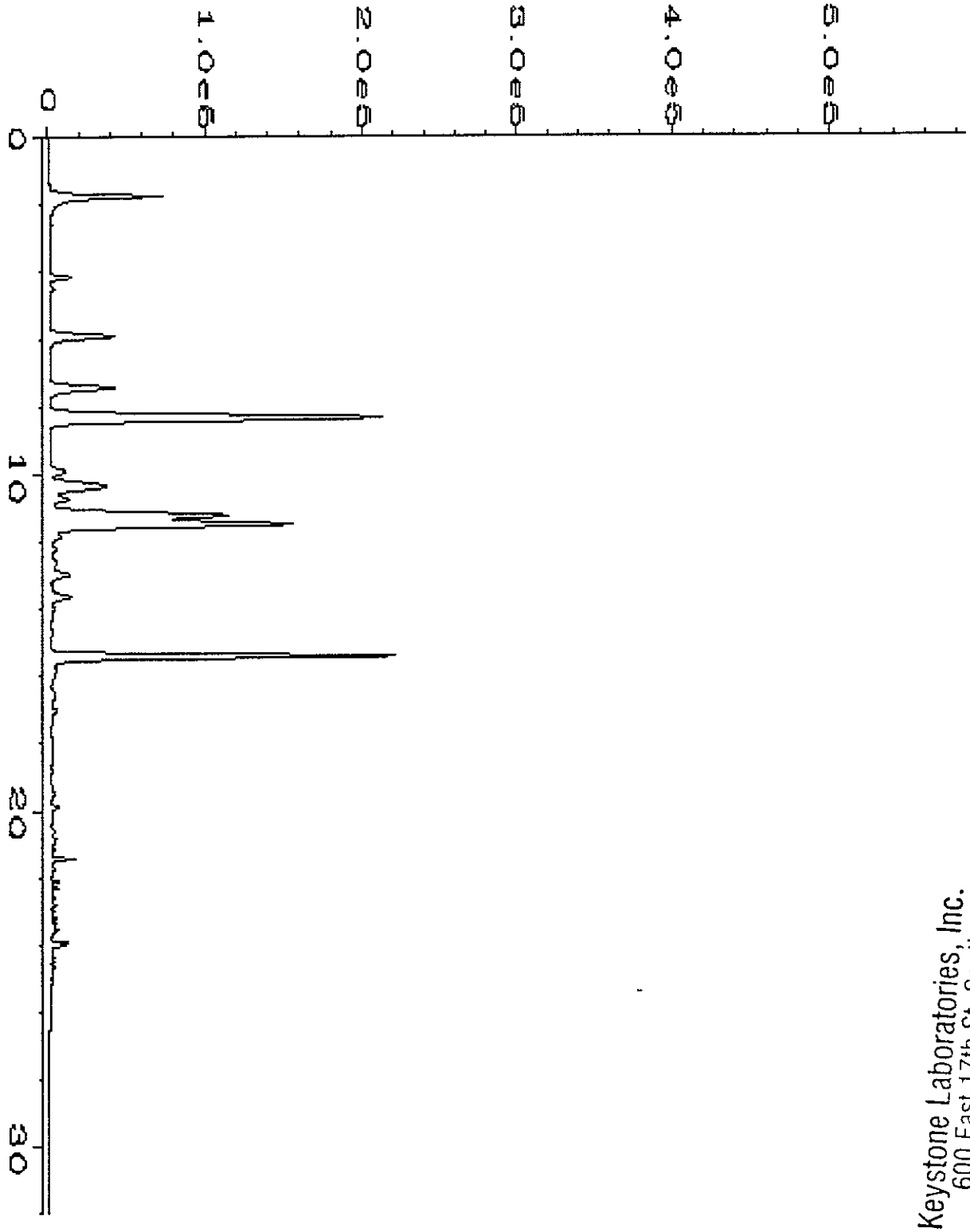
Data File Name	: F:\HPCHEM\1\DATA\061998A1\008F0101.D		
Operator	: Andreeva	Page Number	: 1
Instrument	: 5890 GC #	Vial Number	: 8
Sample Name	: OA1 5ml 1813643	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 19 Jun 98 08:31 PM	Instrument Method	: BTEX.MTH
Report Created on:	22 Jun 98 02:20 PM	Analysis Method	: BTEX.MTH
Last Recalib on	: 25 MAR 98 07:50 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:



Data File Name	: F:\HPCHEM\1\DATA\061998A1\010F0101.D		
Operator	: Andreeva	Page Number	: 1
Instrument	: 5890 GC #	Vial Number	: 10
Sample Name	: OA1 5ml 1813642	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 19 Jun 98 09:55 PM	Instrument Method:	BTEX.MTH
Report Created on:	22 Jun 98 02:21 PM	Analysis Method	: BTEX.MTH
Last Recalib on	: 25 MAR 98 07:50 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:



Data File Name	: F:\HPCHEM\3\DATA\062298A3\005R0101.D		
Operator	: ANDREEVA	Page Number	: 1
Instrument	: 5890 GC #	Vial Number	: 5
Sample Name	: OA1 5ML 1813641	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 22 Jun 98 02:05 PM	Instrument Method:	BTEX.MTH
Report Created on:	23 Jun 98 11:19 AM	Analysis Method	: BTEX.MTH
Last Recalib on	: 25 MAR 98 07:55 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:



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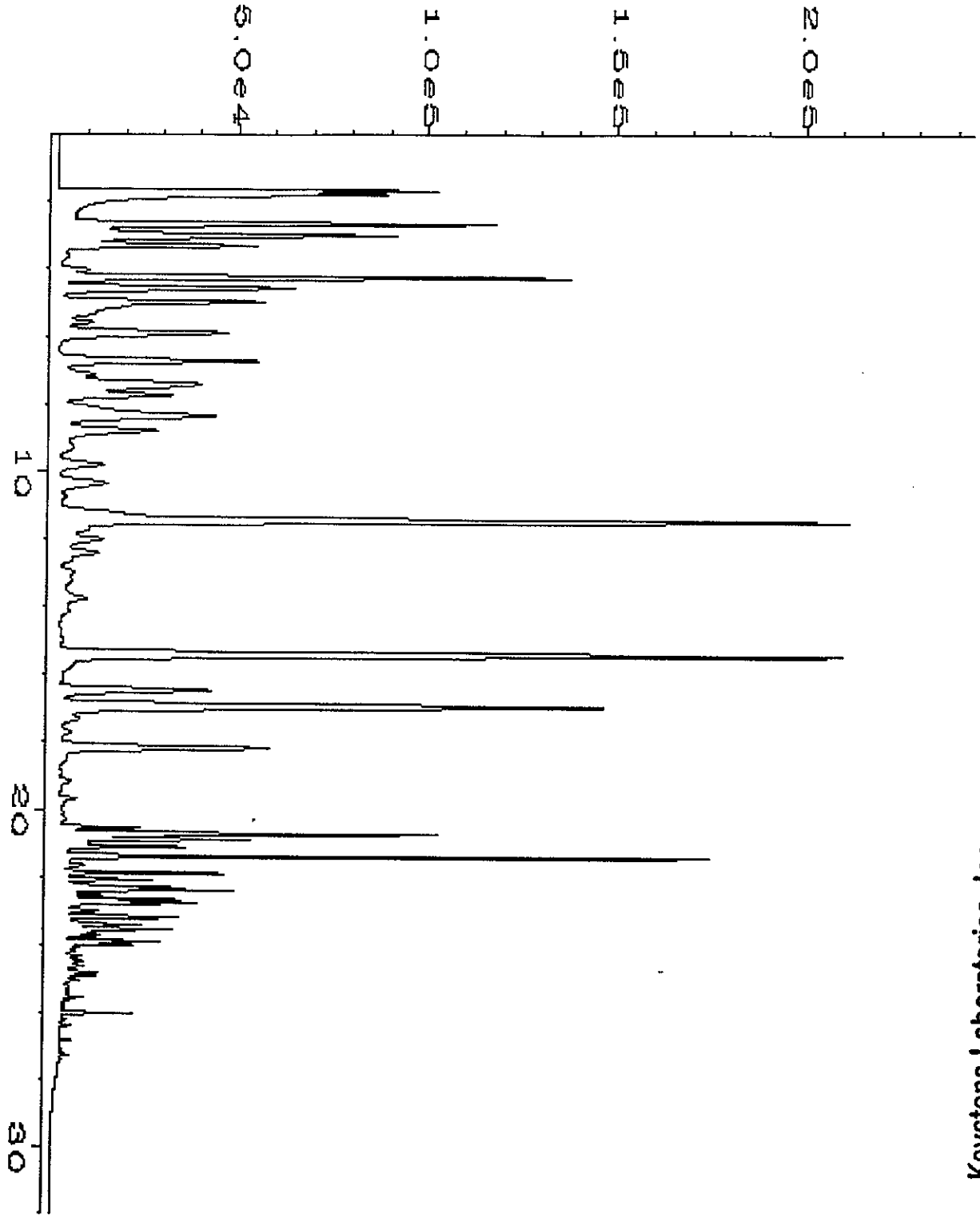
600 East 17th St. South
Newton, IA 50208

Data File Name	: F:\HPCHEM\1\DATA\061998A1\011F0101.D		
Operator	: Andreeva	Page Number	: 1
Instrument	: 5890 GC #	Vial Number	: 11
Sa[illegible]e Name	: OA1 5ml 1813640	Injection Number	: 1
Ru[illegible]ime Bar Code:		Sequence Line	: 1
Acquired on	: 19 Jun 98 10:37 PM	Instrument Method	: BTEX.MTH
Report Created on	: 22 Jun 98 02:21 PM	Analysis Method	: BTEX.MTH
Last Recalib on	: 25 MAR 98 07:50 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:



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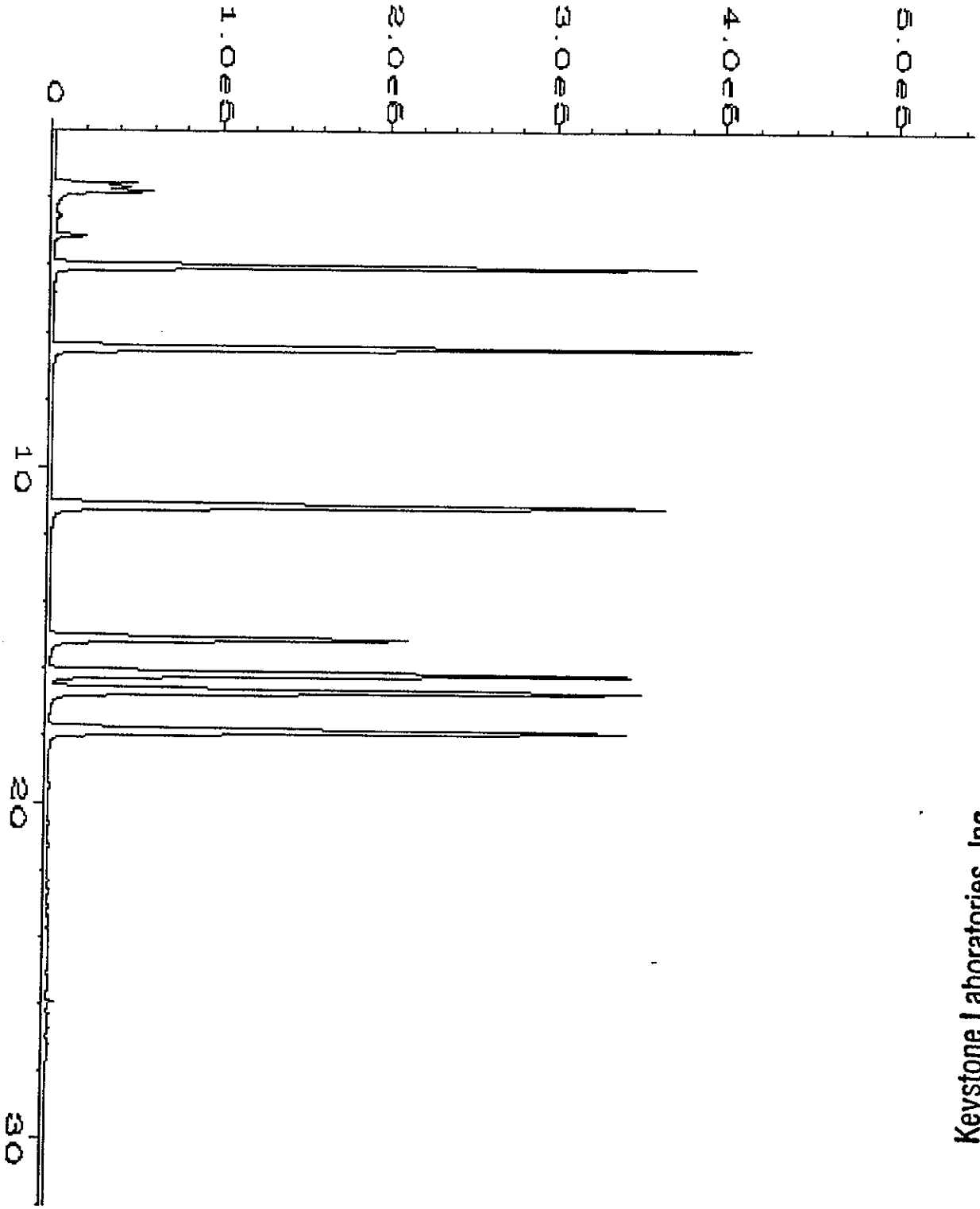
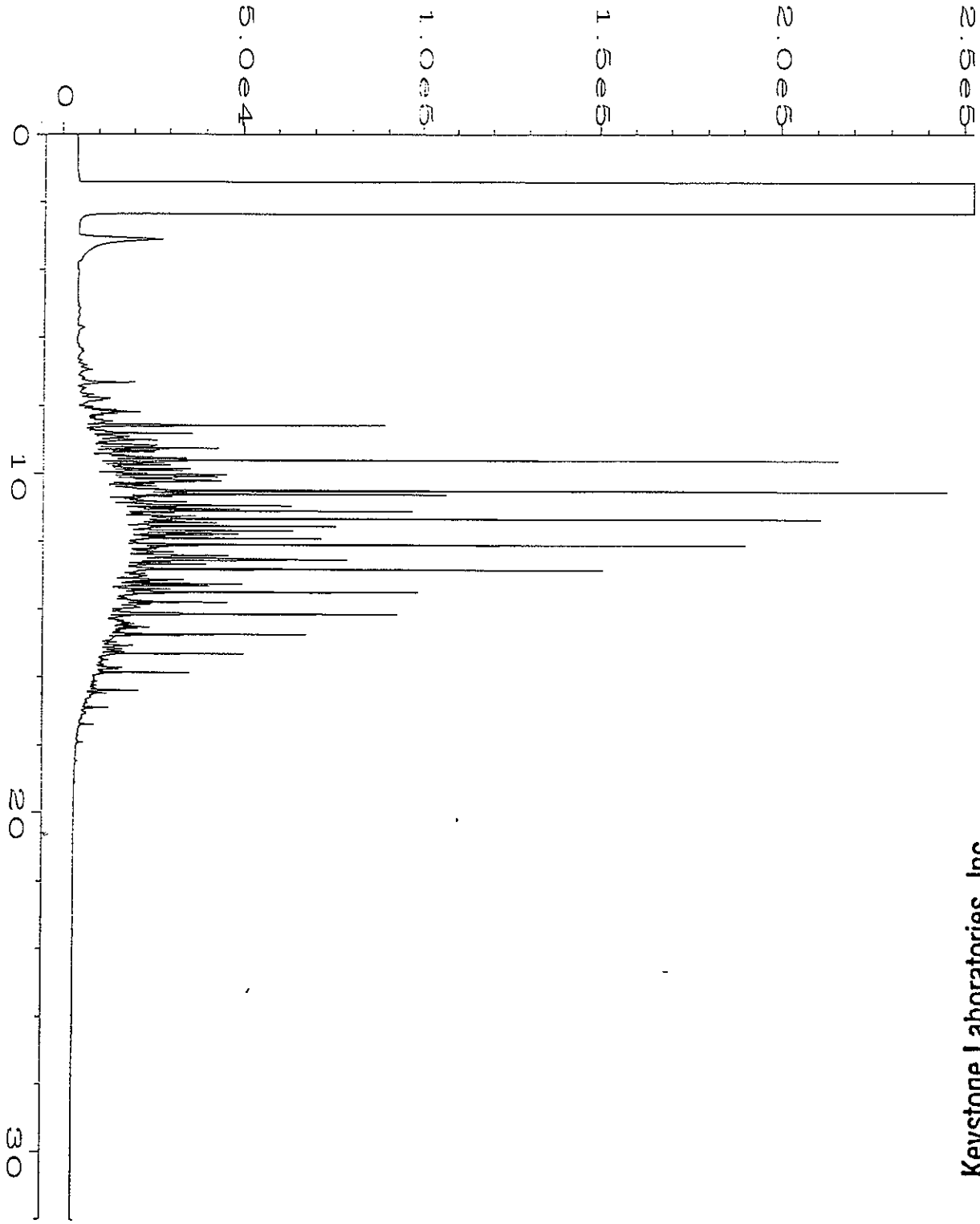
600 East 17th St. South
Newton, IA 50208

Data File Name	: F:\HPCHEM\1\DATA\061997A1\001F0101.D		
Operator	: Andreeva	Page Number	: 1
Instrument	: 5890 GC #	Vial Number	: 1
Sample Name	: GAS STD	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 19 Jun 97 04:58 PM	Instrument Method	: BTEX.MTH
Report Created on:	23 Jun 97 11:06 AM	Analysis Method	: BTEX.MTH
Last Recalib on	: 10 JUN 97 11:31 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:



Keystone Laboratories, Inc.
600 East 17th St. South
Newton, IA 50208

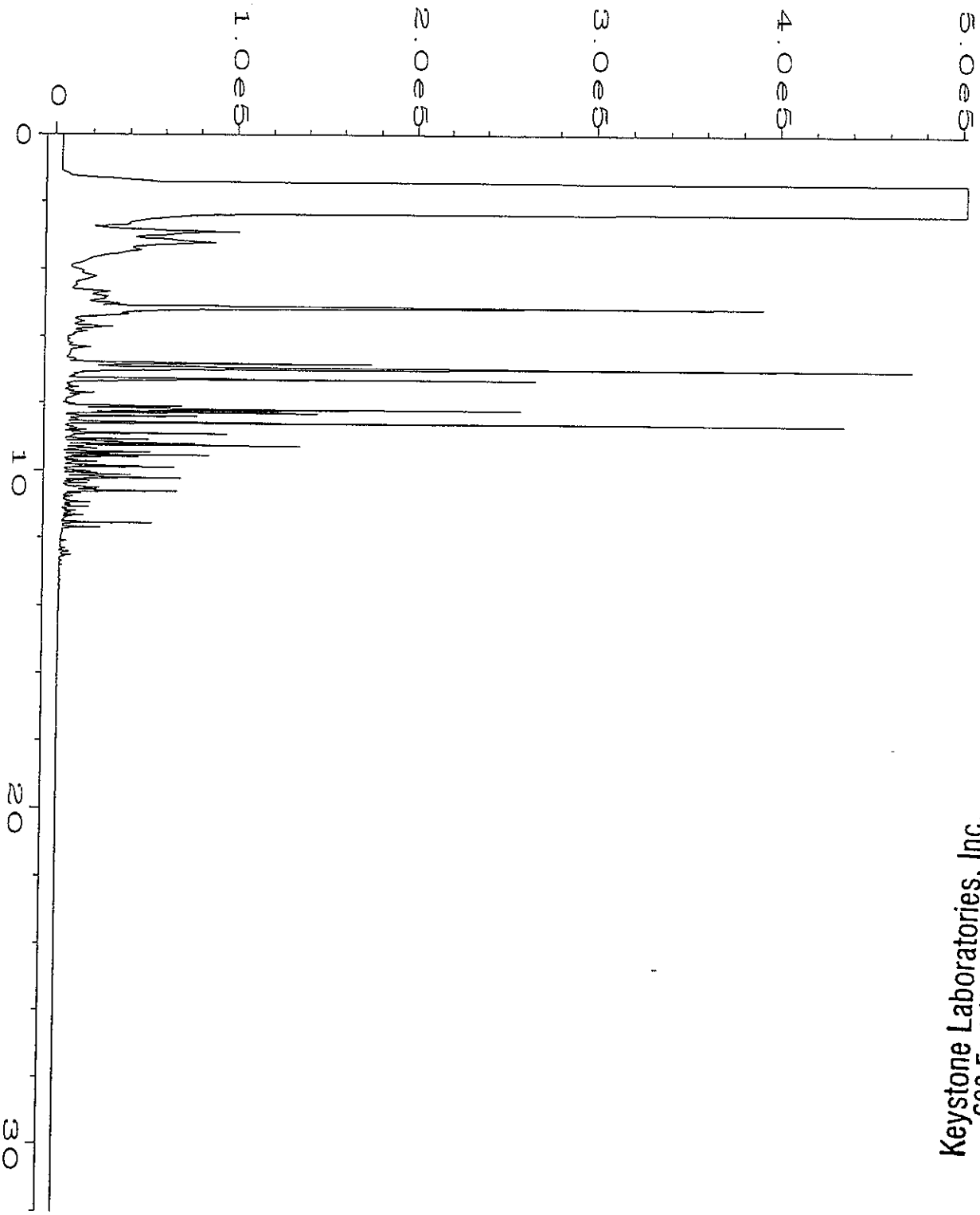
ata File Name	: F:\HPCHEM\1\DATA\061997A1\002F0101.D		
perator	: Andreeva	Page Number	: 1
nstrument	: 5890 GC #	Vial Number	: 2
am Name	: BTEX STD	Injection Number	: 1
un me Bar Code:		Sequence Line	: 1
cquired on	: 19 Jun 97 05:40 PM	Instrument Method	: BTEX.MTH
eport Created on	: 23 Jun 97 10:36 AM	Analysis Method	: BTEX.MTH
ast Recalib on	: 10 JUN 97 11:31 AM	Sample Amount	: 0
ultiplier	: 1	ISTD Amount	:



Keystone Laboratories, Inc.
600 East 17th St. South
Newton, IA 50208

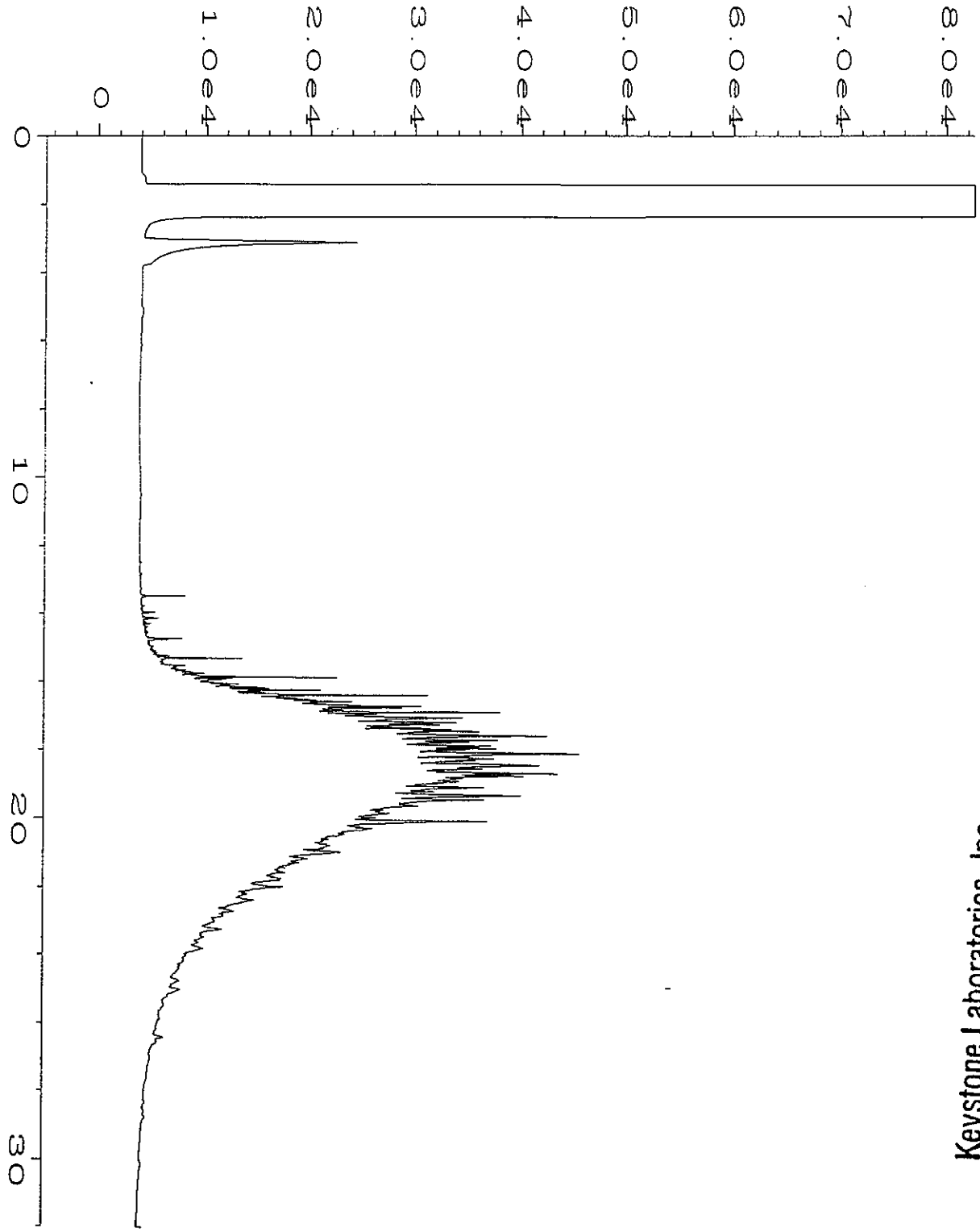
ata File Name : F:\HPCHEM\2\DATA\062097A2\004F0101.D
perator : FWM
nstrument : 5890 #2 D
ample Name : DIESEL CHK
un Time Bar Code:
cquired on : 20 Jun 97 03:45 PM
eport Created on: 23 Jun 97 10:40 AM

Page Number : 1
Vial Number : 4
Injection Number : 1
Sequence Line : 1
Instrument Method: DIESEL.MTH
Analysis Method : DIESEL.MTH



Keystone Laboratories, Inc.
600 East 17th St. South
Newton, IA 50208

Data File Name	: F:\HPCHEM\2\DATA\062097A2\003F0101.D		
Operator	: FWM	Page Number	: 1
Instrument	: 5890 #2 D	Vial Number	: 3
Sample Name	: GAS CHK	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 20 Jun 97 03:01 PM	Instrument Method	: DIESEL.MTH
Report Created on	: 23 Jun 97 10:38 AM	Analysis Method	: DIESEL.MTH



Keystone Laboratories, Inc.
600 East 17th St. South
Newton, IA 50208

ata File Name	: F:\HPCHEM\2\DATA\062097A2\005F0101.D		
perator	: FWM	Page Number	: 1
nstrument	: 5890 #2 D	Vial Number	: 5
ample Name	: WO CHK	Injection Number	: 1
un Time Bar Code:		Sequence Line	: 1
cquired on	: 20 Jun 97 04:29 PM	Instrument Method	: DIESEL.MTH
eport Created on:	23 Jun 97 10:41 AM	Analysis Method	: DIESEL.MTH

1806.0634

Fed Ex. # _____

Cooler # _____

MONTGOMERY WATSON

CHAIN OF CUSTODY RECORD

DESTINATION: MONTGOMERY LABORATORIES ☐

OTHER: Keystone ☑

PROJECT NAME: Camp Dodge Preliminary Assessment

PROJECT JOB #: 1217117.051801

SAMPLER(S): PRINTED NAME AND SIGNATURE: Kevin G. Armstrong

ANALYSES REQUIRED

TIME	DATE	LOCATION	IDENTIFIER	QA/OC	GRAB	COMP	NUMBER/SIZE OF CONTAINERS	OA-1	OA-2									REMARKS
935	6/17/98	Fuel Product Pipeline	PZ-10		✓		4-3-40ml 1-Amber	✓	✓									1813640
905	6/17/98	Fuel Product Pipeline	PZ-11		✓		4-3-40ml 1-Amber	✓	✓									13641
1030	6/17/98	Fuel Product Pipeline	PZ-12		✓		4 3-40ml 1-Amber	✓	✓									13642
1120	6/17/98	Leach Bed	PZ-19		✓		4 3-40ml 1-Amber	✓	✓									13643
1135	6/17/98	Leach Bed	PZ-20		✓		4 3-40ml 1-Amber	✓	✓									13644

KGA 6-18-98

	SIGNATURE	PRINT NAME	COMPANY/TITLE	DATE	TIME
RELINQUISHED BY:	Kevin G Armstrong	KEVIN G. ARMSTRONG	Montgomery Watson / Hydrogeologist	6-18-98	900
RECEIVED BY:					
RELINQUISHED BY:					
RECEIVED BY:					
RELINQUISHED BY:					
RECEIVED BY:	[illegible]	Charles Great	Keystone	6/18/98	1130

C-O-C No. ORIGINAL COPY: SEND WITH SAMPLE YELLOW COPY: RETAINED BY SAMPLER PINK: OFFICE COPY PAGE 1 OF 1

Keystone LABORATORIES, INC.

MEMBER ACIL

ANALYTICAL REPORT

September 18, 1998

Report To

Kevin Armstrong
Montgomery-Watson
11107 Aurora Avenue

Des Moines, IA 50322

RECEIVED
SEP 2 2 1998
MW/IOWA

Sample Information

Work Order: 1809.0036
Sample No: 1821065
Date Collected: 08/31/98 04:05 PM
Date Received: 09/01/98 11:45 AM
Collector: Kevin Armstrong
Collector Phone: 515-253-0830
Matrix: soil

Site Information/Sample Description

IA Army National Guard
Camp Dodge
Des Moines, IA

WWTP-1 Former Wastewater Treatment Plant

Comments

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Determination of metals.					
Arsenic	5.5 mg/kg	2.	EPA 7060	LAR	09/03/98
Barium	70. mg/kg	1.	EPA 6010	LAR	09/03/98
Cadmium	1.8 mg/kg	1.	EPA 6010	LAR	09/03/98
Chromium	17.9 mg/kg	3.	EPA 6010	LAR	09/03/98
Lead	< 50. mg/kg	50.	EPA 6010	LAR	09/03/98
Mercury	< 0.5 mg/kg	0.5	EPA 7471	BNS	09/03/98
Selenium	< 2. mg/kg	2.	EPA 7740	LAR	09/08/98
Silver	< 3. mg/kg	3.	EPA 6010	LAR	09/03/98
Determination of general chemistry parameters.					
Percent Solids	83.9 %		EPA	BNS	09/02/98

Jeff King
Keystone Laboratories, Inc.

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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Keystone
LABORATORIES, INC.

MEMBER ACIL

ANALYTICAL REPORT

September 18, 1998

Report To

Kevin Armstrong
Montgomery-Watson
11107 Aurora Avenue

Des Moines, IA 50322

Sample Information

Work Order: 1809.0036
Sample No: 1821066
Date Collected: 08/31/98 04:10 PM
Date Received: 09/01/98 11:45 AM
Collector: Kevin Armstrong
Collector Phone: 515-253-0830
Matrix: soil

Site Information/Sample Description

IA Army National Guard
Camp Dodge
Des Moines, IA

WWTP-2 Former Wastewater Treatment Plant

Comments

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Determination of metals.					
Arsenic	8.6 mg/kg	2.	EPA 7060	LAR	09/03/98
Barium	688. mg/kg	1.	EPA 6010	LAR	09/03/98
Cadmium	31. mg/kg	1.	EPA 6010	LAR	09/03/98
Chromium	284. mg/kg	3.	EPA 6010	LAR	09/03/98
Lead	310. mg/kg	50.	EPA 6010	LAR	09/03/98
Mercury	< 0.5 mg/kg	0.5	EPA 7471	BNS	09/03/98
Selenium	3.4 mg/kg	2.	EPA 7740	LAR	09/08/98
Silver	< 3. mg/kg	3.	EPA 6010	LAR	09/03/98
Determination of general chemistry parameters.					
Percent Solids	82.3 %		EPA	BNS	09/02/98

Jeff King
Keystone Laboratories, Inc.

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Keystone LABORATORIES, INC.

MEMBER ACIL

ANALYTICAL REPORT

September 18, 1998

Report To

Kevin Armstrong
Montgomery-Watson
11107 Aurora Avenue

Des Moines, IA 50322

Sample Information

Work Order: 1809.0036
Sample No: 1821067
Date Collected: 08/31/98 04:15 PM
Date Received: 09/01/98 11:45 AM
Collector: Kevin Armstrong
Collector Phone: 515-253-0830
Matrix: soil

Site Information/Sample Description

IA Army National Guard
Camp Dodge
Des Moines, IA

WWTP-3 Former Wastewater Treatment Plant

Comments

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Determination of metals.					
Arsenic	5.5 mg/kg	2.	EPA 7060	LAR	09/03/98
Barium	1,190. mg/kg	1.	EPA 6010	LAR	09/03/98
Cadmium	8.4 mg/kg	1.	EPA 6010	LAR	09/03/98
Chromium	153. mg/kg	3.	EPA 6010	LAR	09/03/98
Lead	218. mg/kg	50.	EPA 6010	LAR	09/03/98
Mercury	< 0.5 mg/kg	0.5	EPA 7471	BNS	09/03/98
Selenium	< 2. mg/kg	2.	EPA 7740	LAR	09/08/98
Silver	< 3. mg/kg	3.	EPA 6010	LAR	09/03/98
Determination of general chemistry parameters.					
Percent Solids	74.3 %		EPA	BNS	09/02/98

Jeff King
Keystone Laboratories, Inc.

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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CHAIN OF CUSTODY RECORD

Keystone LABORATORIES, INC.

☒ 600 E. 17th St. S. Newton, IA 50208 Phone: 515-792-8451 Fax: 515-792-7989

☐ 3012 Ansborough Ave. Waterloo, IA 50701 Phone: 319-235-4440 Fax: 319-235-2480

☐ 1515 Walnut St. Kansas City, MO 64108 Phone: 816-471-1515 Fax: 816-471-7915

PRINT OR TYPE INFORMATION BELOW

SAMPLER: Kevin Armstrong
SITE NAME: IA ARMY NAT. GUARD - CAMP DODGE
ADDRESS:
CITY/ST/ZIP:
PHONE:

REPORT TO:
NAME: Kevin Armstrong
COMPANY NAME: Montgomery Watson
ADDRESS: 1107 Aurora Ave
CITY/ST/ZIP: Des Moines IA 50322
PHONE: 515-253-0830
FAX: 515-253-9592

BILL TO:
NAME: Kevin Armstrong
COMPANY NAME:
ADDRESS:
CITY/ST/ZIP:
PHONE:

Keystone Quote No.: (If Applicable)

CLIENT SAMPLE NUMBER	DATE	TIME	SAMPLE LOCATION	NO. OF CONTAINERS	MATRIX	GRAB/COMPOSITE	ANALYSES REQUIRED: OA-1	OA-2	VOCs-8260	BNAs-8270	RCRA Metals	Explosives			LABORATORY WORK ORDER NO. 1809.0036 / SAMPLE CONDITION AS RECEIVED: CHILLED ☐ YES ☐ NO SEALED ☐ YES ☐ NO / SAMPLE CONDITION/COMMENTS	LABORATORY SAMPLE NUMBER
WWTP-1	8/31/98	1605	Former Wastewater Treat. Plant	1	Soil	G					✓					1821065
WWTP-2	8/31/98	1610	↓	1	Soil	G					✓					21066
WWTP-3	8/31/98	1615	↓	1	Soil	G					✓					21067
PZ-1	8/31/98	1415	Demo. Pit	1	H_2O	G						✓				21068
PZ-2	8/31/98	1430	↓	1	↓	G						✓				21069
PZ-3	8/31/98	1445	LAW Range Landfill	4	↓	G	✓	✓								21070
PZ-4	8/31/98	1505	↓	4	↓	G	✓	✓								21071
PZ-5	8/31/98	1455	↓	4	↓	G	✓	✓								21072
PZ-6	8/31/98	1200	P-10 Site	3	↓	G			✓							21073
PZ-7	8/31/98	1150	↓	3	↓	G			✓							21074

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time	Turn-Around:
Kevin G Armstrong	9-1-98 / 900			☒ Standard ☐ Rush ____ Contact Lab Prior to Submission
Relinquished by: (Signature)	Date / Time	Received for Lab by: (Signature)	Date / Time	Remarks:
		[illegible]	9-1-98 / 45	

Original - Return with Report • Yellow - Lab Copy • Pink - Sampler Copy

FORM: CCR 7-97

Keystone LABORATORIES, INC.

MEMBER ACIL

Work Order: 1809.0036
Sample No: 1821068
Report Date: 9/18/98

Site Name / Sample Description
IA Army National Guard
PZ-1 Demo Pit

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed

Jeff King
Keystone Laboratories, Inc.

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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Keystone
LABORATORIES, INC.

MEMBER ACIL

ANALYTICAL REPORT

September 18, 1998

Report To

Kevin Armstrong
Montgomery-Watson
11107 Aurora Avenue

Des Moines, IA 50322

Sample Information

Work Order: 1809.0036
Sample No: 1821069
Date Collected: 08/31/98 02:30 PM
Date Received: 09/01/98 11:45 AM
Collector: Kevin Armstrong
Collector Phone: 515-253-0830
Matrix: water

Site Information/Sample Description

IA Army National Guard
Camp Dodge
Des Moines, IA

PZ-2 Demo Pit

Comments

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Determination of explosives.					
1,3,5-Trinitrobenzene	< 1. ug/L	1.	EPA 8330	FWM	09/09/98
1,3-Dinitrobenzene	< 1. ug/L	1.	EPA 8330	FWM	09/09/98
2,4 & 2,6-Dinitrotoluene	< 1. ug/L	1.	EPA 8330	FWM	09/09/98
2,4,6-Trinitrotoluene	< 1. ug/L	1.	EPA 8330	FWM	09/09/98
2-Amino-Dinitrotoluene	< 1. ug/L	1.	EPA 8330	FWM	09/09/98
2-Nitrotoluene	< 1. ug/L	1.	EPA 8330	FWM	09/09/98
3-Nitrotoluene	< 1. ug/L	1.	EPA 8330	FWM	09/09/98
4-Amino-Dinitrotoluene	< 1. ug/L	1.	EPA 8330	FWM	09/09/98
4-Nitrotoluene	< 1. ug/L	1.	EPA 8330	FWM	09/09/98
HMX	< 1. ug/L	1.	EPA 8330	FWM	09/09/98
Nitrobenzene	< 1. ug/L	1.	EPA 8330	FWM	09/09/98
RDX	< 1. ug/L	1.	EPA 8330	FWM	09/09/98
Tetryl	< 1. ug/L	1.	EPA 8330	FWM	09/09/98

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Keystone LABORATORIES, INC.

MEMBER ACIL

Work Order: 1809.0036
Sample No: 1821069
Report Date: 9/18/98

Site Name / Sample Description
IA Army National Guard
PZ-2 Demo Pit

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed

Jeff King
Keystone Laboratories, Inc.

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Keystone LABORATORIES, INC.

MEMBER ACIL

ANALYTICAL REPORT

Report To

Kevin Armstrong
Montgomery-Watson
11107 Aurora Avenue

Des Moines, IA 50322

Sample Information

Work Order: 1809.0036
Date Received: 09/01/98 11:45 AM
Collector: Kevin Armstrong
Collector Phone: 515-253-0830
Report Date: 09/18/98

Site Information

IA Army National Guard
Camp Dodge
Des Moines, IA

Comments

Specific sample comments (if any) are shown below.

Sample No : Description : Date Collected : Matrix Analyte	Analysis Result		Detection Limit	Method	Analyst	Date Analyzed
1821070 PZ-3 LAW Range Landfill : 8/31/98 2:45:00 PM : water						
Benzene	< 1.	ug/L	1.	Iowa OA-1	TVA	09/02/98
Toluene	< 1.	ug/L	1.	Iowa OA-1	TVA	09/02/98
Ethylbenzene	< 1.	ug/L	1.	Iowa OA-1	TVA	09/02/98
Xylenes, total	< 1.	ug/L	1.	Iowa OA-1	TVA	09/02/98
TEH, as gasoline	< 0.1	mg/L	0.1	Iowa OA-2	CLM	09/07/98
TEH, as #2 diesel fuel	< 0.1	mg/L	0.1	Iowa OA-2	CLM	09/07/98
TEH, as waste oil	< 0.1	mg/L	0.1	Iowa OA-2	CLM	09/07/98
Total Extractable Hydrocarbons	< 0.1	mg/L	0.1	Iowa OA-2	CLM	09/07/98
Water extraction for TEH				EPA 3510	FIZ	09/02/98
1821071 PZ-4 LAW Range Landfill : 8/31/98 3:05:00 PM : water						
Benzene	< 2.	ug/L	2.	Iowa OA-1	TVA	09/03/98
Toluene	< 2.	ug/L	2.	Iowa OA-1	TVA	09/03/98
Ethylbenzene	< 2.	ug/L	2.	Iowa OA-1	TVA	09/03/98
Xylenes, total	< 2.	ug/L	2.	Iowa OA-1	TVA	09/03/98
TEH, as gasoline	< 0.1	mg/L	0.1	Iowa OA-2	CLM	09/07/98
TEH, as #2 diesel fuel	< 0.1	mg/L	0.1	Iowa OA-2	CLM	09/07/98
TEH, as waste oil	1.3	mg/L	0.1	Iowa OA-2	CLM	09/07/98
Total Extractable Hydrocarbons	1.3	mg/L	0.1	Iowa OA-2	CLM	09/07/98
Water extraction for TEH				EPA 3510	FIZ	09/02/98

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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Keystone LABORATORIES, INC.

MEMBER ACIL

Work Order: 1809.0036
Report Date: 9/18/98

Sample No : Description : Date Collected : Matrix Analyte	Analysis Result		Detection Limit	Method	Analyst	Date Analyzed
1821072 PZ-5 LAW Range Landfill : 8/31/98 2:55:00 PM : water						
Benzene	< 1.	ug/L	1.	Iowa OA-1	TVA	09/02/98
Toluene	< 1.	ug/L	1.	Iowa OA-1	TVA	09/02/98
Ethylbenzene	< 1.	ug/L	1.	Iowa OA-1	TVA	09/02/98
Xylenes, total	< 1.	ug/L	1.	Iowa OA-1	TVA	09/02/98
TEH, as gasoline	< 0.1	mg/L	0.1	Iowa OA-2	CLM	09/07/98
TEH, as #2 diesel fuel	< 0.1	mg/L	0.1	Iowa OA-2	CLM	09/07/98
TEH, as waste oil	< 0.1	mg/L	0.1	Iowa OA-2	CLM	09/07/98
Total Extractable Hydrocarbons	< 0.1	mg/L	0.1	Iowa OA-2	CLM	09/07/98
Water extraction for TEH				EPA 3510	FIZ	09/02/98

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Keystone Laboratories, Inc.

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Keystone
LABORATORIES, INC.

MEMBER ACIL

ANALYTICAL REPORT

September 18, 1998

Report To

Kevin Armstrong
Montgomery-Watson
11107 Aurora Avenue

Des Moines, IA 50322

Sample Information

Work Order: 1809.0036
Sample No: 1821073
Date Collected: 08/31/98 12:00 PM
Date Received: 09/01/98 11:45 AM
Collector: Kevin Armstrong
Collector Phone: 515-253-0830
Matrix: water

Site Information/Sample Description

IA Army National Guard
Camp Dodge
Des Moines, IA

PZ-6 P-10 Site

Comments

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Determination of volatile organic compounds.					
1,1,1-Trichloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
1,1,2,2-Tetrachloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
1,1,2-Trichloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
1,1-Dichloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
1,1-Dichloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
1,2-Dichlorobenzene	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
1,2-Dichloroethane	< 0.4 ug/L	0.4	EPA 8260	EPP	09/09/98
1,2-Dichloropropane	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
1,3-Dichlorobenzene	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
1,4-Dichlorobenzene	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
2-Butanone (MEK)	< 5. ug/L	5.	EPA 8260	EPP	09/09/98
2-Hexanone (MBK)	< 5. ug/L	5.	EPA 8260	EPP	09/09/98
4-Methyl-2-pentanone (MIBK)	< 5. ug/L	5.	EPA 8260	EPP	09/09/98
Acetone	< 10. ug/L	10.	EPA 8260	EPP	09/09/98
Benzene	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
Bromodichloromethane	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
Bromoform	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
Bromomethane	< 1. ug/L	1.	EPA 8260	EPP	09/09/98

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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Keystone LABORATORIES, INC.

MEMBER ACIL

Work Order: 1809.0036
Sample No: 1821073
Report Date: 9/18/98

Site Name / Sample Description
IA Army National Guard
PZ-6 P-10 Site

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Carbon Disulfide	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
Carbon Tetrachloride	< 0.3 ug/L	0.3	EPA 8260	EPP	09/09/98
Chlorobenzene	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
Chloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
Chloroform	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
Chloromethane	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
cis-1,2-Dichloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
cis-1,3-Dichloropropene	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
Dibromochloromethane	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
Ethylbenzene	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
Methylene Chloride	< 5. ug/L	5.	EPA 8260	EPP	09/09/98
Naphthalene	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
chloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
ene	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
trans-1,2-Dichloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
trans-1,3-Dichloropropene	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
Trichloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
Vinyl Chloride	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
Xylenes, total	< 1. ug/L	1.	EPA 8260	EPP	09/09/98

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Keystone Laboratories, Inc.

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LABORATORIES, INC.

MEMBER ACIL

ANALYTICAL REPORT

September 18, 1998

Report To

Kevin Armstrong
Montgomery-Watson
11107 Aurora Avenue

Des Moines, IA 50322

Sample Information

Work Order: 1809.0036
Sample No: 1821074
Date Collected: 08/31/98 11:50 AM
Date Received: 09/01/98 11:45 AM
Collector: Kevin Armstrong
Collector Phone: 515-253-0830
Matrix: water

Site Information/Sample Description

IA Army National Guard
Camp Dodge
Des Moines, IA

PZ-7 P-10 Site

Comments

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Determination of volatile organic compounds.					
1,1,1-Trichloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
1,1,2,2-Tetrachloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
1,1,2-Trichloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
1,1-Dichloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
1,1-Dichloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
1,2-Dichlorobenzene	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
1,2-Dichloroethane	< 0.4 ug/L	0.4	EPA 8260	EPP	09/09/98
1,2-Dichloropropane	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
1,3-Dichlorobenzene	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
1,4-Dichlorobenzene	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
2-Butanone (MEK)	< 5. ug/L	5.	EPA 8260	EPP	09/09/98
2-Hexanone (MBK)	< 5. ug/L	5.	EPA 8260	EPP	09/09/98
4-Methyl-2-pentanone (MIBK)	< 5. ug/L	5.	EPA 8260	EPP	09/09/98
Acetone	< 10. ug/L	10.	EPA 8260	EPP	09/09/98
Benzene	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
Bromodichloromethane	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
Bromoform	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
Bromomethane	< 1. ug/L	1.	EPA 8260	EPP	09/09/98

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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Keystone LABORATORIES, INC.

MEMBER ACIL

Work Order: 1809.0036
Sample No: 1821074
Report Date: 9/18/98

Site Name / Sample Description
IA Army National Guard
PZ-7 P-10 Site

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Carbon Disulfide	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
Carbon Tetrachloride	< 0.3 ug/L	0.3	EPA 8260	EPP	09/09/98
Chlorobenzene	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
Chloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
Chloroform	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
Chloromethane	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
cis-1,2-Dichloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
cis-1,3-Dichloropropene	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
Dibromochloromethane	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
Ethylbenzene	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
Methylene Chloride	< 5. ug/L	5.	EPA 8260	EPP	09/09/98
Naphthalene	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
[illegible]chloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
[illegible]ene	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
trans-1,2-Dichloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
trans-1,3-Dichloropropene	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
Trichloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
Vinyl Chloride	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
Xylenes, total	< 1. ug/L	1.	EPA 8260	EPP	09/09/98

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Keystone Laboratories, Inc.

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Keystone
LABORATORIES, INC.

MEMBER ACIL

ANALYTICAL REPORT

September 18, 1998

Report To

Kevin Armstrong
Montgomery-Watson
11107 Aurora Avenue

Des Moines, IA 50322

Sample Information

Work Order: 1809.0036
Sample No: 1821075
Date Collected: 08/31/98 11:55 AM
Date Received: 09/01/98 11:45 AM
Collector: Kevin Armstrong
Collector Phone: 515-253-0830
Matrix: water

Site Information/Sample Description

IA Army National Guard
Camp Dodge
Des Moines, IA

PZ-8 P-10 Site

Comments

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Determination of volatile organic compounds.					
1,1,1-Trichloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
1,1,2,2-Tetrachloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
1,1,2-Trichloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
1,1-Dichloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
1,1-Dichloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
1,2-Dichlorobenzene	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
1,2-Dichloroethane	< 0.4 ug/L	0.4	EPA 8260	EPP	09/09/98
1,2-Dichloropropane	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
1,3-Dichlorobenzene	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
1,4-Dichlorobenzene	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
2-Butanone (MEK)	< 5. ug/L	5.	EPA 8260	EPP	09/09/98
2-Hexanone (MBK)	< 5. ug/L	5.	EPA 8260	EPP	09/09/98
4-Methyl-2-pentanone (MIBK)	< 5. ug/L	5.	EPA 8260	EPP	09/09/98
Acetone	< 10. ug/L	10.	EPA 8260	EPP	09/09/98
Benzene	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
Bromodichloromethane	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
Bromoform	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
Bromomethane	< 1. ug/L	1.	EPA 8260	EPP	09/09/98

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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Keystone LABORATORIES, INC.

MEMBER ACIL

Work Order: 1809.0036
Sample No: 1821075
Report Date: 9/18/98

Site Name / Sample Description
IA Army National Guard
PZ-8 P-10 Site

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Carbon Disulfide	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
Carbon Tetrachloride	< 0.3 ug/L	0.3	EPA 8260	EPP	09/09/98
Chlorobenzene	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
Chloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
Chloroform	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
Chloromethane	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
cis-1,2-Dichloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
cis-1,3-Dichloropropene	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
Dibromochloromethane	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
Ethylbenzene	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
Methylene Chloride	< 5. ug/L	5.	EPA 8260	EPP	09/09/98
Naphthalene	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
achloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
ene	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
trans-1,2-Dichloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
trans-1,3-Dichloropropene	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
Trichloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
Vinyl Chloride	< 1. ug/L	1.	EPA 8260	EPP	09/09/98
Xylenes, total	< 1. ug/L	1.	EPA 8260	EPP	09/09/98

Jeff King
Keystone Laboratories, Inc.

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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Keystone
LABORATORIES, INC.

MEMBER ACIL

ANALYTICAL REPORT

September 18, 1998

Report To

Kevin Armstrong
Montgomery-Watson
11107 Aurora Avenue

Des Moines, IA 50322

Sample Information

Work Order: 1809.0036
Sample No: 1821076
Date Collected: 08/31/98 11:57 AM
Date Received: 09/01/98 11:45 AM
Collector: Kevin Armstrong
Collector Phone: 515-253-0830
Matrix: water

Site Information/Sample Description

IA Army National Guard
Camp Dodge
Des Moines, IA

PZ-9 P-10 Site

Comments

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Determination of volatile organic compounds.					
1,1,1-Trichloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
1,1,2,2-Tetrachloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
1,1,2-Trichloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
1,1-Dichloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
1,1-Dichloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
1,2-Dichlorobenzene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
1,2-Dichloroethane	< 0.4 ug/L	0.4	EPA 8260	EPP	09/10/98
1,2-Dichloropropane	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
1,3-Dichlorobenzene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
1,4-Dichlorobenzene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
2-Butanone (MEK)	< 5. ug/L	5.	EPA 8260	EPP	09/10/98
2-Hexanone (MBK)	< 5. ug/L	5.	EPA 8260	EPP	09/10/98
4-Methyl-2-pentanone (MIBK)	< 5. ug/L	5.	EPA 8260	EPP	09/10/98
Acetone	< 10. ug/L	10.	EPA 8260	EPP	09/10/98
Benzene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Bromodichloromethane	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Bromoform	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Bromomethane	< 1. ug/L	1.	EPA 8260	EPP	09/10/98

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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Keystone LABORATORIES, INC.

MEMBER ACIL

Work Order: 1809.0036
Sample No: 1821076
Report Date: 9/18/98

Site Name / Sample Description
IA Army National Guard
PZ-9 P-10 Site

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Carbon Disulfide	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Carbon Tetrachloride	< 0.3 ug/L	0.3	EPA 8260	EPP	09/10/98
Chlorobenzene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Chloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Chloroform	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Chloromethane	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
cis-1,2-Dichloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
cis-1,3-Dichloropropene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Dibromochloromethane	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Ethylbenzene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Methylene Chloride	< 5. ug/L	5.	EPA 8260	EPP	09/10/98
Naphthalene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
achloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
ene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
trans-1,2-Dichloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
trans-1,3-Dichloropropene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Trichloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Vinyl Chloride	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Xylenes, total	< 1. ug/L	1.	EPA 8260	EPP	09/10/98

Jeff King
Keystone Laboratories, Inc.

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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Keystone
LABORATORIES, INC.

MEMBER ACIL

ANALYTICAL REPORT

Report To

Kevin Armstrong
Montgomery-Watson
11107 Aurora Avenue

Des Moines, IA 50322

Sample Information

Work Order: 1809.0036
Date Received: 09/01/98 11:45 AM
Collector: Kevin Armstrong
Collector Phone: 515-253-0830
Report Date: 09/18/98

Site Information

IA Army National Guard
Camp Dodge
Des Moines, IA

Comments

Specific sample comments (if any) are shown below.

Sample No : Description : Date Collected : Matrix Analyte	Analysis Result		Detection Limit	Method	Analyst	Date Analyzed
1821077 PZ-~~12~~ 13 KGA Gravel Pit Dump : 8/31/98 10:50:00 AM : water						
Benzene	< 1.	ug/L	1.	Iowa OA-1	TVA	09/02/98
Toluene	< 1.	ug/L	1.	Iowa OA-1	TVA	09/02/98
Ethylbenzene	< 1.	ug/L	1.	Iowa OA-1	TVA	09/02/98
Xylenes, total	< 1.	ug/L	1.	Iowa OA-1	TVA	09/02/98
TEH, as gasoline	< 0.1	mg/L	0.1	Iowa OA-2	CLM	09/07/98
TEH, as #2 diesel fuel	< 0.1	mg/L	0.1	Iowa OA-2	CLM	09/07/98
TEH, as waste oil	< 0.1	mg/L	0.1	Iowa OA-2	CLM	09/07/98
Total Extractable Hydrocarbons	< 0.1	mg/L	0.1	Iowa OA-2	CLM	09/07/98
Water extraction for TEH				EPA 3510	FIZ	09/02/98

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Keystone LABORATORIES, INC.

MEMBER ACIL

ANALYTICAL REPORT

September 18, 1998

Report To

Kevin Armstrong
Montgomery-Watson
11107 Aurora Avenue

Des Moines, IA 50322

Sample Information

Work Order: 1809.0036
Sample No: 1821078
Date Collected: 08/31/98 10:15 AM
Date Received: 09/01/98 11:45 AM
Collector: Kevin Armstrong
Collector Phone: 515-253-0830
Matrix: water

Site Information/Sample Description

IA Army National Guard
Camp Dodge
Des Moines, IA

PZ-17 Cemetery Landfill

Comments

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Determination of volatile organic compounds.					
1,1,1-Trichloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
1,1,2,2-Tetrachloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
1,1,2-Trichloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
1,1-Dichloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
1,1-Dichloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
1,2-Dichlorobenzene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
1,2-Dichloroethane	< 0.4 ug/L	0.4	EPA 8260	EPP	09/10/98
1,2-Dichloropropane	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
1,3-Dichlorobenzene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
1,4-Dichlorobenzene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
2-Butanone (MEK)	< 5. ug/L	5.	EPA 8260	EPP	09/10/98
2-Hexanone (MBK)	< 5. ug/L	5.	EPA 8260	EPP	09/10/98
4-Methyl-2-pentanone (MIBK)	< 5. ug/L	5.	EPA 8260	EPP	09/10/98
Acetone	< 10. ug/L	10.	EPA 8260	EPP	09/10/98
Benzene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Bromodichloromethane	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Bromoform	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Bromomethane	< 1. ug/L	1.	EPA 8260	EPP	09/10/98

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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Keystone LABORATORIES, INC.

MEMBER ACIL

Work Order: 1809.0036
Sample No: 1821078
Report Date: 9/18/98

Site Name / Sample Description
IA Army National Guard
PZ-17 Cemetery Landfill

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Carbon Disulfide	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Carbon Tetrachloride	< 0.3 ug/L	0.3	EPA 8260	EPP	09/10/98
Chlorobenzene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Chloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Chloroform	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Chloromethane	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
cis-1,2-Dichloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
cis-1,3-Dichloropropene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Dibromochloromethane	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Ethylbenzene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Methylene Chloride	< 5. ug/L	5.	EPA 8260	EPP	09/10/98
Naphthalene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Tetrachloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Toluene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
trans-1,2-Dichloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
trans-1,3-Dichloropropene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Trichloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Vinyl Chloride	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Xylenes, total	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Determination of acid extractable organic compounds.					
(3 & 4)-Methylphenol	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
2,4,5-Trichlorophenol	< 50. ug/L	50.	EPA 8270	FIZ	09/05/98
2,4,6-Trichlorophenol	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
2,4-Dichlorophenol	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
2,4-Dimethylphenol	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
2,4-Dinitrophenol	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
2-Chlorophenol	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
2-Methylphenol	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
2-Nitrophenol	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
4,6-Dinitro-2-methylphenol	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
4-Chloro-3-methylphenol	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
4-Nitrophenol	< 20. ug/L	20.	EPA 8270	FIZ	09/05/98
Pentachlorophenol	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98

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Keystone LABORATORIES, INC.

MEMBER ACIL

Work Order: 1809.0036
Sample No: 1821078
Report Date: 9/18/98

Site Name / Sample Description
IA Army National Guard
PZ-17 Cemetery Landfill

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Phenol	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Determination of base/neutral extractable organic compounds.					
1,2,4-Trichlorobenzene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
1,2-Dichlorobenzene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
1,3-Dichlorobenzene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
1,4-Dichlorobenzene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
2,4-Dinitrotoluene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
2,6-Dinitrotoluene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
2-Chloronaphthalene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
2-Methylnaphthalene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
2-Nitroaniline	< 50. ug/L	50.	EPA 8270	FIZ	09/05/98
3,3'-Dichlorobenzidine	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
3-Nitroaniline	< 50. ug/L	50.	EPA 8270	FIZ	09/05/98
4-Bromophenyl Phenyl Ether	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
4-Chloroaniline	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
4-Chlorophenyl Phenyl Ether	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
4-Nitroaniline	< 20. ug/L	20.	EPA 8270	FIZ	09/05/98
Acenaphthene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Acenaphthylene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Aniline	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Anthracene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Azobenzene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Benzidine	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Benzo(a)anthracene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Benzo(a)Pyrene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Benzo(b)Fluoranthene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Benzo(g,h,i)perylene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Benzo(k)Fluoranthene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Benzyl Alcohol	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Bis(2-Chloroethoxy) Methane	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Bis(2-Chloroethyl) Ether	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Bis(2-Chloroisopropyl) Ether	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Bis(2-ethylhexyl)Phthalate	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98

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Keystone LABORATORIES, INC.

MEMBER ACIL

Work Order: 1809.0036
Sample No: 1821078
Report Date: 9/18/98

Site Name / Sample Description
IA Army National Guard
PZ-17 Cemetery Landfill

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Butyl Benzyl Phthalate	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Chrysene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Di-n-butyl Phthalate	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Di-n-octyl Phthalate	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Dibenzo(a,h)anthracene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Dibenzofuran	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Diethyl Phthalate	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Dimethylphthalate	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Fluoranthene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Fluorene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Hexachlorobenzene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Hexachlorobutadiene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Hexachlorocyclopentadiene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Hexachloroethane	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Indeno(1,2,3-cd)Pyrene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Isophorone	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
n-Nitroso-di-n-propylamine	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
N-Nitrosodimethylamine	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
N-Nitrosodiphenylamine	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Naphthalene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Nitrobenzene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Phenanthrene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Pyrene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Determination of semivolatile organic compounds.					
TEH, as #2 diesel fuel	< 0.1 mg/L	0.1	Iowa OA-2	CLM	09/07/98
TEH, as gasoline	< 0.1 mg/L	0.1	Iowa OA-2	CLM	09/07/98
TEH, as waste oil	< 0.1 mg/L	0.1	Iowa OA-2	CLM	09/07/98
Total Extractable Hydrocarbons	< 0.1 mg/L	0.1	Iowa OA-2	CLM	09/07/98
Determination of metals.					
Arsenic, total	0.206 mg/L	0.005	EPA 7060	LAR	09/03/98
Barium, total	5.42 mg/L	0.01	EPA 6010	LAR	09/03/98
Cadmium, total	0.006 mg/L	0.001	EPA 7131	LAR	09/09/98
Chromium, total	0.338 mg/L	0.03	EPA 6010	LAR	09/03/98

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Keystone LABORATORIES, INC.

MEMBER ACIL

Work Order: 1809.0036
Sample No: 1821078
Report Date: 9/18/98

Site Name / Sample Description
IA Army National Guard
PZ-17 Cemetery Landfill

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Lead, total	0.187 mg/L	0.005	EPA 7421	LAR	09/02/98
Mercury, total	< 0.0005 mg/L	0.0005	EPA 7470	BNS	09/03/98
Selenium, total	< 0.005 mg/L	0.005	EPA 7740	LAR	09/02/98
Silver, total	< 0.03 mg/L	0.03	EPA 6010	LAR	09/03/98

Jeff King
Keystone Laboratories, Inc.

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Keystone LABORATORIES, INC.

MEMBER ACIL

ANALYTICAL REPORT

September 18, 1998

Report To

Kevin Armstrong
Montgomery-Watson
11107 Aurora Avenue

Des Moines, IA 50322

Sample Information

Work Order: 1809.0036
Sample No: 1821079
Date Collected: 08/31/98 09:55 AM
Date Received: 09/01/98 11:45 AM
Collector: Kevin Armstrong
Collector Phone: 515-253-0830
Matrix: water

Site Information/Sample Description

IA Army National Guard
Camp Dodge
Des Moines, IA

PZ-18 Cemetery Landfill

Comments

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Determination of volatile organic compounds.					
1,1,1-Trichloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
1,1,2,2-Tetrachloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
1,1,2-Trichloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
1,1-Dichloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
1,1-Dichloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
1,2-Dichlorobenzene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
1,2-Dichloroethane	< 0.4 ug/L	0.4	EPA 8260	EPP	09/10/98
1,2-Dichloropropane	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
1,3-Dichlorobenzene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
1,4-Dichlorobenzene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
2-Butanone (MEK)	< 5. ug/L	5.	EPA 8260	EPP	09/10/98
2-Hexanone (MBK)	< 5. ug/L	5.	EPA 8260	EPP	09/10/98
4-Methyl-2-pentanone (MIBK)	< 5. ug/L	5.	EPA 8260	EPP	09/10/98
Acetone	< 10. ug/L	10.	EPA 8260	EPP	09/10/98
Benzene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Bromodichloromethane	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Bromoform	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Bromomethane	< 1. ug/L	1.	EPA 8260	EPP	09/10/98

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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Keystone LABORATORIES, INC.

MEMBER ACIL

Work Order: 1809.0036
Sample No: 1821079
Report Date: 9/18/98

Site Name / Sample Description
IA Army National Guard
PZ-18 Cemetery Landfill

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Carbon Disulfide	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Carbon Tetrachloride	< 0.3 ug/L	0.3	EPA 8260	EPP	09/10/98
Chlorobenzene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Chloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Chloroform	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Chloromethane	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
cis-1,2-Dichloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
cis-1,3-Dichloropropene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Dibromochloromethane	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Ethylbenzene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Methylene Chloride	< 5. ug/L	5.	EPA 8260	EPP	09/10/98
Naphthalene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
chloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
ene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
trans-1,2-Dichloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
trans-1,3-Dichloropropene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Trichloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Vinyl Chloride	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Xylenes, total	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Determination of acid extractable organic compounds.					
(3 & 4)-Methylphenol	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
2,4,5-Trichlorophenol	< 50. ug/L	50.	EPA 8270	FIZ	09/05/98
2,4,6-Trichlorophenol	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
2,4-Dichlorophenol	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
2,4-Dimethylphenol	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
2,4-Dinitrophenol	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
2-Chlorophenol	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
2-Methylphenol	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
2-Nitrophenol	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
4,6-Dinitro-2-methylphenol	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
4-Chloro-3-methylphenol	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
4-Nitrophenol	< 20. ug/L	20.	EPA 8270	FIZ	09/05/98
achlorophenol	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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Keystone LABORATORIES, INC.

MEMBER ACIL

Work Order: 1809.0036
Sample No: 1821079
Report Date: 9/18/98

Site Name / Sample Description
IA Army National Guard
PZ-18 Cemetery Landfill

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Phenol	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Determination of base/neutral extractable organic compounds.					
1,2,4-Trichlorobenzene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
1,2-Dichlorobenzene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
1,3-Dichlorobenzene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
1,4-Dichlorobenzene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
2,4-Dinitrotoluene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
2,6-Dinitrotoluene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
2-Chloronaphthalene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
2-Methylnaphthalene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
2-Nitroaniline	< 50. ug/L	50.	EPA 8270	FIZ	09/05/98
3,3'-Dichlorobenzidine	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
3-Nitroaniline	< 50. ug/L	50.	EPA 8270	FIZ	09/05/98
4-Bromophenyl Phenyl Ether	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
4-Chloroaniline	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
4-Chlorophenyl Phenyl Ether	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
4-Nitroaniline	< 20. ug/L	20.	EPA 8270	FIZ	09/05/98
Acenaphthene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Acenaphthylene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Aniline	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Anthracene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Azobenzene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Benzidine	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Benzo(a)anthracene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Benzo(a)Pyrene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Benzo(b)Fluoranthene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Benzo(g,h,i)perylene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Benzo(k)Fluoranthene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Benzyl Alcohol	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Bis(2-Chloroethoxy) Methane	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Bis(2-Chloroethyl) Ether	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Bis(2-Chloroisopropyl) Ether	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Bis(2-ethylhexyl)Phthalate	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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Keystone LABORATORIES, INC.

MEMBER ACIL

Work Order: 1809.0036
Sample No: 1821079
Report Date: 9/18/98

Site Name / Sample Description
IA Army National Guard
PZ-18 Cemetery Landfill

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Butyl Benzyl Phthalate	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Chrysene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Di-n-butyl Phthalate	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Di-n-octyl Phthalate	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Dibenzo(a,h)anthracene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Dibenzofuran	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Diethyl Phthalate	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Dimethylphthalate	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Fluoranthene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Fluorene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Hexachlorobenzene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Hexachlorobutadiene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
achlorocyclopentadiene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
achloroethane	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Indeno(1,2,3-cd)Pyrene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Isophorone	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
n-Nitroso-di-n-propylamine	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
N-Nitrosodimethylamine	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
N-Nitrosodiphenylamine	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Naphthalene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Nitrobenzene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Phenanthrene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Pyrene	< 10. ug/L	10.	EPA 8270	FIZ	09/05/98
Determination of semivolatile organic compounds.					
TEH, as #2 diesel fuel	< 0.1 mg/L	0.1	Iowa OA-2	CLM	09/07/98
TEH, as gasoline	< 0.1 mg/L	0.1	Iowa OA-2	CLM	09/07/98
TEH, as waste oil	< 0.1 mg/L	0.1	Iowa OA-2	CLM	09/07/98
Total Extractable Hydrocarbons	< 0.1 mg/L	0.1	Iowa OA-2	CLM	09/07/98
Determination of metals.					
Arsenic, total	0.552 mg/L	0.005	EPA 7060	LAR	09/03/98
Barium, total	3.16 mg/L	0.01	EPA 6010	LAR	09/03/98
Cadmium, total	0.011 mg/L	0.001	EPA 7131	LAR	09/09/98
mium, total	0.457 mg/L	0.03	EPA 6010	LAR	09/03/98

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Keystone
LABORATORIES, INC.

MEMBER ACIL

Work Order: 1809.0036
Sample No: 1821079
Report Date: 9/18/98

Site Name / Sample Description
IA Army National Guard
PZ-18 Cemetery Landfill

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Lead, total	0.208 mg/L	0.005	EPA 7421	LAR	09/02/98
Mercury, total	0.003 mg/L	0.0005	EPA 7470	BNS	09/03/98
Selenium, total	< 0.005 mg/L	0.005	EPA 7740	LAR	09/02/98
Silver, total	< 0.03 mg/L	0.03	EPA 6010	LAR	09/03/98

Jeff King
Keystone Laboratories, Inc.

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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CHAIN OF CUSTODY RECORD

Keystone LABORATORIES, INC.

☒ 600 E. 17th St. S.
Newton, IA 50208
Phone: 515-792-8451
Fax: 515-792-7989

☐ 3012 A[illegible]rough Ave.
Waterloo, IA 50701
Phone: 319-235-4440
Fax: 319-235-2480

☐ 1515 Walnut St.
Kansas City, MO 64108
Phone: 816-471-1515
Fax: 816-471-7915

PAGE 2 OF 2

PRINT OR TYPE INFORMATION BELOW
SAMPLER: Kevin Armstrong
SITE NAME: IA ARMY NAT. GUARD - CAMP DODGE
ADDRESS:
CITY/ST/ZIP:
PHONE:

REPORT TO:
NAME: Kevin Armstrong
COMPANY NAME: Montgomery Watson
ADDRESS: 11107 Aurora Ave
CITY/ST/ZIP: Des Moines IA 50322
PHONE: 515-253-0830
FAX: 515-253-9592

BILL TO:
NAME: Kevin Armstrong
COMPANY NAME:
ADDRESS:
CITY/ST/ZIP:
PHONE:
Keystone Quote No.: (If Applicable)

CLIENT SAMPLE NUMBER	DATE	TIME	SAMPLE LOCATION	NO. OF CONTAINERS	MATRIX	GRAB/COMPOSITE	ANALYSES REQUIRED: OA-1	OA-2	VOCs-8260	BNAs-8270	RCRA Metals	Explosives			LAB USE ONLY: LABORATORY SAMPLE NUMBER
PZ-8		1155	P-10 Site	3	H_2O	G			✓						1821075
PZ-9		1157	↓	3	H_2O	G			✓						21076
PZ-13		1050	Gravel Pit Dump	4	H_2O	G	✓	✓							21077
PZ-17		1015	Cemetery Landfill	7	H_2O	G		✓	✓	✓	✓				21078
PZ-18		955	↓	7	H_2O	G		✓	✓	✓	✓				21079

LABORATORY WORK ORDER NO.: 1809.0036

SAMPLE CONDITION AS RECEIVED:
CHILLED ☐ YES ☐ NO
SEALED ☐ YES ☐ NO
SAMPLE CONDITION/COMMENTS

KGA
9-1-98

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time	Turn-Around:
Kevin G Armstrong	Date 9-1-98 Time 900			☒ Standard ☐ Rush ____ Contact Lab Prior to Submission
Relinquished by: (Signature)	Date / Time	Received for Lab by: (Signature)	Date 9-1-98 Time 11:45	Remarks: 2 coolers

Original - Return with Report • Yellow - Lab Copy • Pink - Sampler Copy

FORM: CCR 7-97

CHAIN OF CUSTODY RECORD

Keystone LABORATORIES, INC.

☒ 600 E. 17th St. S. Newton, IA 50208 Phone: 515-792-8451 Fax: 515-792-7989

☐ 3012 Ansborough Ave. Waterloo, IA 50701 Phone: 319-235-4440 Fax: 319-235-2480

☐ 1515 Walnut St. Kansas City, MO 64108 Phone: 816-471-1515 Fax: 816-471-7915

PRINT OR TYPE INFORMATION BELOW

SAMPLER: Kevin Armstrong
SITE NAME: IA ARMY NAT. GUARD - CAMP DODGE
ADDRESS:
CITY/ST/ZIP:
PHONE:

REPORT TO:
NAME: Kevin Armstrong
COMPANY NAME: Montgomery Watson
ADDRESS: 1107 Aurora Ave
CITY/ST/ZIP: Des Moines IA 50322
PHONE: 515-253-0830
FAX: 515-253-9592

BILL TO:
NAME: Kevin Armstrong
COMPANY NAME:
ADDRESS:
CITY/ST/ZIP:
PHONE:

Keystone Quote No.: (If Applicable)

CLIENT SAMPLE NUMBER	DATE	TIME	SAMPLE LOCATION	NO. OF CONTAINERS	MATRIX	GRAB/COMPOSITE	ANALYSES REQUIRED: OA-1	OA-2	VOCs-8260	BNAs-8270	RCRA Metals	Explosives			LAB USE ONLY: LABORATORY SAMPLE NUMBER
WWTP-1	8/31/98	1605	Former Wastewater Treat. Plant	1	Soil	G					✓				1821065
WWTP-2	8/31/98	1610	↓	1	Soil	G					✓				21066
WWTP-3	8/31/98	1615	↓	1	Soil	G					✓				21067
PZ-1	8/31/98	1415	Demo. Pit	1	H_2O	G						✓			21068
PZ-2	8/31/98	1430	↓	1	↓	G						✓			21069
PZ-3	8/31/98	1445	LAW Range Landfill	4	↓	G	✓	✓							21070
PZ-4	8/31/98	1505	↓	4	↓	G	✓	✓							21071
PZ-5	8/31/98	1455	↓	4	↓	G	✓	✓							21072
PZ-6	8/31/98	1200	P-10 Site	3	↓	G			✓						21073
PZ-7	8/31/98	1150	↓	3	↓	G			✓						21074

LABORATORY WORK ORDER NO.: 1809.0036

SAMPLE CONDITION AS RECEIVED:
CHILLED ☐ YES ☐ NO
SEALED ☐ YES ☐ NO
SAMPLE CONDITION/COMMENTS

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time	Turn-Around
Kevin G Armstrong	9-1-98 / 900			☒ Standard ☐ Rush ____ Contact Lab Prior to Submission
Relinquished by: (Signature)	Date / Time	Received for Lab by: (Signature)	Date	Remarks:
		[signature]	9-1-98 / 45	

Original - Return with Report • Yellow - Lab Copy • Pink - Sampler Copy

FORM: CCR 7-97

Keystone LABORATORIES, INC.

MEMBER ACIL

ANALYTICAL REPORT

September 25, 1998

Report To

Kevin Armstrong
Montgomery-Watson
11107 Aurora Avenue

Des Moines, IA 50322

Sample Information

Work Order: 1809.0105
Sample No: 1821257
Date Collected: 09/01/98 11:05 AM
Date Received: 09/02/98 10:50 AM
Collector: Kevin Armstrong
Collector Phone: 515-253-0830
Matrix: water

Site Information/Sample Description

Iowa Army Nat. Guard
Camp Dodge
Des Moines, IA

PZ-21 Scrap Iron landfill

Comments

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Determination of volatile organic compounds.					
1,1,1-Trichloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
1,1,2,2-Tetrachloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
1,1,2-Trichloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
1,1-Dichloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
1,1-Dichloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
1,2-Dichlorobenzene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
1,2-Dichloroethane	< 0.4 ug/L	0.4	EPA 8260	EPP	09/10/98
1,2-Dichloropropane	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
1,3-Dichlorobenzene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
1,4-Dichlorobenzene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
2-Butanone (MEK)	< 5. ug/L	5.	EPA 8260	EPP	09/10/98
2-Hexanone (MBK)	< 5. ug/L	5.	EPA 8260	EPP	09/10/98
4-Methyl-2-pentanone (MIBK)	< 5. ug/L	5.	EPA 8260	EPP	09/10/98
Acetone	< 10. ug/L	10.	EPA 8260	EPP	09/10/98
Benzene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Bromodichloromethane	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Bromoform	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
[illegible]omethane	< 1. ug/L	1.	EPA 8260	EPP	09/10/98

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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Keystone
LABORATORIES, INC.

MEMBER ACIL

Work Order: 1809.0105
Sample No: 1821257
Report Date: 9/25/98

Site Name / Sample Description
Iowa Army Nat. Guard
PZ-21 Scrap Iron landfill

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Carbon Disulfide	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Carbon Tetrachloride	< 0.3 ug/L	0.3	EPA 8260	EPP	09/10/98
Chlorobenzene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Chloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Chloroform	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Chloromethane	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
cis-1,2-Dichloroethylene	2.7 ug/L	1.	EPA 8260	EPP	09/10/98
cis-1,3-Dichloropropene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Dibromochloromethane	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Ethylbenzene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Methylene Chloride	< 5. ug/L	5.	EPA 8260	EPP	09/10/98
Naphthalene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Tetrachloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Toluene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
trans-1,2-Dichloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
trans-1,3-Dichloropropene	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Trichloroethylene	3.3 ug/L	1.	EPA 8260	EPP	09/10/98
Vinyl Chloride	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Xylenes, total	< 1. ug/L	1.	EPA 8260	EPP	09/10/98
Determination of metals.					
Arsenic, total	0.108 mg/L	0.005	EPA 7060	LAR	09/12/98
Barium, total	0.959 mg/L	0.01	EPA 6010	LAR	09/08/98
Cadmium, total	0.002 mg/L	0.001	EPA 7131	LAR	09/09/98
Chromium, total	0.109 mg/L	0.03	EPA 6010	LAR	09/08/98
Lead, total	0.103 mg/L	0.005	EPA 7421	LAR	09/08/98
Mercury, total	< 0.0005 mg/L	0.0005	EPA 7470	BNS	09/03/98
Selenium, total	0.005 mg/L	0.005	EPA 7740	LAR	09/08/98
Silver, total	< 0.03 mg/L	0.03	EPA 6010	LAR	09/08/98

Jeffrey King
Keystone Laboratories, Inc.

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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Keystone LABORATORIES, INC.

MEMBER ACIL

ANALYTICAL REPORT

September 25, 1998

Report To

Kevin Armstrong
Montgomery-Watson
11107 Aurora Avenue

Des Moines, IA 50322

Sample Information

Work Order: 1809.0105
Sample No: 1821258
Date Collected: 09/01/98 11:15 AM
Date Received: 09/02/98 10:50 AM
Collector: Kevin Armstrong
Collector Phone: 515-253-0830
Matrix: water

Site Information/Sample Description

Iowa Army Nat. Guard
Camp Dodge
Des Moines, IA

PZ-22 Scrap Iron landfill

Comments

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Determination of volatile organic compounds.					
1,1,1-Trichloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
1,1,2,2-Tetrachloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
1,1,2-Trichloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
1,1-Dichloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
1,1-Dichloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
1,2-Dichlorobenzene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
1,2-Dichloroethane	< 0.4 ug/L	0.4	EPA 8260	EPP	09/11/98
1,2-Dichloropropane	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
1,3-Dichlorobenzene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
1,4-Dichlorobenzene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
2-Butanone (MEK)	< 5. ug/L	5.	EPA 8260	EPP	09/11/98
2-Hexanone (MBK)	< 5. ug/L	5.	EPA 8260	EPP	09/11/98
4-Methyl-2-pentanone (MIBK)	< 5. ug/L	5.	EPA 8260	EPP	09/11/98
Acetone	< 10. ug/L	10.	EPA 8260	EPP	09/11/98
Benzene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Bromodichloromethane	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Bromoform	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
[illegible]omethane	< 1. ug/L	1.	EPA 8260	EPP	09/11/98

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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Keystone
LABORATORIES, INC.

MEMBER ACIL

Work Order: 1809.0105
Sample No: 1821258
Report Date: 9/25/98

Site Name / Sample Description
Iowa Army Nat. Guard
PZ-22 Scrap Iron landfill

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Carbon Disulfide	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Carbon Tetrachloride	< 0.3 ug/L	0.3	EPA 8260	EPP	09/11/98
Chlorobenzene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Chloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Chloroform	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Chloromethane,	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
cis-1,2-Dichloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
cis-1,3-Dichloropropene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Dibromochloromethane	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Ethylbenzene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Methylene Chloride	< 5. ug/L	5.	EPA 8260	EPP	09/11/98
Naphthalene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Tetrachloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Toluene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
trans-1,2-Dichloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
trans-1,3-Dichloropropene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Trichloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Vinyl Chloride	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Xylenes, total	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Determination of metals.					
Arsenic, total	0.125 mg/L	0.005	EPA 7060	LAR	09/12/98
Barium, total	2.47 mg/L	0.01	EPA 6010	LAR	09/08/98
Cadmium, total	0.005 mg/L	0.001	EPA 7131	LAR	09/09/98
Chromium, total	0.229 mg/L	0.03	EPA 6010	LAR	09/08/98
Lead, total	0.208 mg/L	0.005	EPA 7421	LAR	09/08/98
Mercury, total	0.0007 mg/L	0.0005	EPA 7470	BNS	09/03/98
Selenium, total	0.016 mg/L	0.005	EPA 7740	LAR	09/08/98
Silver, total	< 0.03 mg/L	0.03	EPA 6010	LAR	09/08/98

Jeffrey King
Keystone Laboratories, Inc.

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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Keystone LABORATORIES, INC.

MEMBER ACIL

ANALYTICAL REPORT

September 25, 1998

Report To

Kevin Armstrong
Montgomery-Watson
11107 Aurora Avenue

Des Moines, IA 50322

Sample Information

Work Order: 1809.0105
Sample No: 1821259
Date Collected: 09/01/98 01:25 AM
Date Received: 09/02/98 10:50 AM
Collector: Kevin Armstrong
Collector Phone: 515-253-0830
Matrix: water

Site Information/Sample Description

Iowa Army Nat. Guard
Camp Dodge
Des Moines, IA

PZ-23 Scrap Iron landfill

Comments

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Determination of volatile organic compounds.					
1,1,1-Trichloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
1,1,2,2-Tetrachloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
1,1,2-Trichloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
1,1-Dichloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
1,1-Dichloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
1,2-Dichlorobenzene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
1,2-Dichloroethane	< 0.4 ug/L	0.4	EPA 8260	EPP	09/11/98
1,2-Dichloropropane	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
1,3-Dichlorobenzene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
1,4-Dichlorobenzene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
2-Butanone (MEK)	< 5. ug/L	5.	EPA 8260	EPP	09/11/98
2-Hexanone (MBK)	< 5. ug/L	5.	EPA 8260	EPP	09/11/98
4-Methyl-2-pentanone (MIBK)	< 5. ug/L	5.	EPA 8260	EPP	09/11/98
Acetone	< 10. ug/L	10.	EPA 8260	EPP	09/11/98
Benzene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Bromodichloromethane	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Bromoform	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Bromomethane	< 1. ug/L	1.	EPA 8260	EPP	09/11/98

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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MEMBER ACIL

Work Order: 1809.0105
Sample No: 1821259
Report Date: 9/25/98

Site Name / Sample Description
Iowa Army Nat. Guard
PZ-23 Scrap Iron landfill

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Carbon Disulfide	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Carbon Tetrachloride	< 0.3 ug/L	0.3	EPA 8260	EPP	09/11/98
Chlorobenzene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Chloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Chloroform	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Chloromethane	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
cis-1,2-Dichloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
cis-1,3-Dichloropropene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Dibromochloromethane	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Ethylbenzene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Methylene Chloride	< 5. ug/L	5.	EPA 8260	EPP	09/11/98
Naphthalene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Tetrachloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Toluene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
trans-1,2-Dichloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
trans-1,3-Dichloropropene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Trichloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Vinyl Chloride	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Xylenes, total	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Determination of acid extractable organic compounds.					
(3 & 4)-Methylphenol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
2,4,5-Trichlorophenol	< 50. ug/L	50.	EPA 8270	FIZ	09/06/98
2,4,6-Trichlorophenol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
2,4-Dichlorophenol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
2,4-Dimethylphenol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
2,4-Dinitrophenol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
2-Chlorophenol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
2-Methylphenol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
2-Nitrophenol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
4,6-Dinitro-2-methylphenol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
4-Chloro-3-methylphenol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
4-Nitrophenol	< 20. ug/L	20.	EPA 8270	FIZ	09/06/98
Pentachlorophenol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98

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Work Order: 1809.0105
Sample No: 1821259
Report Date: 9/25/98

Site Name / Sample Description
Iowa Army Nat. Guard
PZ-23 Scrap Iron landfill

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Phenol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Determination of base/neutral extractable organic compounds.					
1,2,4-Trichlorobenzene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
1,2-Dichlorobenzene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
1,3-Dichlorobenzene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
1,4-Dichlorobenzene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
2,4-Dinitrotoluene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
2,6-Dinitrotoluene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
2-Chloronaphthalene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
2-Methylnaphthalene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
2-Nitroaniline	< 50. ug/L	50.	EPA 8270	FIZ	09/06/98
3,3'-Dichlorobenzidine	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
[illegible]troaniline	< 50. ug/L	50.	EPA 8270	FIZ	09/06/98
[illegible]romophenyl Phenyl Ether	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
4-Chloroaniline	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
4-Chlorophenyl Phenyl Ether	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
4-Nitroaniline	< 20. ug/L	20.	EPA 8270	FIZ	09/06/98
Acenaphthene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Acenaphthylene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Aniline	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Anthracene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Azobenzene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Benzidine	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Benzo(a)anthracene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Benzo(a)Pyrene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Benzo(b)Fluoranthene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Benzo(g,h,i)perylene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Benzo(k)Fluoranthene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Benzyl Alcohol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Bis(2-Chloroethoxy) Methane	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Bis(2-Chloroethyl) Ether	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Bis(2-Chloroisopropyl) Ether	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
[illegible]2-ethylhexyl)Phthalate	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98

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Work Order: 1809.0105
Sample No: 1821259
Report Date: 9/25/98

Site Name / Sample Description
Iowa Army Nat. Guard
PZ-23 Scrap Iron landfill

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Butyl Benzyl Phthalate	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Chrysene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Di-n-butyl Phthalate	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Di-n-octyl Phthalate	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Dibenzo(a,h)anthracene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Dibenzofuran	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Diethyl Phthalate	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Dimethylphthalate	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Fluoranthene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Fluorene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Hexachlorobenzene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Hexachlorobutadiene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Hexachlorocyclopentadiene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Hexachloroethane	< 10. ug/L	10.	EPA 8270	FIZ	09/06/9
Indeno(1,2,3-cd)Pyrene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Isophorone	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
n-Nitroso-di-n-propylamine	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
N-Nitrosodimethylamine	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
N-Nitrosodiphenylamine	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Naphthalene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Nitrobenzene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Phenanthrene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Pyrene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Determination of semivolatile organic compounds.					
TEH, as #2 diesel fuel	< 0.1 mg/L	0.1	Iowa OA-2	CLM	09/07/98
TEH, as gasoline	< 0.1 mg/L	0.1	Iowa OA-2	CLM	09/07/98
TEH, as waste oil	< 0.1 mg/L	0.1	Iowa OA-2	CLM	09/07/98
Total Extractable Hydrocarbons	< 0.1 mg/L	0.1	Iowa OA-2	CLM	09/07/98
Determination of metals.					
Arsenic, total	0.394 mg/L	0.005	EPA 7060	LAR	09/12/98
Barium, total	11.4 mg/L	0.01	EPA 6010	LAR	09/08/98
Cadmium, total	0.023 mg/L	0.001	EPA 7131	LAR	09/23/98
Chromium, total	1.06 mg/L	0.03	EPA 6010	LAR	09/08/98

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Work Order: 1809.0105
Sample No: 1821259
Report Date: 9/25/98

Site Name / Sample Description
Iowa Army Nat. Guard
PZ-23 Scrap Iron landfill

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Lead, total	1.36 mg/L	0.005	EPA 7421	LAR	09/24/98
Mercury, total	0.0008 mg/L	0.0005	EPA 7470	BNS	09/03/98
Selenium, total	0.009 mg/L	0.005	EPA 7740	LAR	09/08/98
Silver, total	< 0.03 mg/L	0.03	EPA 6010	LAR	09/08/98

Jeffrey King
Keystone Laboratories, Inc.

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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Keystone
LABORATORIES, INC.

MEMBER ACIL

ANALYTICAL REPORT

September 25, 1998

Report To

Kevin Armstrong
Montgomery-Watson
11107 Aurora Avenue

Des Moines, IA 50322

Sample Information

Work Order: 1809.0105
Sample No: 1821260
Date Collected: 09/01/98 10:20 AM
Date Received: 09/02/98 10:50 AM
Collector: Kevin Armstrong
Collector Phone: 515-253-0830
Matrix: water

Site Information/Sample Description

Iowa Army Nat. Guard
Camp Dodge
Des Moines, IA

PZ-24 Scrap Iron landfill

Comments

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Determination of volatile organic compounds.					
1,1,1-Trichloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
1,1,2,2-Tetrachloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
1,1,2-Trichloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
1,1-Dichloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
1,1-Dichloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
1,2-Dichlorobenzene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
1,2-Dichloroethane	< 0.4 ug/L	0.4	EPA 8260	EPP	09/11/98
1,2-Dichloropropane	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
1,3-Dichlorobenzene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
1,4-Dichlorobenzene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
2-Butanone (MEK)	< 5. ug/L	5.	EPA 8260	EPP	09/11/98
2-Hexanone (MBK)	< 5. ug/L	5.	EPA 8260	EPP	09/11/98
4-Methyl-2-pentanone (MIBK)	< 5. ug/L	5.	EPA 8260	EPP	09/11/98
Acetone	< 10. ug/L	10.	EPA 8260	EPP	09/11/98
Benzene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Bromodichloromethane	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Bromoform	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Bromomethane	< 1. ug/L	1.	EPA 8260	EPP	09/11/98

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MEMBER ACIL

Work Order: 1809.0105
Sample No: 1821260
Report Date: 9/25/98

Site Name / Sample Description
Iowa Army Nat. Guard
PZ-24 Scrap Iron landfill

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Carbon Disulfide	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Carbon Tetrachloride	< 0.3 ug/L	0.3	EPA 8260	EPP	09/11/98
Chlorobenzene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Chloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Chloroform	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Chloromethane	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
cis-1,2-Dichloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
cis-1,3-Dichloropropene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Dibromochloromethane	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Ethylbenzene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Methylene Chloride	< 5. ug/L	5.	EPA 8260	EPP	09/11/98
Naphthalene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
achloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
ene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
trans-1,2-Dichloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
trans-1,3-Dichloropropene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Trichloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Vinyl Chloride	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Xylenes, total	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Determination of acid extractable organic compounds.					
(3 & 4)-Methylphenol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
2,4,5-Trichlorophenol	< 50. ug/L	50.	EPA 8270	FIZ	09/06/98
2,4,6-Trichlorophenol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
2,4-Dichlorophenol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
2,4-Dimethylphenol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
2,4-Dinitrophenol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
2-Chlorophenol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
2-Methylphenol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
2-Nitrophenol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
4,6-Dinitro-2-methylphenol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
4-Chloro-3-methylphenol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
4-Nitrophenol	< 20. ug/L	20.	EPA 8270	FIZ	09/06/98
tachlorophenol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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Work Order: 1809.0105
Sample No: 1821260
Report Date: 9/25/98

Site Name / Sample Description
Iowa Army Nat. Guard
PZ-24 Scrap Iron landfill

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Phenol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Determination of base/neutral extractable organic compounds.					
1,2,4-Trichlorobenzene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
1,2-Dichlorobenzene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
1,3-Dichlorobenzene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
1,4-Dichlorobenzene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
2,4-Dinitrotoluene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
2,6-Dinitrotoluene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
2-Chloronaphthalene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
2-Methylnaphthalene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
2-Nitroaniline	< 50. ug/L	50.	EPA 8270	FIZ	09/06/98
3,3'-Dichlorobenzidine	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
3-Nitroaniline	< 50. ug/L	50.	EPA 8270	FIZ	09/06/9
4-Bromophenyl Phenyl Ether	< 10. ug/L	10.	EPA 8270	FIZ	09/06/9
4-Chloroaniline	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
4-Chlorophenyl Phenyl Ether	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
4-Nitroaniline	< 20. ug/L	20.	EPA 8270	FIZ	09/06/98
Acenaphthene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Acenaphthylene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Aniline	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Anthracene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Azobenzene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Benzidine	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Benzo(a)anthracene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Benzo(a)Pyrene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Benzo(b)Fluoranthene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Benzo(g,h,i)perylene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Benzo(k)Fluoranthene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Benzyl Alcohol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Bis(2-Chloroethoxy) Methane	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Bis(2-Chloroethyl) Ether	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Bis(2-Chloroisopropyl) Ether	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Bis(2-ethylhexyl)Phthalate	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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Keystone LABORATORIES, INC.

MEMBER ACIL

Work Order: 1809.0105
Sample No: 1821260
Report Date: 9/25/98

Site Name / Sample Description
Iowa Army Nat. Guard
PZ-24 Scrap Iron landfill

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Butyl Benzyl Phthalate	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Chrysene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Di-n-butyl Phthalate	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Di-n-octyl Phthalate	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Dibenzo(a,h)anthracene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Dibenzofuran	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Diethyl Phthalate	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Dimethylphthalate	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Fluoranthene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Fluorene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Hexachlorobenzene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Hexachlorobutadiene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
achlorocyclopentadiene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
achloroethane	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Indeno(1,2,3-cd)Pyrene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Isophorone	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
n-Nitroso-di-n-propylamine	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
N-Nitrosodimethylamine	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
N-Nitrosodiphenylamine	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Naphthalene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Nitrobenzene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Phenanthrene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Pyrene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Determination of semivolatile organic compounds.					
TEH, as #2 diesel fuel	< 0.1 mg/L	0.1	Iowa OA-2	CLM	09/07/98
TEH, as gasoline	< 0.1 mg/L	0.1	Iowa OA-2	CLM	09/07/98
TEH, as waste oil	< 0.1 mg/L	0.1	Iowa OA-2	CLM	09/07/98
Total Extractable Hydrocarbons	< 0.1 mg/L	0.1	Iowa OA-2	CLM	09/07/98
Determination of metals.					
Arsenic, total	0.202 mg/L	0.005	EPA 7060	LAR	09/12/98
Barium, total	1.67 mg/L	0.01	EPA 6010	LAR	09/08/98
Cadmium, total	< 0.001 mg/L	0.001	EPA 7131	LAR	09/09/98
mium, total	0.202 mg/L	0.03	EPA 6010	LAR	09/08/98

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Keystone
LABORATORIES, INC.

MEMBER ACIL

Work Order: 1809.0105
Sample No: 1821260
Report Date: 9/25/98

Site Name / Sample Description
Iowa Army Nat. Guard
PZ-24 Scrap Iron landfill

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Lead, total	0.252 mg/L	0.005	EPA 7421	LAR	09/08/98
Mercury, total	0.0008 mg/L	0.0005	EPA 7470	BNS	09/03/98
Selenium, total	0.012 mg/L	0.005	EPA 7740	LAR	09/08/98
Silver, total	< 0.03 mg/L	0.03	EPA 6010	LAR	09/08/98

Jeffrey King
Keystone Laboratories, Inc.

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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Keystone LABORATORIES, INC.

MEMBER ACIL

ANALYTICAL REPORT

September 25, 1998

Report To

Kevin Armstrong
Montgomery-Watson
11107 Aurora Avenue

Des Moines, IA 50322

Sample Information

Work Order: 1809.0105
Sample No: 1821261
Date Collected: 09/01/98 11:50 AM
Date Received: 09/02/98 10:50 AM
Collector: Kevin Armstrong
Collector Phone: 515-253-0830
Matrix: water

Site Information/Sample Description

Iowa Army Nat. Guard
Camp Dodge
Des Moines, IA

SIL-UP Scrap Iron landfill

Comments

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Determination of volatile organic compounds.					
1,1,1-Trichloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
1,1,2,2-Tetrachloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
1,1,2-Trichloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
1,1-Dichloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
1,1-Dichloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
1,2-Dichlorobenzene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
1,2-Dichloroethane	< 0.4 ug/L	0.4	EPA 8260	EPP	09/11/98
1,2-Dichloropropane	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
1,3-Dichlorobenzene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
1,4-Dichlorobenzene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
2-Butanone (MEK)	< 5. ug/L	5.	EPA 8260	EPP	09/11/98
2-Hexanone (MBK)	< 5. ug/L	5.	EPA 8260	EPP	09/11/98
4-Methyl-2-pentanone (MIBK)	< 5. ug/L	5.	EPA 8260	EPP	09/11/98
Acetone	< 10. ug/L	10.	EPA 8260	EPP	09/11/98
Benzene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Bromodichloromethane	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Bromoform	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
[illegible]omethane	< 1. ug/L	1.	EPA 8260	EPP	09/11/98

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Keystone
LABORATORIES, INC.

MEMBER ACIL

Work Order: 1809.0105
Sample No: 1821261
Report Date: 9/25/98

Site Name / Sample Description
Iowa Army Nat. Guard
SIL-UP Scrap Iron landfill

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Carbon Disulfide	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Carbon Tetrachloride	< 0.3 ug/L	0.3	EPA 8260	EPP	09/11/98
Chlorobenzene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Chloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Chloroform	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Chloromethane	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
cis-1,2-Dichloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
cis-1,3-Dichloropropene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Dibromochloromethane	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Ethylbenzene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Methylene Chloride	< 5. ug/L	5.	EPA 8260	EPP	09/11/98
Naphthalene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Tetrachloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Toluene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
trans-1,2-Dichloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
trans-1,3-Dichloropropene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Trichloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Vinyl Chloride	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Xylenes, total	< 1. ug/L	1.	EPA 8260	EPP	09/11/98
Determination of acid extractable organic compounds.					
(3 & 4)-Methylphenol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
2,4,5-Trichlorophenol	< 50. ug/L	50.	EPA 8270	FIZ	09/06/98
2,4,6-Trichlorophenol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
2,4-Dichlorophenol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
2,4-Dimethylphenol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
2,4-Dinitrophenol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
2-Chlorophenol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
2-Methylphenol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
2-Nitrophenol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
4,6-Dinitro-2-methylphenol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
4-Chloro-3-methylphenol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
4-Nitrophenol	< 20. ug/L	20.	EPA 8270	FIZ	09/06/98
Pentachlorophenol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98

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Keystone LABORATORIES, INC.

MEMBER ACIL

Work Order: 1809.0105
Sample No: 1821261
Report Date: 9/25/98

Site Name / Sample Description
Iowa Army Nat. Guard
SIL-UP Scrap Iron landfill

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Phenol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Determination of base/neutral extractable organic compounds.					
1,2,4-Trichlorobenzene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
1,2-Dichlorobenzene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
1,3-Dichlorobenzene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
1,4-Dichlorobenzene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
2,4-Dinitrotoluene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
2,6-Dinitrotoluene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
2-Chloronaphthalene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
2-Methylnaphthalene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
2-Nitroaniline	< 50. ug/L	50.	EPA 8270	FIZ	09/06/98
3,3'-Dichlorobenzidine	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
[illegible]troaniline	< 50. ug/L	50.	EPA 8270	FIZ	09/06/98
4-Bromophenyl Phenyl Ether	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
4-Chloroaniline	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
4-Chlorophenyl Phenyl Ether	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
4-Nitroaniline	< 20. ug/L	20.	EPA 8270	FIZ	09/06/98
Acenaphthene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Acenaphthylene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Aniline	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Anthracene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Azobenzene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Benzidine	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Benzo(a)anthracene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Benzo(a)Pyrene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Benzo(b)Fluoranthene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Benzo(g,h,i)perylene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Benzo(k)Fluoranthene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Benzyl Alcohol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Bis(2-Chloroethoxy) Methane	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Bis(2-Chloroethyl) Ether	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Bis(2-Chloroisopropyl) Ether	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
[illegible]-ethylhexyl)Phthalate	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98

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MEMBER ACIL

Work Order: 1809.0105
Sample No: 1821261
Report Date: 9/25/98

Site Name / Sample Description
Iowa Army Nat. Guard
SIL-UP Scrap Iron landfill

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Butyl Benzyl Phthalate	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Chrysene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Di-n-butyl Phthalate	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Di-n-octyl Phthalate	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Dibenzo(a,h)anthracene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Dibenzofuran	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Diethyl Phthalate	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Dimethylphthalate	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Fluoranthene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Fluorene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Hexachlorobenzene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Hexachlorobutadiene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Hexachlorocyclopentadiene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/9
Hexachloroethane	< 10. ug/L	10.	EPA 8270	FIZ	09/06/9
Indeno(1,2,3-cd)Pyrene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Isophorone	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
n-Nitroso-di-n-propylamine	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
N-Nitrosodimethylamine	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
N-Nitrosodiphenylamine	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Naphthalene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Nitrobenzene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Phenanthrene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Pyrene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Determination of semivolatile organic compounds.					
TEH, as #2 diesel fuel	< 0.1 mg/L	0.1	Iowa OA-2	CLM	09/07/98
TEH, as gasoline	< 0.1 mg/L	0.1	Iowa OA-2	CLM	09/07/98
TEH, as waste oil	< 0.1 mg/L	0.1	Iowa OA-2	CLM	09/07/98
Total Extractable Hydrocarbons	< 0.1 mg/L	0.1	Iowa OA-2	CLM	09/07/98
Determination of metals.					
Arsenic, total	< 0.005 mg/L	0.005	EPA 7060	LAR	09/12/98
Barium, total	0.127 mg/L	0.01	EPA 6010	LAR	09/08/98
Cadmium, total	0.001 mg/L	0.001	EPA 7131	LAR	09/09/98
Chromium, total	< 0.03 mg/L	0.03	EPA 6010	LAR	09/08/9

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Keystone LABORATORIES, INC.

MEMBER ACIL

Work Order: 1809.0105
Sample No: 1821261
Report Date: 9/25/98

Site Name / Sample Description
Iowa Army Nat. Guard
SIL-UP Scrap Iron landfill

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Lead, total	0.006 mg/L	0.005	EPA 7421	LAR	09/08/98
Mercury, total	< 0.0005 mg/L	0.0005	EPA 7470	BNS	09/03/98
Selenium, total	< 0.005 mg/L	0.005	EPA 7740	LAR	09/08/98
Silver, total	< 0.03 mg/L	0.03	EPA 6010	LAR	09/08/98

Jeffrey King
Keystone Laboratories, Inc.

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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Keystone
LABORATORIES, INC.

MEMBER ACIL

ANALYTICAL REPORT

September 25, 1998

Report To

Kevin Armstrong
Montgomery-Watson
11107 Aurora Avenue

Des Moines, IA 50322

Sample Information

Work Order: 1809.0105
Sample No: 1821262
Date Collected: 09/01/98 11:45 AM
Date Received: 09/02/98 10:50 AM
Collector: Kevin Armstrong
Collector Phone: 515-253-0830
Matrix: water

Site Information/Sample Description

Iowa Army Nat. Guard
Camp Dodge
Des Moines, IA

SIL-DN Scrap Iron landfill

Comments

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Determination of volatile organic compounds.					
1,1,1-Trichloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/12/98
1,1,2,2-Tetrachloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/12/98
1,1,2-Trichloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/12/98
1,1-Dichloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/12/98
1,1-Dichloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/12/98
1,2-Dichlorobenzene	< 1. ug/L	1.	EPA 8260	EPP	09/12/98
1,2-Dichloroethane	< 0.4 ug/L	0.4	EPA 8260	EPP	09/12/98
1,2-Dichloropropane	< 1. ug/L	1.	EPA 8260	EPP	09/12/98
1,3-Dichlorobenzene	< 1. ug/L	1.	EPA 8260	EPP	09/12/98
1,4-Dichlorobenzene	< 1. ug/L	1.	EPA 8260	EPP	09/12/98
2-Butanone (MEK)	< 5. ug/L	5.	EPA 8260	EPP	09/12/98
2-Hexanone (MBK)	< 5. ug/L	5.	EPA 8260	EPP	09/12/98
4-Methyl-2-pentanone (MIBK)	< 5. ug/L	5.	EPA 8260	EPP	09/12/98
Acetone	< 10. ug/L	10.	EPA 8260	EPP	09/12/98
Benzene	< 1. ug/L	1.	EPA 8260	EPP	09/12/98
Bromodichloromethane	< 1. ug/L	1.	EPA 8260	EPP	09/12/98
Bromoform	< 1. ug/L	1.	EPA 8260	EPP	09/12/98
Bromomethane	< 1. ug/L	1.	EPA 8260	EPP	09/12/98

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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Keystone LABORATORIES, INC.

MEMBER ACIL

Work Order: 1809.0105
Sample No: 1821262
Report Date: 9/25/98

Site Name / Sample Description
Iowa Army Nat. Guard
SIL-DN Scrap Iron landfill

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Carbon Disulfide	< 1. ug/L	1.	EPA 8260	EPP	09/12/98
Carbon Tetrachloride	< 0.3 ug/L	0.3	EPA 8260	EPP	09/12/98
Chlorobenzene	< 1. ug/L	1.	EPA 8260	EPP	09/12/98
Chloroethane	< 1. ug/L	1.	EPA 8260	EPP	09/12/98
Chloroform	< 1. ug/L	1.	EPA 8260	EPP	09/12/98
Chloromethane	< 1. ug/L	1.	EPA 8260	EPP	09/12/98
cis-1,2-Dichloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/12/98
cis-1,3-Dichloropropene	< 1. ug/L	1.	EPA 8260	EPP	09/12/98
Dibromochloromethane	< 1. ug/L	1.	EPA 8260	EPP	09/12/98
Ethylbenzene	< 1. ug/L	1.	EPA 8260	EPP	09/12/98
Methylene Chloride	< 5. ug/L	5.	EPA 8260	EPP	09/12/98
Naphthalene	< 1. ug/L	1.	EPA 8260	EPP	09/12/98
[illegible]rachloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/12/98
[illegible]luene	< 1. ug/L	1.	EPA 8260	EPP	09/12/98
trans-1,2-Dichloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/12/98
trans-1,3-Dichloropropene	< 1. ug/L	1.	EPA 8260	EPP	09/12/98
Trichloroethylene	< 1. ug/L	1.	EPA 8260	EPP	09/12/98
Vinyl Chloride	< 1. ug/L	1.	EPA 8260	EPP	09/12/98
Xylenes, total	< 1. ug/L	1.	EPA 8260	EPP	09/12/98
Determination of acid extractable organic compounds.					
(3 & 4)-Methylphenol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
2,4,5-Trichlorophenol	< 50. ug/L	50.	EPA 8270	FIZ	09/06/98
2,4,6-Trichlorophenol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
2,4-Dichlorophenol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
2,4-Dimethylphenol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
2,4-Dinitrophenol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
2-Chlorophenol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
2-Methylphenol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
2-Nitrophenol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
4,6-Dinitro-2-methylphenol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
4-Chloro-3-methylphenol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
4-Nitrophenol	< 20. ug/L	20.	EPA 8270	FIZ	09/06/98
[illegible]tachlorophenol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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Keystone
LABORATORIES, INC.

MEMBER ACIL

Work Order: 1809.0105
Sample No: 1821262
Report Date: 9/25/98

Site Name / Sample Description
Iowa Army Nat. Guard
SIL-DN Scrap Iron landfill

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Phenol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Determination of base/neutral extractable organic compounds.					
1,2,4-Trichlorobenzene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
1,2-Dichlorobenzene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
1,3-Dichlorobenzene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
1,4-Dichlorobenzene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
2,4-Dinitrotoluene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
2,6-Dinitrotoluene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
2-Chloronaphthalene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
2-Methylnaphthalene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
2-Nitroaniline	< 50. ug/L	50.	EPA 8270	FIZ	09/06/98
3,3'-Dichlorobenzidine	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
3-Nitroaniline	< 50. ug/L	50.	EPA 8270	FIZ	09/06/98
4-Bromophenyl Phenyl Ether	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
4-Chloroaniline	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
4-Chlorophenyl Phenyl Ether	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
4-Nitroaniline	< 20. ug/L	20.	EPA 8270	FIZ	09/06/98
Acenaphthene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Acenaphthylene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Aniline	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Anthracene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Azobenzene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Benzidine	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Benzo(a)anthracene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Benzo(a)Pyrene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Benzo(b)Fluoranthene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Benzo(g,h,i)perylene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Benzo(k)Fluoranthene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Benzyl Alcohol	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Bis(2-Chloroethoxy) Methane	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Bis(2-Chloroethyl) Ether	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Bis(2-Chloroisopropyl) Ether	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Bis(2-ethylhexyl)Phthalate	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98

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Work Order: 1809.0105
Sample No: 1821262
Report Date: 9/25/98

Site Name / Sample Description
Iowa Army Nat. Guard
SIL-DN Scrap Iron landfill

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Butyl Benzyl Phthalate	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Chrysene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Di-n-butyl Phthalate	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Di-n-octyl Phthalate	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Dibenzo(a,h)anthracene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Dibenzofuran	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Diethyl Phthalate	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Dimethylphthalate	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Fluoranthene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Fluorene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Hexachlorobenzene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Hexachlorobutadiene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
chlorocyclopentadiene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
chloroethane	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Indeno(1,2,3-cd)Pyrene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Isophorone	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
n-Nitroso-di-n-propylamine	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
N-Nitrosodimethylamine	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
N-Nitrosodiphenylamine	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Naphthalene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Nitrobenzene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Phenanthrene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Pyrene	< 10. ug/L	10.	EPA 8270	FIZ	09/06/98
Determination of semivolatile organic compounds.					
TEH, as #2 diesel fuel	< 0.1 mg/L	0.1	Iowa OA-2	CLM	09/07/98
TEH, as gasoline	< 0.1 mg/L	0.1	Iowa OA-2	CLM	09/07/98
TEH, as waste oil	< 0.1 mg/L	0.1	Iowa OA-2	CLM	09/07/98
Total Extractable Hydrocarbons	< 0.1 mg/L	0.1	Iowa OA-2	CLM	09/07/98
Determination of metals.					
Arsenic, total	< 0.005 mg/L	0.005	EPA 7060	LAR	09/12/98
Barium, total	0.115 mg/L	0.01	EPA 6010	LAR	09/08/98
Cadmium, total	< 0.001 mg/L	0.001	EPA 7131	LAR	09/09/98
nium, total	< 0.03 mg/L	0.03	EPA 6010	LAR	09/08/98

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MEMBER ACIL

Work Order: 1809.0105
Sample No: 1821262
Report Date: 9/25/98

Site Name / Sample Description
Iowa Army Nat. Guard
SIL-DN Scrap Iron landfill

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Lead, total	< 0.005 mg/L	0.005	EPA 7421	LAR	09/08/98
Mercury, total	< 0.0005 mg/L	0.0005	EPA 7470	BNS	09/03/98
Selenium, total	< 0.005 mg/L	0.005	EPA 7740	LAR	09/08/98
Silver, total	< 0.03 mg/L	0.03	EPA 6010	LAR	09/08/98

Jeffrey King
Keystone Laboratories, Inc.

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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Keystone LABORATORIES, INC.

MEMBER ACIL

ANALYTICAL REPORT

September 25, 1998

Report To

Kevin Armstrong
Montgomery-Watson
11107 Aurora Avenue

Des Moines, IA 50322

Sample Information

Work Order: 1809.0105
Sample No: 1821263
Date Collected: 09/01/98 10:40 AM
Date Received: 09/02/98 10:50 AM
Collector: Kevin Armstrong
Collector Phone: 515-253-0830
Matrix: soil

Site Information/Sample Description

Iowa Army Nat. Guard
Camp Dodge
Des Moines, IA

SIL-1 Scrap Iron landfill

Comments

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Determination of volatile organic compounds.					
1,1,1-Trichloroethane	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
1,1,2,2-Tetrachloroethane	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
1,1,2-Trichloroethane	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
1,1-Dichloroethane	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
1,1-Dichloroethylene	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
1,2-Dichlorobenzene	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
1,2-Dichloroethane	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
1,2-Dichloropropane	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
1,3-Dichlorobenzene	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
1,4-Dichlorobenzene	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
2-Butanone (MEK)	< 0.005 mg/kg	0.005	EPA 8260	EPP	09/11/98
2-Hexanone (MBK)	< 0.005 mg/kg	0.005	EPA 8260	EPP	09/11/98
4-Methyl-2-pentanone (MIBK)	< 0.005 mg/kg	0.005	EPA 8260	EPP	09/11/98
Acetone	< 0.01 mg/kg	0.01	EPA 8260	EPP	09/11/98
Benzene	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
Bromodichloromethane	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
Bromoform	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
Bromomethane	< 0.002 mg/kg	0.002	EPA 8260	EPP	09/11/98

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Keystone LABORATORIES, INC.

MEMBER ACIL

Work Order: 1809.0105
Sample No: 1821263
Report Date: 9/25/98

Site Name / Sample Description
Iowa Army Nat. Guard
SIL-1 Scrap Iron landfill

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Carbon Disulfide	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
Carbon Tetrachloride	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
Chlorobenzene	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
Chloroethane	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
Chloroform	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
Chloromethane	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
cis-1,2-Dichloroethylene	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
cis-1,3-Dichloropropene	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
Dibromochloromethane	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
Ethylbenzene	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
Methylene Chloride	< 0.005 mg/kg	0.005	EPA 8260	EPP	09/11/98
Naphthalene	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
Tetrachloroethylene	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
Toluene	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
trans-1,2-Dichloroethylene	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
trans-1,3-Dichloropropene	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
Trichloroethylene	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
Vinyl Chloride	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
Xylenes, total	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
Determination of acid extractable organic compounds.					
(3 & 4)-Methylphenol	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
2,4,5-Trichlorophenol	< 1.65 mg/kg	1.65	EPA 8270	EPP	09/14/98
2,4,6-Trichlorophenol	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
2,4-Dichlorophenol	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
2,4-Dimethylphenol	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
2,4-Dinitrophenol	< 1.65 mg/kg	1.65	EPA 8270	EPP	09/14/98
2-Chlorophenol	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
2-Methylphenol	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
2-Nitrophenol	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
4,6-Dinitro-2-methylphenol	< 1.65 mg/kg	1.65	EPA 8270	EPP	09/14/98
4-Chloro-3-methylphenol	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
4-Nitrophenol	< 0.66 mg/kg	0.66	EPA 8270	EPP	09/14/98
Pentachlorophenol	< 0.66 mg/kg	0.66	EPA 8270	EPP	09/14/98

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Work Order: 1809.0105
Sample No: 1821263
Report Date: 9/25/98

Site Name / Sample Description
Iowa Army Nat. Guard
SIL-1 Scrap Iron landfill

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Phenol	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Determination of base/neutral extractable organic compounds.					
1,2,4-Trichlorobenzene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
1,2-Dichlorobenzene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
1,3-Dichlorobenzene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
1,4-Dichlorobenzene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
2,4-Dinitrotoluene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
2,6-Dinitrotoluene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
2-Chloronaphthalene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
2-Methylnaphthalene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
2-Nitroaniline	< 1.65 mg/kg	1.65	EPA 8270	EPP	09/14/98
3,3'-Dichlorobenzidine	< 0.66 mg/kg	0.66	EPA 8270	EPP	09/14/98
[illegible]troaniline	< 1.65 mg/kg	1.65	EPA 8270	EPP	09/14/98
[illegible]-Bromophenyl Phenyl Ether	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
4-Chloroaniline	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
4-Chlorophenyl Phenyl Ether	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
4-Nitroaniline	< 0.66 mg/kg	0.66	EPA 8270	EPP	09/14/98
Acenaphthene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Acenaphthylene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Aniline	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Anthracene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Azobenzene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Benzidine	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Benzo(a)anthracene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Benzo(a)Pyrene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Benzo(b)Fluoranthene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Benzo(g,h,i)perylene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Benzo(k)Fluoranthene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Benzyl Alcohol	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Bis(2-Chloroethoxy) Methane	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Bis(2-Chloroethyl) Ether	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Bis(2-Chloroisopropyl) Ether	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
[illegible](2-Ethylhexyl) Phthalate	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98

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Work Order: 1809.0105
Sample No: 1821263
Report Date: 9/25/98

Site Name / Sample Description
Iowa Army Nat. Guard
SIL-1 Scrap Iron landfill

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Butyl Benzyl Phthalate	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Chrysene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Di-n-butyl Phthalate	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Di-n-octyl Phthalate	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Dibenzo(a,h)anthracene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Dibenzofuran	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Diethyl Phthalate	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Dimethylphthalate	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Fluoranthene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Fluorene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Hexachlorobenzene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Hexachlorobutadiene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Hexachlorocyclopentadiene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Hexachloroethane	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/9
Indeno(1,2,3-cd)Pyrene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Isophorone	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
n-Nitroso-di-n-propylamine	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
N-Nitrosodimethylamine	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
N-Nitrosodiphenylamine	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Naphthalene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Nitrobenzene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Phenanthrene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Pyrene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Determination of semivolatile organic compounds.					
TEH, as #2 diesel fuel	< 5. mg/kg	5.	Iowa OA-2	CLM	09/11/98
TEH, as gasoline	< 5. mg/kg	5.	Iowa OA-2	CLM	09/11/98
TEH, as waste oil	< 5. mg/kg	5.	Iowa OA-2	CLM	09/11/98
Total Extractable Hydrocarbons	< 5. mg/kg	5.	Iowa OA-2	CLM	09/11/98
Determination of metals.					
Arsenic	2.1 mg/kg	2.	EPA 7060	LAR	09/09/98
Barium	51. mg/kg	1.	EPA 6010	LAR	09/09/98
Cadmium	< 1. mg/kg	1.	EPA 6010	LAR	09/09/98
Chromium	6.5 mg/kg	3.	EPA 6010	LAR	09/09/9

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Work Order: 1809.0105
Sample No: 1821263
Report Date: 9/25/98

Site Name / Sample Description
Iowa Army Nat. Guard
SIL-1 Scrap Iron landfill

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Lead	< 50. mg/kg	50.	EPA 6010	LAR	09/09/98
Mercury	< 0.5 mg/kg	0.5	EPA 7471	BNS	09/10/98
Selenium	< 2. mg/kg	2.	EPA 7740	LAR	09/14/98
Silver	< 3. mg/kg	3.	EPA 6010	LAR	09/09/98
Determination of general chemistry parameters.					
Percent Solids	89.2 %		EPA	LMG	09/08/98

Jeffrey King
Keystone Laboratories, Inc.

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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Keystone
LABORATORIES, INC.

MEMBER ACIL

ANALYTICAL REPORT

September 25, 1998

Report To

Kevin Armstrong
Montgomery-Watson
11107 Aurora Avenue

Des Moines, IA 50322

Sample Information

Work Order: 1809.0105
Sample No: 1821264
Date Collected: 09/01/98 10:45 AM
Date Received: 09/02/98 10:50 AM
Collector: Kevin Armstrong
Collector Phone: 515-253-0830
Matrix: soil

Site Information/Sample Description

Iowa Army Nat. Guard
Camp Dodge
Des Moines, IA

SIL-2 Scrap Iron landfill

Comments

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Determination of volatile organic compounds.					
1,1,1-Trichloroethane	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
1,1,2,2-Tetrachloroethane	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
1,1,2-Trichloroethane	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
1,1-Dichloroethane	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
1,1-Dichloroethylene	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
1,2-Dichlorobenzene	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
1,2-Dichloroethane	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
1,2-Dichloropropane	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
1,3-Dichlorobenzene	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
1,4-Dichlorobenzene	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
2-Butanone (MEK)	< 0.005 mg/kg	0.005	EPA 8260	EPP	09/11/98
2-Hexanone (MBK)	< 0.005 mg/kg	0.005	EPA 8260	EPP	09/11/98
4-Methyl-2-pentanone (MIBK)	< 0.005 mg/kg	0.005	EPA 8260	EPP	09/11/98
Acetone	< 0.01 mg/kg	0.01	EPA 8260	EPP	09/11/98
Benzene	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
Bromodichloromethane	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
Bromoform	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
Bromomethane	< 0.002 mg/kg	0.002	EPA 8260	EPP	09/11/98

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Keystone LABORATORIES, INC.

MEMBER ACIL

Work Order: 1809.0105
Sample No: 1821264
Report Date: 9/25/98

Site Name / Sample Description
Iowa Army Nat. Guard
SIL-2 Scrap Iron landfill

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Carbon Disulfide	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
Carbon Tetrachloride	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
Chlorobenzene	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
Chloroethane	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
Chloroform	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
Chloromethane	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
cis-1,2-Dichloroethylene	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
cis-1,3-Dichloropropene	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
Dibromochloromethane	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
Ethylbenzene	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
Methylene Chloride	< 0.005 mg/kg	0.005	EPA 8260	EPP	09/11/98
Naphthalene	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
achloroethylene	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
ene	0.007 mg/kg	0.001	EPA 8260	EPP	09/11/98
trans-1,2-Dichloroethylene	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
trans-1,3-Dichloropropene	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
Trichloroethylene	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
Vinyl Chloride	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
Xylenes, total	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
Determination of acid extractable organic compounds.					
(3 & 4)-Methylphenol	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
2,4,5-Trichlorophenol	< 1.65 mg/kg	1.65	EPA 8270	EPP	09/14/98
2,4,6-Trichlorophenol	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
2,4-Dichlorophenol	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
2,4-Dimethylphenol	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
2,4-Dinitrophenol	< 1.65 mg/kg	1.65	EPA 8270	EPP	09/14/98
2-Chlorophenol	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
2-Methylphenol	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
2-Nitrophenol	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
4,6-Dinitro-2-methylphenol	< 1.65 mg/kg	1.65	EPA 8270	EPP	09/14/98
4-Chloro-3-methylphenol	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
4-Nitrophenol	< 0.66 mg/kg	0.66	EPA 8270	EPP	09/14/98
achlorophenol	< 0.66 mg/kg	0.66	EPA 8270	EPP	09/14/98

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Work Order: 1809.0105
Sample No: 1821264
Report Date: 9/25/98

Site Name / Sample Description
Iowa Army Nat. Guard
SIL-2 Scrap Iron landfill

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Phenol	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Determination of base/neutral extractable organic compounds.					
1,2,4-Trichlorobenzene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
1,2-Dichlorobenzene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
1,3-Dichlorobenzene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
1,4-Dichlorobenzene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
2,4-Dinitrotoluene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
2,6-Dinitrotoluene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
2-Chloronaphthalene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
2-Methylnaphthalene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
2-Nitroaniline	< 1.65 mg/kg	1.65	EPA 8270	EPP	09/14/98
3,3'-Dichlorobenzidine	< 0.66 mg/kg	0.66	EPA 8270	EPP	09/14/98
3-Nitroaniline	< 1.65 mg/kg	1.65	EPA 8270	EPP	09/14/98
4-Bromophenyl Phenyl Ether	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
4-Chloroaniline	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
4-Chlorophenyl Phenyl Ether	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
4-Nitroaniline	< 0.66 mg/kg	0.66	EPA 8270	EPP	09/14/98
Acenaphthene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Acenaphthylene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Aniline	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Anthracene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Azobenzene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Benzidine	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Benzo(a)anthracene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Benzo(a)Pyrene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Benzo(b)Fluoranthene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Benzo(g,h,i)perylene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Benzo(k)Fluoranthene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Benzyl Alcohol	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Bis(2-Chloroethoxy) Methane	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Bis(2-Chloroethyl) Ether	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Bis(2-Chloroisopropyl) Ether	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Bis(2-Ethylhexyl) Phthalate	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98

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Work Order: 1809.0105
Sample No: 1821264
Report Date: 9/25/98

Site Name / Sample Description
Iowa Army Nat. Guard
SIL-2 Scrap Iron landfill

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Butyl Benzyl Phthalate	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Chrysene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Di-n-butyl Phthalate	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Di-n-octyl Phthalate	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Dibenzo(a,h)anthracene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Dibenzofuran	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Diethyl Phthalate	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Dimethylphthalate	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Fluoranthene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Fluorene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Hexachlorobenzene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Hexachlorobutadiene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
[illegible]chlorocyclopentadiene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
[illegible]achloroethane	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Indeno(1,2,3-cd)Pyrene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Isophorone	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
n-Nitroso-di-n-propylamine	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
N-Nitrosodimethylamine	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
N-Nitrosodiphenylamine	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Naphthalene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Nitrobenzene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Phenanthrene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Pyrene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Determination of semivolatile organic compounds.					
TEH, as #2 diesel fuel	< 5. mg/kg	5.	Iowa OA-2	CLM	09/11/98
TEH, as gasoline	< 5. mg/kg	5.	Iowa OA-2	CLM	09/11/98
TEH, as waste oil	< 5. mg/kg	5.	Iowa OA-2	CLM	09/11/98
Total Extractable Hydrocarbons	< 5. mg/kg	5.	Iowa OA-2	CLM	09/11/98
Determination of metals.					
Arsenic	3. mg/kg	2.	EPA 7060	LAR	09/09/98
Barium	90. mg/kg	1.	EPA 6010	LAR	09/09/98
Cadmium	< 1. mg/kg	1.	EPA 6010	LAR	09/09/98
[illegible]mium	9.6 mg/kg	3.	EPA 6010	LAR	09/09/98

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Sample No: 1821264
Report Date: 9/25/98

Site Name / Sample Description
Iowa Army Nat. Guard
SIL-2 Scrap Iron landfill

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Lead	< 50. mg/kg	50.	EPA 6010	LAR	09/09/98
Mercury	< 0.5 mg/kg	0.5	EPA 7471	BNS	09/10/98
Selenium	< 2. mg/kg	2.	EPA 7740	LAR	09/14/98
Silver	< 3. mg/kg	3.	EPA 6010	LAR	09/09/98
Determination of general chemistry parameters.					
Percent Solids	87.7 %		EPA	LMG	09/08/98

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MEMBER ACIL

ANALYTICAL REPORT

September 25, 1998

Report To

Kevin Armstrong
Montgomery-Watson
11107 Aurora Avenue

Des Moines, IA 50322

Sample Information

Work Order: 1809.0105
Sample No: 1821265
Date Collected: 09/01/98 10:50 AM
Date Received: 09/02/98 10:50 AM
Collector: Kevin Armstrong
Collector Phone: 515-253-0830
Matrix: soil

Site Information/Sample Description

Iowa Army Nat. Guard
Camp Dodge
Des Moines, IA

SIL-3 Scrap Iron landfill

Comments

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Determination of volatile organic compounds.					
1,1,1-Trichloroethane	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
1,1,2,2-Tetrachloroethane	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
1,1,2-Trichloroethane	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
1,1-Dichloroethane	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
1,1-Dichloroethylene	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
1,2-Dichlorobenzene	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
1,2-Dichloroethane	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
1,2-Dichloropropane	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
1,3-Dichlorobenzene	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
1,4-Dichlorobenzene	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
2-Butanone (MEK)	< 0.005 mg/kg	0.005	EPA 8260	EPP	09/11/98
2-Hexanone (MBK)	< 0.005 mg/kg	0.005	EPA 8260	EPP	09/11/98
4-Methyl-2-pentanone (MIBK)	< 0.005 mg/kg	0.005	EPA 8260	EPP	09/11/98
Acetone	< 0.01 mg/kg	0.01	EPA 8260	EPP	09/11/98
Benzene	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
Bromodichloromethane	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
Bromoform	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
[illegible]omethane	< 0.002 mg/kg	0.002	EPA 8260	EPP	09/11/98

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Work Order: 1809.0105
Sample No: 1821265
Report Date: 9/25/98

Site Name / Sample Description
Iowa Army Nat. Guard
SIL-3 Scrap Iron landfill

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Carbon Disulfide	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
Carbon Tetrachloride	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
Chlorobenzene	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
Chloroethane	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
Chloroform	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
Chloromethane	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
cis-1,2-Dichloroethylene	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
cis-l,3-Dichloropropene	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
Dibromochloromethane	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
Ethylbenzene	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
Methylene Chloride	< 0.005 mg/kg	0.005	EPA 8260	EPP	09/11/98
Naphthalene	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
Tetrachloroethylene	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
Toluene	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
trans-1,2-Dichloroethylene	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
trans-1,3-Dichloropropene	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
Trichloroethylene	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
Vinyl Chloride	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
Xylenes, total	< 0.001 mg/kg	0.001	EPA 8260	EPP	09/11/98
Determination of acid extractable organic compounds.					
(3 & 4)-Methylphenol	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
2,4,5-Trichlorophenol	< 1.65 mg/kg	1.65	EPA 8270	EPP	09/14/98
2,4,6-Trichlorophenol	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
2,4-Dichlorophenol	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
2,4-Dimethylphenol	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
2,4-Dinitrophenol	< 1.65 mg/kg	1.65	EPA 8270	EPP	09/14/98
2-Chlorophenol	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
2-Methylphenol	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
2-Nitrophenol	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
4,6-Dinitro-2-methylphenol	< 1.65 mg/kg	1.65	EPA 8270	EPP	09/14/98
4-Chloro-3-methylphenol	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
4-Nitrophenol	< 0.66 mg/kg	0.66	EPA 8270	EPP	09/14/98
Pentachlorophenol	< 0.66 mg/kg	0.66	EPA 8270	EPP	09/14/98

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Sample No: 1821265
Report Date: 9/25/98

Site Name / Sample Description
Iowa Army Nat. Guard
SIL-3 Scrap Iron landfill

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Phenol	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Determination of base/neutral extractable organic compounds.					
1,2,4-Trichlorobenzene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
1,2-Dichlorobenzene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
1,3-Dichlorobenzene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
1,4-Dichlorobenzene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
2,4-Dinitrotoluene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
2,6-Dinitrotoluene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
2-Chloronaphthalene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
2-Methylnaphthalene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
2-Nitroaniline	< 1.65 mg/kg	1.65	EPA 8270	EPP	09/14/98
3,3'-Dichlorobenzidine	< 0.66 mg/kg	0.66	EPA 8270	EPP	09/14/98
3-Nitroaniline	< 1.65 mg/kg	1.65	EPA 8270	EPP	09/14/98
4-Bromophenyl Phenyl Ether	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
4-Chloroaniline	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
4-Chlorophenyl Phenyl Ether	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
4-Nitroaniline	< 0.66 mg/kg	0.66	EPA 8270	EPP	09/14/98
Acenaphthene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Acenaphthylene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Aniline	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Anthracene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Azobenzene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Benzidine	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Benzo(a)anthracene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Benzo(a)Pyrene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Benzo(b)Fluoranthene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Benzo(g,h,i)perylene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Benzo(k)Fluoranthene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Benzyl Alcohol	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Bis(2-Chloroethoxy) Methane	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Bis(2-Chloroethyl) Ether	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Bis(2-Chloroisopropyl) Ether	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Bis(2-Ethylhexyl) Phthalate	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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Keystone
LABORATORIES, INC.

MEMBER ACIL

Work Order: 1809.0105
Sample No: 1821265
Report Date: 9/25/98

Site Name / Sample Description
Iowa Army Nat. Guard
SIL-3 Scrap Iron landfill

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Butyl Benzyl Phthalate	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Chrysene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Di-n-butyl Phthalate	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Di-n-octyl Phthalate	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Dibenzo(a,h)anthracene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Dibenzofuran	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Diethyl Phthalate	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Dimethylphthalate	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Fluoranthene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Fluorene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Hexachlorobenzene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Hexachlorobutadiene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Hexachlorocyclopentadiene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Hexachloroethane	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/9
Indeno(1,2,3-cd)Pyrene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Isophorone	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
n-Nitroso-di-n-propylamine	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
N-Nitrosodimethylamine	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
N-Nitrosodiphenylamine	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Naphthalene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Nitrobenzene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Phenanthrene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Pyrene	< 0.33 mg/kg	0.33	EPA 8270	EPP	09/14/98
Determination of semivolatile organic compounds.					
TEH, as #2 diesel fuel	< 5. mg/kg	5.	Iowa OA-2	CLM	09/11/98
TEH, as gasoline	< 5. mg/kg	5.	Iowa OA-2	CLM	09/11/98
TEH, as waste oil	37. mg/kg	5.	Iowa OA-2	CLM	09/11/98
Total Extractable Hydrocarbons	37. mg/kg	5.	Iowa OA-2	CLM	09/11/98
Determination of metals.					
Arsenic	3.1 mg/kg	2.	EPA 7060	LAR	09/09/98
Barium	143. mg/kg	1.	EPA 6010	LAR	09/09/98
Cadmium	1.7 mg/kg	1.	EPA 6010	LAR	09/09/98
Chromium	14.1 mg/kg	3.	EPA 6010	LAR	09/09/98

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Keystone LABORATORIES, INC.

MEMBER ACIL

Work Order: 1809.0105
Sample No: 1821265
Report Date: 9/25/98

Site Name / Sample Description
Iowa Army Nat. Guard
SIL-3 Scrap Iron landfill

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Lead	117. mg/kg	50.	EPA 6010	LAR	09/09/98
Mercury	0.9 mg/kg	0.5	EPA 7471	BNS	09/10/98
Selenium	< 2. mg/kg	2.	EPA 7740	LAR	09/14/98
Silver	3.1 mg/kg	3.	EPA 6010	LAR	09/09/98
Determination of general chemistry parameters.					
Percent Solids	82.1 %		EPA	LMG	09/08/98

Jeffrey King
Keystone Laboratories, Inc.

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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CHAIN OF CUSTODY RECORD

Keystone LABORATORIES, INC.

☒ 600 E. 17th St. S. Newton, IA 50208 Phone: 515-792-8451 Fax: 515-792-7989

☐ 3012 Ansborough Ave. Waterloo, IA 50701 Phone: 319-235-4440 Fax: 319-235-2480

☐ 1515 Walnut St. Kansas City, MO 64108 Phone: 816-471-1515 Fax: 816-471-7915

PAGE 1 OF 1

PRINT OR TYPE INFORMATION BELOW

SAMPLER: Kevin Armstrong
SITE NAME: Iowa Army Nat. Guard - Camp Dodge
ADDRESS:
CITY/ST/ZIP:
PHONE:

REPORT TO:
NAME: Kevin Armstrong
COMPANY NAME: Montgomery Watson
ADDRESS: 11107 Aurora Ave
CITY/ST/ZIP: Des Moines IA 50322
PHONE: 515-253-0830
FAX: 515-253-9592

BILL TO:
NAME: Kevin Armstrong
COMPANY NAME: Montgomery Watson
ADDRESS:
CITY/ST/ZIP:
PHONE:

Keystone Quote No.: (If Applicable)

CLIENT SAMPLE NUMBER	DATE	TIME	SAMPLE LOCATION	NO. OF CONTAINERS	MATRIX	GRAB/COMPOSITE	OA-2	8260-VOCs	8270-BNAs	RCRA Metals					SAMPLE CONDITION/COMMENTS	LABORATORY SAMPLE NUMBER
PZ-21	9/1/98	1105	Scrap Iron Landfill (4)		H_2O	G		X		✓					3 vials/1-Nitric	18 21257
PZ-22	9/1/98	1115	(4)		H_2O	G		X		✓					" "	21258
PZ-23	9/1/98	1125		7	H_2O	G	✓	✓	✓	✓						21259
PZ-24	9/1/98	1020		7	H_2O	G	✓	✓	✓	✓						21260
SIL-UP	9/1/98	1150		7	H_2O	G	✓	✓	✓	✓						21261
SIL-DN	9/1/98	1145		7	H_2O	G	✓	✓	✓	✓						21262
SIL-1	9/1/98	1040		3	soil	G	✓	✓	✓	✓						21263
SIL-2	9/1/98	1045		3	soil	G	✓	✓	✓	✓						21264
SIL-3	9/1/98	1050		3	soil	G	✓	✓	✓	✓						21265
KGA																

ANALYSES REQUIRED

LAB USE ONLY

LABORATORY WORK ORDER NO. 1809.0105

SAMPLE CONDITION AS RECEIVED:
CHILLED ☐ YES ☐ NO
SEALED ☐ YES ☐ NO

Relinquished by: (Signature)	Date	Received by: (Signature)	Date	Turn-Around:
Kevin G Armstrong	9-2-98			☒ Standard ☐ Rush ____ Contact Lab Prior to Submission
	Time 900		Time	
Relinquished by: (Signature)	Date	Received for Lab by: (Signature)	Date 9-2-98	Remarks: 2 coolers - Per call to Kevin Armstrong 9/2/98 - Run VOC's on PZ-21 [illegible]Z-22. cg 9/2/98
	Time	[signature]	:50	

Original - Return with Report • Yellow - Lab Copy • Pink - Sampler Copy

FORM: CCR 7-97

Keystone LABORATORIES, INC.

RECEIVED
NOV 0 4 1998
MW/IOWA

MEMBER ACIL

ANALYTICAL REPORT

Report To

Kevin Armstrong
Montgomery-Watson
11107 Aurora Avenue

Des Moines, IA 50322

Sample Information

Work Order: 1810.0293
Date Received: 10/09/98 12:10 PM
Collector: Kevin Armstrong
Collector Phone: 515-253-0830
Report Date: 11/03/98

Site Information

Camp Dodge Preliminary Assess.

Comments

Specific sample comments (if any) are shown below.

Sample No : Description : Date Collected : Matrix Analyte	Analysis Result		Detection Limit	Method	Analyst	Date Analyzed
4743 HD-1 - Horse Dip Tank : 10/8/98 10:15:00 AM : soil						
Benzene	< 0.2	mg/kg	0.2	Iowa OA-1	FIZ	10/14/98
Toluene	< 0.2	mg/kg	0.2	Iowa OA-1	FIZ	10/14/98
Ethylbenzene	< 0.2	mg/kg	0.2	Iowa OA-1	FIZ	10/14/98
Xylenes, total	< 0.2	mg/kg	0.2	Iowa OA-1	FIZ	10/14/98
TEH, as gasoline	< 5.	mg/kg	5.	Iowa OA-2	CLM	10/18/98
TEH, as #2 diesel fuel	< 5.	mg/kg	5.	Iowa OA-2	CLM	10/18/98
TEH, as waste oil	< 5.	mg/kg	5.	Iowa OA-2	CLM	10/18/98
Total Extractable Hydrocarbons	< 5.	mg/kg	5.	Iowa OA-2	CLM	10/18/98
alpha-BHC	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
beta-BHC	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
gamma-BHC (Lindane)	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
delta-BHC	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Heptachlor	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Aldrin	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Heptachlor Epoxide	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Endosulfan I	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
4,4'-DDE	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Dieldrin	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Endrin	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Endosulfan II	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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Keystone
LABORATORIES, INC.

MEMBER ACIL

Work Order: 1810.0293
Report Date: 11/3/98

Sample No : Description : Date Collected : Matrix Analyte	Analysis Result		Detection Limit	Method	Analyst	Date Analyzed
4,4'-DDD	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Endrin Aldehyde	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
4,4'-DDT	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Methoxychlor	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Endosulfan Sulfate	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Hexachlorobenzene	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Chlordane	< 0.005	mg/kg	0.05	EPA 8080	FWM	10/27/98
Toxaphene	< 0.05	mg/kg	0.05	EPA 8080	FWM	10/27/98
Arochlor 1016	< 0.05	mg/kg	0.05	EPA 8080	FWM	10/27/98
Arochlor 1221	< 0.05	mg/kg	0.05	EPA 8080	FWM	10/27/98
Arochlor 1232	< 0.05	mg/kg	0.05	EPA 8080	FWM	10/27/98
Arochlor 1242	< 0.05	mg/kg	0.05	EPA 8080	FWM	10/27/98
Arochlor 1248	< 0.05	mg/kg	0.05	EPA 8080	FWM	10/27/98
Arochlor 1254	< 0.05	mg/kg	0.05	EPA 8080	FWM	10/27/98
Arochlor 1260	< 0.05	mg/kg	0.05	EPA 8080	FWM	10/27/98
Arsenic	2.9	mg/kg	2.	EPA 7060	LAR	10/14/98
Barium	95.	mg/kg	1.	EPA 6010	LAR	10/14/98
Cadmium	< 1.	mg/kg	1.	EPA 6010	LAR	10/14/98
Chromium	8.4	mg/kg	3.	EPA 6010	LAR	10/14/98
Lead	< 50.	mg/kg	50.	EPA 6010	LAR	10/14/98
Mercury	< 0.5	mg/kg	0.5	EPA 7471	BNS	10/14/98
Selenium	< 2.	mg/kg	2.	EPA 7740	LAR	10/14/98
Silver	< 3.	mg/kg	3.	EPA 6010	LAR	10/14/98
Percent Solids	83.2	%	-	EPA	LMG	10/13/98
Soil extraction for TEH				EPA 3550	MEB	10/14/98

Jeff King
Keystone Laboratories, Inc.

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Keystone LABORATORIES, INC.

MEMBER ACIL

ANALYTICAL REPORT

Report To

Kevin Armstrong
Montgomery-Watson
11107 Aurora Avenue

Des Moines, IA 50322

Sample Information

Work Order: 1810.0293
Date Received: 10/09/98 12:10 PM
Collector: Kevin Armstrong
Collector Phone: 515-253-0830
Report Date: 11/03/98

Site Information

Camp Dodge Preliminary Assess.

Comments

Specific sample comments (if any) are shown below.

Sample No : Description : Date Collected : Matrix

4744 HD-2 - Horse Dip Tank : 10/8/98 10:30:00 AM : soil

Analyte	Analysis Result		Detection Limit	Method	Analyst	Date Analyzed
enzene	< 0.2	mg/kg	0.2	Iowa OA-1	FIZ	10/14/98
Toluene	< 0.2	mg/kg	0.2	Iowa OA-1	FIZ	10/14/98
Ethylbenzene	< 0.2	mg/kg	0.2	Iowa OA-1	FIZ	10/14/98
Xylenes, total	< 0.2	mg/kg	0.2	Iowa OA-1	FIZ	10/14/98
TEH, as gasoline	< 5.	mg/kg	5.	Iowa OA-2	CLM	10/18/98
TEH, as #2 diesel fuel	< 5.	mg/kg	5.	Iowa OA-2	CLM	10/18/98
TEH, as waste oil	28.	mg/kg	5.	Iowa OA-2	CLM	10/18/98
Total Extractable Hydrocarbons	28.	mg/kg	5.	Iowa OA-2	CLM	10/18/98
alpha-BHC	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
beta-BHC	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
gamma-BHC (Lindane)	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
delta-BHC	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Heptachlor	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Aldrin	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Heptachlor Epoxide	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Endosulfan I	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
4,4'-DDE	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Dieldrin	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Endrin	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
osulfan II	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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Keystone
LABORATORIES, INC.

MEMBER ACIL

Work Order: 1810.0293
Report Date: 11/3/98

Sample No : Description : Date Collected : Matrix Analyte	Analysis Result		Detection Limit	Method	Analyst	Date Analyzed
4,4'-DDD	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Endrin Aldehyde	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
4,4'-DDT	0.01	mg/kg	0.005	EPA 8080	FWM	10/27/98
Methoxychlor	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Endosulfan Sulfate	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Hexachlorobenzene	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Chlordane	< 0.05	mg/kg	0.05	EPA 8080	FWM	10/27/98
Toxaphene	< 0.05	mg/kg	0.05	EPA 8080	FWM	10/27/98
Arochlor 1016	< 0.05	mg/kg	0.05	EPA 8080	FWM	10/27/98
Arochlor 1221	< 0.05	mg/kg	0.05	EPA 8080	FWM	10/27/98
Arochlor 1232	< 0.05	mg/kg	0.05	EPA 8080	FWM	10/27/98
Arochlor 1242	< 0.05	mg/kg	0.05	EPA 8080	FWM	10/27/98
Arochlor 1248	< 0.05	mg/kg	0.05	EPA 8080	FWM	10/27/98
Arochlor 1254	< 0.05	mg/kg	0.05	EPA 8080	FWM	10/27/98
Arochlor 1260	< 0.05	mg/kg	0.05	EPA 8080	FWM	10/27/98
Arsenic	3.7	mg/kg	2.	EPA 7060	LAR	10/14/98
Barium	131.	mg/kg	1.	EPA 6010	LAR	10/14/98
Cadmium	1.5	mg/kg	1.	EPA 6010	LAR	10/14/98
Chromium	11.5	mg/kg	3.	EPA 6010	LAR	10/14/98
Lead	470.	mg/kg	50.	EPA 6010	LAR	10/14/98
Mercury	< 0.5	mg/kg	0.5	EPA 7471	BNS	10/14/98
Selenium	< 2.	mg/kg	2.	EPA 7740	LAR	10/14/98
Silver	< 3.	mg/kg	3.	EPA 6010	LAR	10/14/98
Percent Solids	66.5	%	-	EPA	LMG	10/13/98
Soil extraction for TEH				EPA 3550	MEB	10/14/98

Sample analyzed cannot be reliably matched with the laboratory standard used for waste oil, diesel or gasoline.

Jeff King
Keystone Laboratories, Inc.

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Keystone LABORATORIES, INC.

MEMBER ACIL

ANALYTICAL REPORT

Report To

Kevin Armstrong
Montgomery-Watson
11107 Aurora Avenue

Des Moines. IA 50322

Sample Information

Work Order: 1810.0293
Date Received: 10/09/98 12:10 PM
Collector: Kevin Armstrong
Collector Phone: 515-253-0830
Report Date: 11/03/98

Site Information

Camp Dodge Preliminary Assess.

Comments

Specific sample comments (if any) are shown below.

Sample No : Description : Date Collected : Matrix

Analyte	Analysis Result		Detection Limit	Method	Analyst	Date Analyzed
745 HD-3 - Horse Dip Tank : 10/8/98 11:00:00 AM : soil						
Benzene	< 0.2	mg/kg	0.2	Iowa OA-1	FIZ	10/14/98
Toluene	< 0.2	mg/kg	0.2	Iowa OA-1	FIZ	10/14/98
Ethylbenzene	< 0.2	mg/kg	0.2	Iowa OA-1	FIZ	10/14/98
Xylenes, total	< 0.2	mg/kg	0.2	Iowa OA-1	FIZ	10/14/98
TEH, as gasoline	< 5.	mg/kg	5.	Iowa OA-2	CLM	10/18/98
TEH, as #2 diesel fuel	< 5.	mg/kg	5.	Iowa OA-2	CLM	10/18/98
TEH, as waste oil	10.	mg/kg	5.	Iowa OA-2	CLM	10/18/98
Total Extractable Hydrocarbons	10.	mg/kg	5.	Iowa OA-2	CLM	10/18/98
alpha-BHC	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
beta-BHC	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
gamma-BHC (Lindane)	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
delta-BHC	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Heptachlor	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Aldrin	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Heptachlor Epoxide	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Endosulfan I	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
4,4'-DDE	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Dieldrin	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Endrin	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Endosulfan II	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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Keystone
LABORATORIES, INC.

MEMBER ACIL

Work Order: 1810.0293
Report Date: 11/3/98

Sample No : Description : Date Collected : Matrix Analyte	Analysis Result		Detection Limit	Method	Analyst	Date Analyzed
4,4'-DDD	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Endrin Aldehyde	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
4,4'-DDT	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Methoxychlor	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Endosulfan Sulfate	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Hexachlorobenzene	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Chlordane	< 0.05	mg/kg	0.05	EPA 8080	FWM	10/27/98
Toxaphene	< 0.05	mg/kg	0.05	EPA 8080	FWM	10/27/98
Arochlor 1016	< 0.05	mg/kg	0.05	EPA 8080	FWM	10/27/98
Arochlor 1221	< 0.05	mg/kg	0.05	EPA 8080	FWM	10/27/98
Arochlor 1232	< 0.05	mg/kg	0.05	EPA 8080	FWM	10/27/98
Arochlor 1242	< 0.05	mg/kg	0.05	EPA 8080	FWM	10/27/98
Arochlor 1248	< 0.05	mg/kg	0.05	EPA 8080	FWM	10/27/98
Arochlor 1254	< 0.05	mg/kg	0.05	EPA 8080	FWM	10/27/9
Arochlor 1260	< 0.05	mg/kg	0.05	EPA 8080	FWM	10/27/9
Arsenic	2.4	mg/kg	2.	EPA 7060	LAR	10/14/98
Barium	91.	mg/kg	1.	EPA 6010	LAR	10/14/98
Cadmium	< 1.	mg/kg	1.	EPA 6010	LAR	10/14/98
Chromium	7.4	mg/kg	3.	EPA 6010	LAR	10/14/98
Lead	< 50.	mg/kg	50.	EPA 6010	LAR	10/14/98
Mercury	< 0.5	mg/kg	0.5	EPA 7471	BNS	10/14/98
Selenium	< 2.	mg/kg	2.	EPA 7740	LAR	10/14/98
Silver	< 3.	mg/kg	3.	EPA 6010	LAR	10/14/98
Percent Solids	85.6	%	-	EPA	LMG	10/13/98
Soil extraction for TEH				EPA 3550	MEB	10/14/98

Sample analyzed cannot be reliably matched with the laboratory standard used for waste oil, diesel or gasoline.

Jeff King
Keystone Laboratories, Inc.

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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Keystone LABORATORIES, INC.

MEMBER ACIL

ANALYTICAL REPORT

Report To

Kevin Armstrong
Montgomery-Watson
11107 Aurora Avenue

Des Moines, IA 50322

Sample Information

Work Order: 1810.0293
Date Received: 10/09/98 12:10 PM
Collector: Kevin Armstrong
Collector Phone: 515-253-0830
Report Date: 11/03/98

Site Information

Camp Dodge Preliminary Assess.

Comments

Specific sample comments (if any) are shown below.

Sample No : Description : Date Collected : Matrix

4746 HD-4 - Horse Dip Tank : 10/8/98 11:05:00 AM : soil

Analyte	Analysis Result		Detection Limit	Method	Analyst	Date Analyzed
Benzene	< 0.2	mg/kg	0.2	Iowa OA-1	FIZ	10/14/98
Toluene	< 0.2	mg/kg	0.2	Iowa OA-1	FIZ	10/14/98
Ethylbenzene	< 0.2	mg/kg	0.2	Iowa OA-1	FIZ	10/14/98
Xylenes, total	< 0.2	mg/kg	0.2	Iowa OA-1	FIZ	10/14/98
TEH, as gasoline	< 5.	mg/kg	5.	Iowa OA-2	CLM	10/22/98
TEH, as #2 diesel fuel	< 5.	mg/kg	5.	Iowa OA-2	CLM	10/22/98
TEH, as waste oil	10.	mg/kg	5.	Iowa OA-2	CLM	10/22/98
Total Extractable Hydrocarbons	10.	mg/kg	5.	Iowa OA-2	CLM	10/22/98
alpha-BHC	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
beta-BHC	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
gamma-BHC (Lindane)	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
delta-BHC	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Heptachlor	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Aldrin	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Heptachlor Epoxide	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Endosulfan I	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
4,4'-DDE	0.006	mg/kg	0.005	EPA 8080	FWM	10/27/98
Dieldrin	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Endrin	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Endosulfan II	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98

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Keystone
LABORATORIES, INC.

MEMBER ACIL

Work Order: 1810.0293
Report Date: 11/3/98

Sample No : Description : Date Collected : Matrix Analyte	Analysis Result		Detection Limit	Method	Analyst	Date Analyzed
4,4'-DDD	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Endrin Aldehyde	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
4,4'-DDT	0.03	mg/kg	0.005	EPA 8080	FWM	10/27/98
Methoxychlor	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Endosulfan Sulfate	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Hexachlorobenzene	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Chlordane	< 0.05	mg/kg	0.05	EPA 8080	FWM	10/27/98
Toxaphene	< 0.05	mg/kg	0.05	EPA 8080	FWM	10/27/98
Arochlor 1016	< 0.05	mg/kg	0.05	EPA 8080	FWM	10/27/98
Arochlor 1221	< 0.05	mg/kg	0.05	EPA 8080	FWM	10/27/98
Arochlor 1232	< 0.05	mg/kg	0.05	EPA 8080	FWM	10/27/98
Arochlor 1242	< 0.05	mg/kg	0.05	EPA 8080	FWM	10/27/98
Arochlor 1248	< 0.05	mg/kg	0.05	EPA 8080	FWM	10/27/98
Arochlor 1254	< 0.05	mg/kg	0.05	EPA 8080	FWM	10/27/98
Arochlor 1260	< 0.05	mg/kg	0.05	EPA 8080	FWM	10/27/98
Arsenic	2.6	mg/kg	2.	EPA 7060	LAR	10/14/98
Barium	108.	mg/kg	1.	EPA 6010	LAR	10/14/98
Cadmium	< 1.	mg/kg	1.	EPA 6010	LAR	10/14/98
Chromium	11.7	mg/kg	3.	EPA 6010	LAR	10/14/98
Lead	< 50.	mg/kg	50.	EPA 6010	LAR	10/14/98
Mercury	< 0.5	mg/kg	0.5	EPA 7471	BNS	10/14/98
Selenium	< 2.	mg/kg	2.	EPA 7740	LAR	10/14/98
Silver	< 3.	mg/kg	3.	EPA 6010	LAR	10/14/98
Percent Solids	80.6	%	-	EPA	LMG	10/13/98
Soil extraction for TEH				EPA 3550	MEB	10/14/98

Jeff King
Keystone Laboratories, Inc.

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Keystone LABORATORIES, INC.

MEMBER ACIL

ANALYTICAL REPORT

Report To

Kevin Armstrong
Montgomery-Watson
11107 Aurora Avenue

Des Moines, IA 50322

Sample Information

Work Order: 1810.0293
Date Received: 10/09/98 12:10 PM
Collector: Kevin Armstrong
Collector Phone: 515-253-0830
Report Date: 11/03/98

Site Information

Camp Dodge Preliminary Assess.

Comments

Specific sample comments (if any) are shown below.

Sample No : Description : Date Collected : Matrix

Analyte	Analysis Result		Detection Limit	Method	Analyst	Date Analyzed
4747 IN-1 - Incinerator : 10/8/98 11:40:00 AM : soil						
nzene	< 0.2	mg/kg	0.2	Iowa OA-1	FIZ	10/14/98
Toluene	< 0.2	mg/kg	0.2	Iowa OA-1	FIZ	10/14/98
Ethylbenzene	< 0.2	mg/kg	0.2	Iowa OA-1	FIZ	10/14/98
Xylenes, total	< 0.2	mg/kg	0.2	Iowa OA-1	FIZ	10/14/98
N-Nitrosodimethylamine	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Aniline	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Phenol	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Bis(2-Chloroethyl) Ether	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
2-Chlorophenol	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
1,3-Dichlorobenzene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
1,4-Dichlorobenzene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Benzyl Alcohol	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
1,2-Dichlorobenzene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Bis(2-Chloroisopropyl) Ether	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
2-Methylphenol	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
n-Nitroso-di-n-propylamine	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Hexachloroethane	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
(3 & 4)-Methylphenol	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Nitrobenzene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
horone	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98

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MEMBER ACIL

Work Order: 1810.0293
Report Date: 11/3/98

Sample No : Description : Date Collected : Matrix Analyte	Analysis Result		Detection Limit	Method	Analyst	Date Analyzed
2-Nitrophenol	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
2,4-Dimethylphenol	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Bis(2-Chloroethoxy) Methane	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
2,4-Dichlorophenol	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
1,2,4-Trichlorobenzene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Naphthalene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
4-Chloroaniline	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Hexachlorobutadiene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
4-Chloro-3-methylphenol	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
2-Methylnaphthalene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Hexachlorocyclopentadiene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
2,4,6-Trichlorophenol	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
2,4,5-Trichlorophenol	< 1.65	mg/kg	1.65	EPA 8270	FIZ	10/23/98
2-Chloronaphthalene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/9
2-Nitroaniline	< 1.65	mg/kg	1.65	EPA 8270	FIZ	10/23/9
Acenaphthylene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Dimethylphthalate	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
2,6-Dinitrotoluene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
3-Nitroaniline	< 1.65	mg/kg	1.65	EPA 8270	FIZ	10/23/98
Acenaphthene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
2,4-Dinitrophenol	< 1.65	mg/kg	1.65	EPA 8270	FIZ	10/23/98
Dibenzofuran	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
4-Nitrophenol	< 0.66	mg/kg	0.66	EPA 8270	FIZ	10/23/98
2,4-Dinitrotoluene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Fluorene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Diethyl Phthalate	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
4-Chlorophenyl Phenyl Ether	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
4-Nitroaniline	< 0.66	mg/kg	0.66	EPA 8270	FIZ	10/23/98
4,6-Dinitro-2-methylphenol	< 1.65	mg/kg	1.65	EPA 8270	FIZ	10/23/98
N-Nitrosodiphenylamine	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Azobenzene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
4-Bromophenyl Phenyl Ether	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Hexachlorobenzene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Benzidine	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Pentachlorophenol	< 0.66	mg/kg	0.66	EPA 8270	FIZ	10/23/9

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Keystone LABORATORIES, INC.

MEMBER ACIL

Work Order: 1810.0293
Report Date: 11/3/98

Sample No : Description : Date Collected : Matrix Analyte	Analysis Result		Detection Limit	Method	Analyst	Date Analyzed
Phenanthrene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Anthracene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Di-n-butyl Phthalate	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Fluoranthene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Pyrene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Butyl Benzyl Phthalate	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Benzo(a)anthracene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
3,3'-Dichlorobenzidine	< 0.66	mg/kg	0.66	EPA 8270	FIZ	10/23/98
Bis(2-Ethylhexyl) Phthalate	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Chrysene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Di-n-octyl Phthalate	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Benzo(b)Fluoranthene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Benzo(k)Fluoranthene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
zo(a)Pyrene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
eno(1,2,3-cd)Pyrene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Dibenzo(a,h)anthracene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Benzo(g,h,i)perylene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
TEH, as gasoline	< 5.	mg/kg	5.	Iowa OA-2	CLM	10/18/98
TEH, as #2 diesel fuel	< 5.	mg/kg	5.	Iowa OA-2	CLM	10/18/98
TEH, as waste oil	15.	mg/kg	5.	Iowa OA-2	CLM	10/18/98
Total Extractable Hydrocarbons	15.	mg/kg	5.	Iowa OA-2	CLM	10/18/98
alpha-BHC	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
beta-BHC	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
gamma-BHC (Lindane)	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
delta-BHC	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Heptachlor	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Aldrin	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Heptachlor Epoxide	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Endosulfan I	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
4,4'-DDE	0.007	mg/kg	0.005	EPA 8080	FWM	10/27/98
Dieldrin	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Endrin	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Endosulfan II	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
4,4'-DDD	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
in Aldehyde	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98

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Keystone
LABORATORIES, INC.

MEMBER ACIL

Work Order: 1810.0293
Report Date: 11/3/98

Sample No : Description : Date Collected : Matrix Analyte	Analysis Result		Detection Limit	Method	Analyst	Date Analyzed
4,4'-DDT	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Methoxychlor	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Endosulfan Sulfate	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Hexachlorobenzene	< 0.005	mg/kg	0.005	EPA 8080	FWM	10/27/98
Chlordane	< 0.005	mg/kg	0.05	EPA 8080	FWM	10/27/98
Toxaphene	< 0.05	mg/kg	0.05	EPA 8080	FWM	10/27/98
Arochlor 1016	< 0.05	mg/kg	0.05	EPA 8080	FWM	10/27/98
Arochlor 1221	< 0.05	mg/kg	0.05	EPA 8080	FWM	10/27/98
Arochlor 1232	< 0.05	mg/kg	0.05	EPA 8080	FWM	10/27/98
Arochlor 1242	< 0.05	mg/kg	0.05	EPA 8080	FWM	10/27/98
Arochlor 1248	< 0.05	mg/kg	0.05	EPA 8080	FWM	10/27/98
Arochlor 1254	< 0.05	mg/kg	0.05	EPA 8080	FWM	10/27/98
Arochlor 1260	< 0.05	mg/kg	0.05	EPA 8080	FWM	10/27/98
Arsenic	< 2.	mg/kg	2.	EPA 7060	LAR	10/14/9[illegible]
Barium	99.	mg/kg	1.	EPA 6010	LAR	10/14/9[illegible]
Cadmium	< 1.	mg/kg	1.	EPA 6010	LAR	10/14/98
Chromium	6.4	mg/kg	3.	EPA 6010	LAR	10/14/98
Lead	< 50.	mg/kg	50.	EPA 6010	LAR	10/14/98
Mercury	< 0.5	mg/kg	0.5	EPA 7471	BNS	10/14/98
Selenium	< 2.	mg/kg	2.	EPA 7740	LAR	10/14/98
Silver	< 3.	mg/kg	3.	EPA 6010	LAR	10/14/98
Percent Solids	86.5	%		EPA	LMG	10/13/98
Soil extraction for TEH				EPA 3550	MEB	10/14/98

Jeff King
Keystone Laboratories, Inc.

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Keystone LABORATORIES, INC.

MEMBER ACIL

ANALYTICAL REPORT

Report To

Kevin Armstrong
Montgomery-Watson
11107 Aurora Avenue

Des Moines, IA 50322

Sample Information

Work Order: 1810.0293
Date Received: 10/09/98 12:10 PM
Collector: Kevin Armstrong
Collector Phone: 515-253-0830
Report Date: 11/03/98

Site Information

Camp Dodge Preliminary Assess.

Comments

Specific sample comments (if any) are shown below.

Sample No : Description : Date Collected : Matrix Analyte	Analysis Result		Detection Limit	Method	Analyst	Date Analyzed
4748 IN-2 - Incinerator : 10/8/98 11:55:00 AM : soil						
enzene	< 0.2	mg/kg	0.2	Iowa OA-1	FIZ	10/14/98
Toluene	< 0.2	mg/kg	0.2	Iowa OA-1	FIZ	10/14/98
Ethylbenzene	< 0.2	mg/kg	0.2	Iowa OA-1	FIZ	10/14/98
Xylenes, total	< 0.2	mg/kg	0.2	Iowa OA-1	FIZ	10/14/98
N-Nitrosodimethylamine	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
Aniline	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
Phenol	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
Bis(2-Chloroethyl) Ether	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
2-Chlorophenol	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
1,3-Dichlorobenzene	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
1,4-Dichlorobenzene	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
Benzyl Alcohol	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
1,2-Dichlorobenzene	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
Bis(2-Chloroisopropyl) Ether	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
2-Methylphenol	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
n-Nitroso-di-n-propylamine	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
Hexachloroethane	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
(3 & 4)-Methylphenol	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
Nitrobenzene	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
horone	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98

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Keystone
LABORATORIES, INC.

MEMBER ACIL

Work Order: 1810.0293
Report Date: 11/3/98

Sample No : Description : Date Collected : Matrix Analyte	Analysis Result		Detection Limit	Method	Analyst	Date Analyzed
2-Nitrophenol	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
2,4-Dimethylphenol	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
Bis(2-Chloroethoxy) Methane	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
2,4-Dichlorophenol	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
1,2,4-Trichlorobenzene	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
Naphthalene	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
4-Chloroaniline	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
Hexachlorobutadiene	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
4-Chloro-3-methylphenol	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
2-Methylnaphthalene	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
Hexachlorocyclopentadiene	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
2,4,6-Trichlorophenol	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
2,4,5-Trichlorophenol	< 1.65	mg/kg	1.65	EPA 8270	GGD	10/23/98
2-Chloronaphthalene	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
2-Nitroaniline	< 1.65	mg/kg	1.65	EPA 8270	GGD	10/23/98
Acenaphthylene	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
Dimethylphthalate	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
2,6-Dinitrotoluene	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
3-Nitroaniline	< 1.65	mg/kg	1.65	EPA 8270	GGD	10/23/98
Acenaphthene	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
2,4-Dinitrophenol	< 1.65	mg/kg	1.65	EPA 8270	GGD	10/23/98
Dibenzofuran	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
4-Nitrophenol	< 0.66	mg/kg	0.66	EPA 8270	GGD	10/23/98
2,4-Dinitrotoluene	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
Fluorene	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
Diethyl Phthalate	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
4-Chlorophenyl Phenyl Ether	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
4-Nitroaniline	< 0.66	mg/kg	0.66	EPA 8270	GGD	10/23/98
4,6-Dinitro-2-methylphenol	< 1.65	mg/kg	1.65	EPA 8270	GGD	10/23/98
N-Nitrosodiphenylamine	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
Azobenzene	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
4-Bromophenyl Phenyl Ether	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
Hexachlorobenzene	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
Benzidine	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
Pentachlorophenol	< 0.66	mg/kg	0.66	EPA 8270	GGD	10/23/98

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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Keystone LABORATORIES, INC.

MEMBER ACIL

Work Order: 1810.0293
Report Date: 11/3/98

Sample No : Description : Date Collected : Matrix Analyte	Analysis Result		Detection Limit	Method	Analyst	Date Analyzed
Phenanthrene	1.12	mg/kg	0.33	EPA 8270	GGD	10/23/98
Anthracene	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
Di-n-butyl Phthalate	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
Fluoranthene	1.12	mg/kg	0.33	EPA 8270	GGD	10/23/98
Pyrene	1.29	mg/kg	0.33	EPA 8270	GGD	10/23/98
Butyl Benzyl Phthalate	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
Benzo(a)anthracene	0.52	mg/kg	0.33	EPA 8270	GGD	10/23/98
3,3'-Dichlorobenzidine	< 0.66	mg/kg	0.66	EPA 8270	GGD	10/23/98
Bis(2-Ethylhexyl) Phthalate	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
Chrysene	0.73	mg/kg	0.33	EPA 8270	GGD	10/23/98
Di-n-octyl Phthalate	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
Benzo(b)Fluoranthene	1.16	mg/kg	0.33	EPA 8270	GGD	10/23/98
Benzo(k)Fluoranthene	0.39	mg/kg	0.33	EPA 8270	GGD	10/23/98
zo(a)Pyrene	0.56	mg/kg	0.33	EPA 8270	GGD	10/23/98
eno(1,2,3-cd)Pyrene	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
Dibenzo(a,h)anthracene	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
Benzo(g,h,i)perylene	< 0.33	mg/kg	0.33	EPA 8270	GGD	10/23/98
TEH, as gasoline	< 5.	mg/kg	5.	Iowa OA-2	CLM	10/23/98
TEH, as #2 diesel fuel	44.	mg/kg	5.	Iowa OA-2	CLM	10/23/98
TEH, as waste oil	< 5.	mg/kg	5.	Iowa OA-2	CLM	10/23/98
Total Extractable Hydrocarbons	44.	mg/kg	5.	Iowa OA-2	CLM	10/23/98
Arsenic	5.6	mg/kg	2.	EPA 7060	LAR	10/14/98
Barium	67.	mg/kg	1.	EPA 6010	LAR	10/14/98
Cadmium	2.7	mg/kg	1.	EPA 6010	LAR	10/14/98
Chromium	11.1	mg/kg	3.	EPA 6010	LAR	10/14/98
Lead	86.	mg/kg	50.	EPA 6010	LAR	10/14/98
Mercury	< 0.5	mg/kg	0.5	EPA 7471	BNS	10/14/98
Selenium	< 2.	mg/kg	2.	EPA 7740	LAR	10/14/98
Silver	< 3.	mg/kg	3.	EPA 6010	LAR	10/14/98
Percent Solids	76.6	%		EPA	LMG	10/13/98
Soil extraction for TEH				EPA 3550	MEB	10/14/98

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Keystone
LABORATORIES, INC.

MEMBER ACIL

Work Order: 1810.0293
Report Date: 11/3/98

Sample No : Description : Date Collected : Matrix Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed

Jeff King
Keystone Laboratories, Inc.

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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Keystone LABORATORIES, INC.

MEMBER ACIL

ANALYTICAL REPORT

Report To

Kevin Armstrong
Montgomery-Watson
11107 Aurora Avenue

Des Moines, IA 50322

Sample Information

Work Order: 1810.0293
Date Received: 10/09/98 12:10 PM
Collector: Kevin Armstrong
Collector Phone: 515-253-0830
Report Date: 11/03/98

Site Information

Camp Dodge Preliminary Assess.

Comments

Specific sample comments (if any) are shown below.

Sample No : Description : Date Collected : Matrix

Analyte	Analysis Result		Detection Limit	Method	Analyst	Date Analyzed
4749 IN-3 - Incinerator : 10/8/98 12:05:00 PM : soil						
Benzene	< 0.2	mg/kg	0.2	Iowa OA-1	FIZ	10/14/98
Toluene	< 0.2	mg/kg	0.2	Iowa OA-1	FIZ	10/14/98
Ethylbenzene	< 0.2	mg/kg	0.2	Iowa OA-1	FIZ	10/14/98
Xylenes, total	< 0.2	mg/kg	0.2	Iowa OA-1	FIZ	10/14/98
N-Nitrosodimethylamine	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Aniline	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Phenol	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Bis(2-Chloroethyl) Ether	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
2-Chlorophenol	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
1,3-Dichlorobenzene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
1,4-Dichlorobenzene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Benzyl Alcohol	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
1,2-Dichlorobenzene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Bis(2-Chloroisopropyl) Ether	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
2-Methylphenol	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
n-Nitroso-di-n-propylamine	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Hexachloroethane	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
(3 & 4)-Methylphenol	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Nitrobenzene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
horone	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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Keystone
LABORATORIES, INC.

MEMBER ACIL

Work Order: 1810.0293
Report Date: 11/3/98

Sample No : Description : Date Collected : Matrix Analyte	Analysis Result		Detection Limit	Method	Analyst	Date Analyzed
2-Nitrophenol	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
2,4-Dimethylphenol	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Bis(2-Chloroethoxy) Methane	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
2,4-Dichlorophenol	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
1,2,4-Trichlorobenzene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Naphthalene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
4-Chloroaniline	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Hexachlorobutadiene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
4-Chloro-3-methylphenol	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
2-Methylnaphthalene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Hexachlorocyclopentadiene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
2,4,6-Trichlorophenol	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
2,4,5-Trichlorophenol	< 1.65	mg/kg	1.65	EPA 8270	FIZ	10/23/98
2-Chloronaphthalene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
2-Nitroaniline	< 1.65	mg/kg	1.65	EPA 8270	FIZ	10/23/98
Acenaphthylene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Dimethylphthalate	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
2,6-Dinitrotoluene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
3-Nitroaniline	< 1.65	mg/kg	1.65	EPA 8270	FIZ	10/23/98
Acenaphthene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
2,4-Dinitrophenol	< 1.65	mg/kg	1.65	EPA 8270	FIZ	10/23/98
Dibenzofuran	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
4-Nitrophenol	< 0.66	mg/kg	0.66	EPA 8270	FIZ	10/23/98
2,4-Dinitrotoluene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Fluorene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Diethyl Phthalate	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
4-Chlorophenyl Phenyl Ether	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
4-Nitroaniline	< 0.66	mg/kg	0.66	EPA 8270	FIZ	10/23/98
4,6-Dinitro-2-methylphenol	< 1.65	mg/kg	1.65	EPA 8270	FIZ	10/23/98
N-Nitrosodiphenylamine	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Azobenzene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
4-Bromophenyl Phenyl Ether	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Hexachlorobenzene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Benzidine	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Pentachlorophenol	< 0.66	mg/kg	0.66	EPA 8270	FIZ	10/23/98

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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Keystone LABORATORIES, INC.

MEMBER ACIL

Work Order: 1810.0293
Report Date: 11/3/98

Sample No : Description : Date Collected : Matrix Analyte	Analysis Result		Detection Limit	Method	Analyst	Date Analyzed
Phenanthrene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Anthracene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Di-n-butyl Phthalate	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Fluoranthene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Pyrene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Butyl Benzyl Phthalate	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Benzo(a)anthracene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
3,3'-Dichlorobenzidine	< 0.66	mg/kg	0.66	EPA 8270	FIZ	10/23/98
Bis(2-Ethylhexyl) Phthalate	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Chrysene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Di-n-octyl Phthalate	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Benzo(b)Fluoranthene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Benzo(k)Fluoranthene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
[illegible]nzo(a)Pyrene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
[illegible]eno(1,2,3-cd)Pyrene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Dibenzo(a,h)anthracene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Benzo(g,h,i)perylene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
TEH, as gasoline	< 5.	mg/kg	5.	Iowa OA-2	CLM	10/18/98
TEH, as #2 diesel fuel	< 5.	mg/kg	5.	Iowa OA-2	CLM	10/18/98
TEH, as waste oil	8.	mg/kg	5.	Iowa OA-2	CLM	10/18/98
Total Extractable Hydrocarbons	8.	mg/kg	5.	Iowa OA-2	CLM	10/18/98
Arsenic	2.1	mg/kg	2.	EPA 7060	LAR	10/14/98
Barium	90.	mg/kg	1.	EPA 6010	LAR	10/14/98
Cadmium	< 1.	mg/kg	1.	EPA 6010	LAR	10/14/98
Chromium	7.	mg/kg	3.	EPA 6010	LAR	10/14/98
Lead	< 50.	mg/kg	50.	EPA 6010	LAR	10/14/98
Mercury	< 0.5	mg/kg	0.5	EPA 7471	BNS	10/14/98
Selenium	< 2.	mg/kg	2.	EPA 7740	LAR	10/14/98
Silver	< 3.	mg/kg	3.	EPA 6010	LAR	10/14/98
Percent Solids	88.4	%		EPA	LMG	10/13/98
Soil extraction for TEH				EPA 3550	MEB	10/14/98

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Keystone
LABORATORIES, INC.

MEMBER ACIL

Work Order: 1810.0293
Report Date: 11/3/98

Sample No : Description : Date Collected : Matrix Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed

Jeff King
Keystone Laboratories, Inc.

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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Keystone LABORATORIES, INC.

MEMBER ACIL

ANALYTICAL REPORT

Report To

Kevin Armstrong
Montgomery-Watson
11107 Aurora Avenue

Des Moines, IA 50322

Sample Information

Work Order: 1810.0293
Date Received: 10/09/98 12:10 PM
Collector: Kevin Armstrong
Collector Phone: 515-253-0830
Report Date: 11/03/98

Site Information

Camp Dodge Preliminary Assess.

Comments

Specific sample comments (if any) are shown below.

Sample No : Description : Date Collected : Matrix

Analyte	Analysis Result		Detection Limit	Method	Analyst	Date Analyzed
750 IN-4 - Incinerator : 10/8/98 12:40:00 PM : soil						
zene	< 0.2	mg/kg	0.2	Iowa OA-1	FIZ	10/14/98
Toluene	< 0.2	mg/kg	0.2	Iowa OA-1	FIZ	10/14/98
Ethylbenzene	< 0.2	mg/kg	0.2	Iowa OA-1	FIZ	10/14/98
Xylenes, total	< 0.2	mg/kg	0.2	Iowa OA-1	FIZ	10/14/98
N-Nitrosodimethylamine	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Aniline	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Phenol	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Bis(2-Chloroethyl) Ether	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
2-Chlorophenol	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
1,3-Dichlorobenzene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
1,4-Dichlorobenzene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Benzyl Alcohol	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
1,2-Dichlorobenzene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Bis(2-Chloroisopropyl) Ether	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
2-Methylphenol	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
n-Nitroso-di-n-propylamine	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Hexachloroethane	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
(3 & 4)-Methylphenol	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Nitrobenzene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
horone	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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Keystone
LABORATORIES, INC.

MEMBER ACIL

Work Order: 1810.0293
Report Date: 11/3/98

Sample No : Description : Date Collected : Matrix Analyte	Analysis Result		Detection Limit	Method	Analyst	Date Analyzed
2-Nitrophenol	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
2,4-Dimethylphenol	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Bis(2-Chloroethoxy) Methane	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
2,4-Dichlorophenol	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
1,2,4-Trichlorobenzene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Naphthalene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
4-Chloroaniline	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Hexachlorobutadiene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
4-Chloro-3-methylphenol	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
2-Methylnaphthalene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Hexachlorocyclopentadiene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
2,4,6-Trichlorophenol	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
2,4,5-Trichlorophenol	< 1.65	mg/kg	1.65	EPA 8270	FIZ	10/23/98
2-Chloronaphthalene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
2-Nitroaniline	< 1.65	mg/kg	1.65	EPA 8270	FIZ	10/23/98
Acenaphthylene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Dimethylphthalate	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
2,6-Dinitrotoluene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
3-Nitroaniline	< 1.65	mg/kg	1.65	EPA 8270	FIZ	10/23/98
Acenaphthene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
2,4-Dinitrophenol	< 1.65	mg/kg	1.65	EPA 8270	FIZ	10/23/98
Dibenzofuran	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
4-Nitrophenol	< 0.66	mg/kg	0.66	EPA 8270	FIZ	10/23/98
2,4-Dinitrotoluene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Fluorene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Diethyl Phthalate	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
4-Chlorophenyl Phenyl Ether	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
4-Nitroaniline	< 0.66	mg/kg	0.66	EPA 8270	FIZ	10/23/98
4,6-Dinitro-2-methylphenol	< 1.65	mg/kg	1.65	EPA 8270	FIZ	10/23/98
N-Nitrosodiphenylamine	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Azobenzene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
4-Bromophenyl Phenyl Ether	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Hexachlorobenzene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Benzidine	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Pentachlorophenol	< 0.66	mg/kg	0.66	EPA 8270	FIZ	10/23/98

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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Keystone LABORATORIES, INC.

MEMBER ACIL

Work Order: 1810.0293
Report Date: 11/3/98

Sample No : Description : Date Collected : Matrix Analyte	Analysis Result		Detection Limit	Method	Analyst	Date Analyzed
Phenanthrene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Anthracene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Di-n-butyl Phthalate	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Fluoranthene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Pyrene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Butyl Benzyl Phthalate	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Benzo(a)anthracene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
3,3'-Dichlorobenzidine	< 0.66	mg/kg	0.66	EPA 8270	FIZ	10/23/98
Bis(2-Ethylhexyl) Phthalate	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Chrysene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Di-n-octyl Phthalate	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Benzo(b)Fluoranthene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Benzo(k)Fluoranthene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
zo(a)Pyrene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
eno(1,2,3-cd)Pyrene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Dibenzo(a,h)anthracene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Benzo(g,h,i)perylene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
TEH, as gasoline	< 5.	mg/kg	5.	Iowa OA-2	CLM	10/18/98
TEH, as #2 diesel fuel	< 5.	mg/kg	5.	Iowa OA-2	CLM	10/18/98
TEH, as waste oil	< 5.	mg/kg	5.	Iowa OA-2	CLM	10/18/98
Total Extractable Hydrocarbons	< 5.	mg/kg	5.	Iowa OA-2	CLM	10/18/98
Arsenic	2.2	mg/kg	2.	EPA 7060	LAR	10/14/98
Barium	80.	mg/kg	1.	EPA 6010	LAR	10/14/98
Cadmium	< 1.	mg/kg	1.	EPA 6010	LAR	10/14/98
Chromium	6.9	mg/kg	3.	EPA 6010	LAR	10/14/98
Lead	75.	mg/kg	50.	EPA 6010	LAR	10/14/98
Mercury	< 0.5	mg/kg	0.5	EPA 7471	BNS	10/14/98
Selenium	< 2.	mg/kg	2.	EPA 7740	LAR	10/14/98
Silver	< 3.	mg/kg	3.	EPA 6010	LAR	10/14/98
Percent Solids	87.9	%		EPA	LMG	10/13/98
Soil extraction for TEH				EPA 3550	MEB	10/14/98

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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Keystone
LABORATORIES, INC.

MEMBER ACIL

Work Order: 1810.0293
Report Date: 11/3/98

Sample No : Description : Date Collected : Matrix Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed

Jeff King
Keystone Laboratories, Inc.

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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MEMBER ACIL

ANALYTICAL REPORT

Report To

Kevin Armstrong
Montgomery-Watson
11107 Aurora Avenue

Des Moines, IA 50322

Sample Information

Work Order: 1810.0293
Date Received: 10/09/98 12:10 PM
Collector: Kevin Armstrong
Collector Phone: 515-253-0830
Report Date: 11/03/98

Site Information

Camp Dodge Preliminary Assess.

Comments

Specific sample comments (if any) are shown below.

Sample No : Description : Date Collected : Matrix

Analyte	Analysis Result		Detection Limit	Method	Analyst	Date Analyzed
751 IN-5 - Incinerator : 10/8/98 12:55:00 PM : soil						
Benzene	< 0.2	mg/kg	0.2	Iowa OA-1	FIZ	10/15/98
Toluene	< 0.2	mg/kg	0.2	Iowa OA-1	FIZ	10/15/98
Ethylbenzene	< 0.2	mg/kg	0.2	Iowa OA-1	FIZ	10/15/98
Xylenes, total	< 0.2	mg/kg	0.2	Iowa OA-1	FIZ	10/15/98
N-Nitrosodimethylamine	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Aniline	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Phenol	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Bis(2-Chloroethyl) Ether	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
2-Chlorophenol	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
1,3-Dichlorobenzene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
1,4-Dichlorobenzene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Benzyl Alcohol	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
1,2-Dichlorobenzene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Bis(2-Chloroisopropyl) Ether	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
2-Methylphenol	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
n-Nitroso-di-n-propylamine	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Hexachloroethane	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
(3 & 4)-Methylphenol	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Nitrobenzene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Isophorone	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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MEMBER ACIL

Work Order: 1810.0293
Report Date: 11/3/98

Sample No : Description : Date Collected : Matrix Analyte	Analysis Result		Detection Limit	Method	Analyst	Date Analyzed
2-Nitrophenol	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
2,4-Dimethylphenol	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Bis(2-Chloroethoxy) Methane	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
2,4-Dichlorophenol	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
1,2,4-Trichlorobenzene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Naphthalene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
4-Chloroaniline	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Hexachlorobutadiene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
4-Chloro-3-methylphenol	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
2-Methylnaphthalene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Hexachlorocyclopentadiene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
2,4,6-Trichlorophenol	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
2,4,5-Trichlorophenol	< 1.65	mg/kg	1.65	EPA 8270	FIZ	10/23/98
2-Chloronaphthalene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/9
2-Nitroaniline	< 1.65	mg/kg	1.65	EPA 8270	FIZ	10/23/9
Acenaphthylene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Dimethylphthalate	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
2,6-Dinitrotoluene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
3-Nitroaniline	< 1.65	mg/kg	1.65	EPA 8270	FIZ	10/23/98
Acenaphthene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
2,4-Dinitrophenol	< 1.65	mg/kg	1.65	EPA 8270	FIZ	10/23/98
Dibenzofuran	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
4-Nitrophenol	< 0.66	mg/kg	0.66	EPA 8270	FIZ	10/23/98
2,4-Dinitrotoluene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Fluorene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Diethyl Phthalate	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
4-Chlorophenyl Phenyl Ether	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
4-Nitroaniline	< 0.66	mg/kg	0.66	EPA 8270	FIZ	10/23/98
4,6-Dinitro-2-methylphenol	< 1.65	mg/kg	1.65	EPA 8270	FIZ	10/23/98
N-Nitrosodiphenylamine	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Azobenzene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
4-Bromophenyl Phenyl Ether	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Hexachlorobenzene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Benzidine	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Pentachlorophenol	< 0.66	mg/kg	0.66	EPA 8270	FIZ	10/23/9

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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Keystone LABORATORIES, INC.

MEMBER ACIL

Work Order: 1810.0293
Report Date: 11/3/98

Sample No : Description : Date Collected : Matrix Analyte	Analysis Result		Detection Limit	Method	Analyst	Date Analyzed
Phenanthrene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Anthracene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Di-n-butyl Phthalate	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Fluoranthene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Pyrene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Butyl Benzyl Phthalate	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Benzo(a)anthracene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
3,3'-Dichlorobenzidine	< 0.66	mg/kg	0.66	EPA 8270	FIZ	10/23/98
Bis(2-Ethylhexyl) Phthalate	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Chrysene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Di-n-octyl Phthalate	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Benzo(b)Fluoranthene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Benzo(k)Fluoranthene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
zo(a)Pyrene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
eno(1,2,3-cd)Pyrene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Dibenzo(a,h)anthracene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
Benzo(g,h,i)perylene	< 0.33	mg/kg	0.33	EPA 8270	FIZ	10/23/98
TEH, as gasoline	< 5.	mg/kg	5.	Iowa OA-2	CLM	10/19/98
TEH, as #2 diesel fuel	< 5.	mg/kg	5.	Iowa OA-2	CLM	10/19/98
TEH, as waste oil	< 5.	mg/kg	5.	Iowa OA-2	CLM	10/19/98
Total Extractable Hydrocarbons	< 5.	mg/kg	5.	Iowa OA-2	CLM	10/19/98
Arsenic	4.6	mg/kg	2.	EPA 7060	LAR	10/14/98
Barium	161.	mg/kg	1.	EPA 6010	LAR	10/14/98
Cadmium	2.2	mg/kg	1.	EPA 6010	LAR	10/14/98
Chromium	16.7	mg/kg	3.	EPA 6010	LAR	10/14/98
Lead	57.	mg/kg	50.	EPA 6010	LAR	10/14/98
Mercury	< 0.5	mg/kg	0.5	EPA 7471	BNS	10/14/98
Selenium	< 2.	mg/kg	2.	EPA 7740	LAR	10/14/98
Silver	< 3.	mg/kg	3.	EPA 6010	LAR	10/14/98
Percent Solids	67.8	%		EPA	LMG	10/13/98
Soil extraction for TEH				EPA 3550	MEB	10/14/98

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MEMBER ACIL

Work Order: 1810.0293
Report Date: 11/3/98

Sample No : Description : Date Collected : Matrix Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed

Jeff King
Keystone Laboratories, Inc.

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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Keystone LABORATORIES, INC.

☒ 600 E. 17th St. S.
Newton, IA 50208
Phone: 515-792-8451
Fax: 515-792-7989

☐ 3012 [illegible]rough Ave.
Waterl[illegible], IA 50701
Phone: 319-235-4440
Fax: 319-235-2480

☐ 1515 Walnut St.
Kansas City, MO 64108
Phone: 816-471-1515
Fax: 816-471-7915

PAGE 1 OF 1

PRINT OR TYPE INFORMATION BELOW

SAMPLER: Kevin Armstrong
SITE NAME: Camp Dodge Preliminary Assessment
ADDRESS:
CITY/ST/ZIP:
PHONE:

REPORT TO:
NAME: Kevin Armstrong
COMPANY NAME: Montgomery Watson
ADDRESS: 11107 Aurora Ave
CITY/ST/ZIP: Des Moines IA 50322
PHONE: 515-253-0830
FAX: 515-253-9592

BILL TO:
NAME: Kevin Armstrong
COMPANY NAME:
ADDRESS:
CITY/ST/ZIP:
PHONE:

Keystone Quote No.: (If Applicable)

CLIENT SAMPLE NUMBER	DATE	TIME	SAMPLE LOCATION	NO. OF CONTAINERS	MATRIX	GRAB/COMPOSITE	ANALYSES REQUIRED: DA-1/DA-2	BNAs-8270	RCRA Metals	Pesticides					LAB USE ONLY: LABORATORY WORK ORDER NO. 1810.0293 — SAMPLE CONDITION AS RECEIVED: CHILLED ☐ YES ☐ NO; SEALED ☐ YES ☐ NO — SAMPLE CONDITION/COMMENTS	LABORATORY SAMPLE NUMBER
HD-1	10/8/98	1015	Horse Dip Tank	3	soil	G	✓		✓	✓						1824743
HD-2	10/8/98	1030	Horse Dip Tank	3	soil	G	✓		✓	✓						24744
HD-3	10/8/98	1100	Horse Dip Tank	3	soil	G	✓		✓	✓						24745
HD-4	10/8/98	1105	Horse Dip Tank	3	soil	G	✓		✓	✓						24746
IN-1	10/8/98	1140	Incinerator	3	soil	G	✓	✓	✓							24747
IN-2	10/8/98	1155	Incinerator	3	soil	G	✓	✓	✓							24748
IN-3	10/8/98	1205	Incinerator	3	soil	G	✓	✓	✓							24749
IN-4	10/8/98	1240	Incinerator	3	soil	G	✓	✓	✓							24750
IN-5	10/8/98	1255	Incinerator	3	soil	G	✓	✓	✓							24751

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time	Turn-Around:
Kevin G Armstrong	Date 10-9-98 Time 1000			☒ Standard ☐ Rush ____ Contact Lab Prior to Submission
Relinquished by: (Signature)	Date / Time	Received for Lab by: (Signature)	Date / Time	Remarks: Caution: Broken glass in HD-2
		[illegible]	Date 10-9-98 Time 12:10	

Original - Return with Report • Yellow - Lab Copy • Pink - Sampler Copy

FORM: CCR 7-97

Keystone LABORATORIES, INC.

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MW/IOWA

MEMBER ACIL

ANALYTICAL REPORT

November 5, 1998

Report To

Kevin Armstrong
Montgomery-Watson
11107 Aurora Avenue

Des Moines, IA 50322

Sample Information

Work Order: 1810.0606
Sample No: 1825598
Date Collected: 10/19/98 09:40 AM
Date Received: 10/20/98 10:40 AM
Collector: Kevin Armstrong
Collector Phone: 515-253-0830
Matrix: soil

Site Information/Sample Description

Camp Dodge Preliminary Assess.
Des Moines, IA

DP-3 @ 1 ft. - Demo Pit

Comments

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Determination of volatile organic compounds.					
1,1,1-Trichloroethane	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
1,1,2,2-Tetrachloroethane	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
1,1,2-Trichloroethane	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
1,1-Dichloroethane	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
1,1-Dichloroethylene	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
1,2-Dichlorobenzene	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
1,2-Dichloroethane	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
1,2-Dichloropropane	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
1,3-Dichlorobenzene	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
1,4-Dichlorobenzene	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
2-Butanone (MEK)	< 0.005 mg/kg	0.005	EPA 8260	EPP	10/24/98
2-Hexanone (MBK)	< 0.005 mg/kg	0.005	EPA 8260	EPP	10/24/98
4-Methyl-2-pentanone (MIBK)	< 0.005 mg/kg	0.005	EPA 8260	EPP	10/24/98
Acetone	< 0.01 mg/kg	0.01	EPA 8260	EPP	10/24/98
Benzene	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
Bromodichloromethane	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
Bromoform	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
[illegible]omethane	< 0.002 mg/kg	0.002	EPA 8260	EPP	10/24/98

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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MEMBER ACIL

Work Order: 1810.0606
Sample No: 1825598
Report Date: 11/5/98

Site Name / Sample Description
Camp Dodge Preliminary Assess.
DP-3 @ 1 ft. - Demo Pit

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Carbon Disulfide	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
Carbon Tetrachloride	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
Chlorobenzene	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
Chloroethane	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
Chloroform	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
Chloromethane	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
cis-1,2-Dichloroethylene	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
cis-l,3-Dichloropropene	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
Dibromochloromethane	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
Ethylbenzene	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
Methylene Chloride	< 0.005 mg/kg	0.005	EPA 8260	EPP	10/24/98
Naphthalene	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
Tetrachloroethylene	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
Toluene	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
trans-1,2-Dichloroethylene	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
trans-1,3-Dichloropropene	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
Trichloroethylene	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
Vinyl Chloride	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
Xylenes, total	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
Determination of explosives.					
1,3,5-Trinitrobenzene	< 5. mg/kg	5.	EPA 8330	FWM	11/02/98
1,3-Dinitrobenzene	< 5. mg/kg	5.	EPA 8330	FWM	11/02/98
2,4 & 2,6-Dinitrotoluene	< 5. mg/kg	5.	EPA 8330	FWM	11/02/98
2,4,6-Trinitrotoluene	< 5. mg/kg	5.	EPA 8330	FWM	11/02/98
2-Amino-Dinitrotoluene	< 5. mg/kg	5.	EPA 8330	FWM	11/02/98
2-Nitrotoluene	< 5. mg/kg	5.	EPA 8330	FWM	11/02/98
3-Nitrotoluene	< 5. mg/kg	5.	EPA 8330	FWM	11/02/98
4-Amino-Dinitrotoluene	< 5. mg/kg	5.	EPA 8330	FWM	11/02/98
4-Nitrotoluene	< 5. mg/kg	5.	EPA 8330	FWM	11/02/98
HMX	< 5. mg/kg	5.	EPA 8330	FWM	11/02/98
Nitrobenzene	< 5. mg/kg	5.	EPA 8330	FWM	11/02/98
RDX	< 5. mg/kg	5.	EPA 8330	FWM	11/02/98
Tetryl	< 5. mg/kg	5.	EPA 8330	FWM	11/02/98

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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Work Order: 1810.0606
Sample No: 1825598
Report Date: 11/5/98

Site Name / Sample Description
Camp Dodge Preliminary Assess.
DP-3 @ 1 ft. - Demo Pit

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Determination of general chemistry parameters.					
Percent Solids	97.2 %		EPA	PTB	11/04/98

Keystone Laboratories, Inc.

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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Keystone
LABORATORIES, INC.

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MEMBER ACIL

ANALYTICAL REPORT

November 5, 1998

Report To

Kevin Armstrong
Montgomery-Watson
11107 Aurora Avenue

Des Moines, IA 50322

Sample Information

Work Order: 1810.0606
Sample No: 1825599
Date Collected: 10/19/98 09:55 AM
Date Received: 10/20/98 10:40 AM
Collector: Kevin Armstrong
Collector Phone: 515-253-0830
Matrix: soil

Site Information/Sample Description

Camp Dodge Preliminary Assess.
Des Moines, IA

DP-4 @ 1 ft. - Demo Pit

Comments

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Determination of volatile organic compounds.					
1,1,1-Trichloroethane	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
1,1,2,2-Tetrachloroethane	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
1,1,2-Trichloroethane	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
1,1-Dichloroethane	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
1,1-Dichloroethylene	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
1,2-Dichlorobenzene	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
1,2-Dichloroethane	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
1,2-Dichloropropane	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
1,3-Dichlorobenzene	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
1,4-Dichlorobenzene	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
2-Butanone (MEK)	< 0.005 mg/kg	0.005	EPA 8260	EPP	10/24/98
2-Hexanone (MBK)	< 0.005 mg/kg	0.005	EPA 8260	EPP	10/24/98
4-Methyl-2-pentanone (MIBK)	< 0.005 mg/kg	0.005	EPA 8260	EPP	10/24/98
Acetone	< 0.01 mg/kg	0.01	EPA 8260	EPP	10/24/98
Benzene	0.011 mg/kg	0.001	EPA 8260	EPP	10/24/98
Bromodichloromethane	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
Bromoform	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
Bromomethane	< 0.002 mg/kg	0.002	EPA 8260	EPP	10/24/98

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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Keystone LABORATORIES, INC.

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Work Order: 1810.0606
Sample No: 1825599
Report Date: 11/5/98

Site Name / Sample Description
Camp Dodge Preliminary Assess.
DP-4 @ 1 ft. - Demo Pit

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Carbon Disulfide	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
Carbon Tetrachloride	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
Chlorobenzene	0.007 mg/kg	0.001	EPA 8260	EPP	10/24/98
Chloroethane	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
Chloroform	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
Chloromethane	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
cis-1,2-Dichloroethylene	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
cis-1,3-Dichloropropene	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
Dibromochloromethane	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
Ethylbenzene	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
Methylene Chloride	< 0.005 mg/kg	0.005	EPA 8260	EPP	10/24/98
Naphthalene	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
[illegible]trachloroethylene	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
[illegible]uene	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
trans-1,2-Dichloroethylene	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
trans-1,3-Dichloropropene	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
Trichloroethylene	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
Vinyl Chloride	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
Xylenes, total	< 0.001 mg/kg	0.001	EPA 8260	EPP	10/24/98
Determination of explosives.					
1,3,5-Trinitrobenzene	< 5. mg/kg	5.	EPA 8330	FWM	11/02/98
1,3-Dinitrobenzene	< 5. mg/kg	5.	EPA 8330	FWM	11/02/98
2,4 & 2,6-Dinitrotoluene	< 5. mg/kg	5.	EPA 8330	FWM	11/02/98
2,4,6-Trinitrotoluene	< 5. mg/kg	5.	EPA 8330	FWM	11/02/98
2-Amino-Dinitrotoluene	< 5. mg/kg	5.	EPA 8330	FWM	11/02/98
2-Nitrotoluene	< 5. mg/kg	5.	EPA 8330	FWM	11/02/98
3-Nitrotoluene	< 5. mg/kg	5.	EPA 8330	FWM	11/02/98
4-Amino-Dinitrotoluene	< 5. mg/kg	5.	EPA 8330	FWM	11/02/98
4-Nitrotoluene	< 5. mg/kg	5.	EPA 8330	FWM	11/02/98
HMX	< 5. mg/kg	5.	EPA 8330	FWM	11/02/98
Nitrobenzene	< 5. mg/kg	5.	EPA 8330	FWM	11/02/98
RDX	< 5. mg/kg	5.	EPA 8330	FWM	11/02/98
[illegible]tryl	< 5. mg/kg	5.	EPA 8330	FWM	11/02/98

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Work Order: 1810.0606
Sample No: 1825599
Report Date: 11/5/98

Site Name / Sample Description
Camp Dodge Preliminary Assess.
DP-4 @ 1 ft. - Demo Pit

Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
Determination of general chemistry parameters.					
Percent Solids	76.9 %		EPA	EPP	10/27/98

Lee Mangrich
Keystone Laboratories, Inc.

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ANALYTICAL REPORT

Report To

Kevin Armstrong
Montgomery-Watson
11107 Aurora Avenue

Des Moines, IA 50322

Sample Information

Work Order: 1810.0606
Date Received: 10/20/98 10:40 AM
Collector: Kevin Armstrong
Collector Phone: 515-253-0830
Report Date: 11/05/98

Site Information

Camp Dodge Preliminary Assess.
Des Moines, IA

Comments

Specific sample comments (if any) are shown below.

Sample No : Description : Date Collected : Matrix

Analyte	Analysis Result		Detection Limit	Method	Analyst	Date Analyzed
5600 IN-UP - Incinerator Area : 10/19/98 1:30:00 PM : water						
nzene	< 1.	ug/L	1.	Iowa OA-1	TVA	10/21/98
Toluene	< 1.	ug/L	1.	Iowa OA-1	TVA	10/21/98
Ethylbenzene	< 1.	ug/L	1.	Iowa OA-1	TVA	10/21/98
Xylenes, total	< 1.	ug/L	1.	Iowa OA-1	TVA	10/21/98
N-Nitrosodimethylamine	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Aniline	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Phenol	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Bis(2-Chloroethyl) Ether	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
2-Chlorophenol	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
1,3-Dichlorobenzene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
1,4-Dichlorobenzene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Benzyl Alcohol	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
1,2-Dichlorobenzene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Bis(2-Chloroisopropyl) Ether	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
2-Methylphenol	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
n-Nitroso-di-n-propylamine	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Hexachloroethane	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
(3 & 4)-Methylphenol	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Nitrobenzene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
phorone	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98

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Work Order: 1810.0606
Report Date: 11/5/98

Sample No : Description : Date Collected : Matrix Analyte	Analysis Result		Detection Limit	Method	Analyst	Date Analyzed
2-Nitrophenol	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
2,4-Dimethylphenol	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Bis(2-Chloroethoxy) Methane	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
2,4-Dichlorophenol	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
1,2,4-Trichlorobenzene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Naphthalene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
4-Chloroaniline	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Hexachlorobutadiene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
4-Chloro-3-methylphenol	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
2-Methylnaphthalene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Hexachlorocyclopentadiene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
2,4,6-Trichlorophenol	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
2,4,5-Trichlorophenol	< 50.	ug/L	50.	EPA 8270	FIZ	11/04/98
2-Chloronaphthalene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
2-Nitroaniline	< 50.	ug/L	50.	EPA 8270	FIZ	11/04/9
Acenaphthylene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Dimethylphthalate	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
2,6-Dinitrotoluene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
3-Nitroaniline	< 50.	ug/L	50.	EPA 8270	FIZ	11/04/98
Acenaphthene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
2,4-Dinitrophenol	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Dibenzofuran	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
4-Nitrophenol	< 20.	ug/L	20.	EPA 8270	FIZ	11/04/98
2,4-Dinitrotoluene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Fluorene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Diethyl Phthalate	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
4-Chlorophenyl Phenyl Ether	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
4-Nitroaniline	< 20.	ug/L	20.	EPA 8270	FIZ	11/04/98
4,6-Dinitro-2-methylphenol	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
N-Nitrosodiphenylamine	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Azobenzene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
4-Bromophenyl Phenyl Ether	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Hexachlorobenzene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Benzidine	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Pentachlorophenol	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98

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Report Date: 11/5/98

Sample No : Description : Date Collected : Matrix Analyte	Analysis Result		Detection Limit	Method	Analyst	Date Analyzed
Phenanthrene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Anthracene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Di-n-butyl Phthalate	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Fluoranthene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Pyrene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Butyl Benzyl Phthalate	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Benzo(a)anthracene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
3,3'-Dichlorobenzidine	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Bis(2-ethylhexyl)Phthalate	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Chrysene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Di-n-octyl Phthalate	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Benzo(b)Fluoranthene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Benzo(k)Fluoranthene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
[illegible]zo(a)Pyrene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
[illegible]eno(1,2,3-cd)Pyrene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Dibenzo(a,h)anthracene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Benzo(g,h,i)perylene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Arsenic, total	< 0.005	mg/L	0.005	EPA 7060	LAR	10/26/98
Barium, total	0.107	mg/L	0.01	EPA 6010	LAR	10/26/98
Cadmium, total	< 0.001	mg/L	0.001	EPA 7131	LAR	10/28/98
Chromium, total	< 0.03	mg/L	0.03	EPA 6010	LAR	10/26/98
Lead, total	0.006	mg/L	0.005	EPA 7421	LAR	10/22/98
Mercury, total	< 0.0005	mg/L	0.0005	EPA 7470	BNS	10/27/98
Selenium, total	< 0.005	mg/L	0.005	EPA 7740	LAR	10/28/98
Silver, total	< 0.03	mg/L	0.03	EPA 6010	LAR	10/26/98

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ANALYTICAL REPORT

Report To

Kevin Armstrong
Montgomery-Watson
11107 Aurora Avenue

Des Moines, IA 50322

Sample Information

Work Order: 1810.0606
Date Received: 10/20/98 10:40 AM
Collector: Kevin Armstrong
Collector Phone: 515-253-0830
Report Date: 11/05/98

Site Information

Camp Dodge Preliminary Assess.
Des Moines, IA

Comments

Specific sample comments (if any) are shown below.

Sample No : Description : Date Collected : Matrix Analyte	Analysis Result	Detection Limit	Method	Analyst	Date Analyzed
1825601 IN-DN - Incinerator Area : 10/19/98 1:15:00 PM : water					
Benzene	< 1. ug/L	1.	Iowa OA-1	TVA	10/21/98
Toluene	< 1. ug/L	1.	Iowa OA-1	TVA	10/21/98
Ethylbenzene	< 1. ug/L	1.	Iowa OA-1	TVA	10/21/98
Xylenes, total	< 1. ug/L	1.	Iowa OA-1	TVA	10/21/98
N-Nitrosodimethylamine	< 10. ug/L	10.	EPA 8270	FIZ	11/04/98
Aniline	< 10. ug/L	10.	EPA 8270	FIZ	11/04/98
Phenol	< 10. ug/L	10.	EPA 8270	FIZ	11/04/98
Bis(2-Chloroethyl) Ether	< 10. ug/L	10.	EPA 8270	FIZ	11/04/98
2-Chlorophenol	< 10. ug/L	10.	EPA 8270	FIZ	11/04/98
1,3-Dichlorobenzene	< 10. ug/L	10.	EPA 8270	FIZ	11/04/98
1,4-Dichlorobenzene	< 10. ug/L	10.	EPA 8270	FIZ	11/04/98
Benzyl Alcohol	< 10. ug/L	10.	EPA 8270	FIZ	11/04/98
1,2-Dichlorobenzene	< 10. ug/L	10.	EPA 8270	FIZ	11/04/98
Bis(2-Chloroisopropyl) Ether	< 10. ug/L	10.	EPA 8270	FIZ	11/04/98
2-Methylphenol	< 10. ug/L	10.	EPA 8270	FIZ	11/04/98
n-Nitroso-di-n-propylamine	< 10. ug/L	10.	EPA 8270	FIZ	11/04/98
Hexachloroethane	< 10. ug/L	10.	EPA 8270	FIZ	11/04/98
(3 & 4)-Methylphenol	< 10. ug/L	10.	EPA 8270	FIZ	11/04/98
Nitrobenzene	< 10. ug/L	10.	EPA 8270	FIZ	11/04/98
Isophorone	< 10. ug/L	10.	EPA 8270	FIZ	11/04/98

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Work Order: 1810.0606
Report Date: 11/5/98

Sample No : Description : Date Collected : Matrix Analyte	Analysis Result		Detection Limit	Method	Analyst	Date Analyzed
2-Nitrophenol	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
2,4-Dimethylphenol	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Bis(2-Chloroethoxy) Methane	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
2,4-Dichlorophenol	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
1,2,4-Trichlorobenzene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Naphthalene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
4-Chloroaniline	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Hexachlorobutadiene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
4-Chloro-3-methylphenol	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
2-Methylnaphthalene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Hexachlorocyclopentadiene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
2,4,6-Trichlorophenol	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
2,4,5-Trichlorophenol	< 50.	ug/L	50.	EPA 8270	FIZ	11/04/98
2-Chloronaphthalene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
2-Nitroaniline	< 50.	ug/L	50.	EPA 8270	FIZ	11/04/98
Acenaphthylene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Dimethylphthalate	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
2,6-Dinitrotoluene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
3-Nitroaniline	< 50.	ug/L	50.	EPA 8270	FIZ	11/04/98
Acenaphthene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
2,4-Dinitrophenol	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Dibenzofuran	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
4-Nitrophenol	< 20.	ug/L	20.	EPA 8270	FIZ	11/04/98
2,4-Dinitrotoluene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Fluorene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Diethyl Phthalate	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
4-Chlorophenyl Phenyl Ether	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
4-Nitroaniline	< 20.	ug/L	20.	EPA 8270	FIZ	11/04/98
4,6-Dinitro-2-methylphenol	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
N-Nitrosodiphenylamine	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Azobenzene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
4-Bromophenyl Phenyl Ether	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Hexachlorobenzene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Benzidine	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Pentachlorophenol	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98

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Work Order: 1810.0606
Report Date: 11/5/98

Sample No : Description : Date Collected : Matrix Analyte	Analysis Result		Detection Limit	Method	Analyst	Date Analyzed
Phenanthrene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Anthracene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Di-n-butyl Phthalate	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Fluoranthene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Pyrene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Butyl Benzyl Phthalate	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Benzo(a)anthracene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
3,3'-Dichlorobenzidine	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Bis(2-ethylhexyl)Phthalate	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Chrysene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Di-n-octyl Phthalate	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Benzo(b)Fluoranthene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Benzo(k)Fluoranthene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Benzo(a)Pyrene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Indeno(1,2,3-cd)Pyrene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/9
Dibenzo(a,h)anthracene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Benzo(g,h,i)perylene	< 10.	ug/L	10.	EPA 8270	FIZ	11/04/98
Arsenic, total	< 0.005	mg/L	0.005	EPA 7060	LAR	10/26/98
Barium, total	0.117	mg/L	0.01	EPA 6010	LAR	10/26/98
Cadmium, total	< 0.001	mg/L	0.001	EPA 7131	LAR	10/28/98
Chromium, total	< 0.03	mg/L	0.03	EPA 6010	LAR	10/26/98
Lead, total	< 0.005	mg/L	0.005	EPA 7421	LAR	10/22/98
Mercury, total	< 0.0005	mg/L	0.0005	EPA 7470	BNS	10/27/98
Selenium, total	< 0.005	mg/L	0.005	EPA 7740	LAR	10/28/98
Silver, total	< 0.03	mg/L	0.03	EPA 6010	LAR	10/26/98

Keystone Laboratories, Inc.

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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CHAIN OF CUSTODY RECORD

Keystone LABORATORIES, INC.

☒ 600 E. 17th St. S.
Newton, IA 50208
Phone: 515-792-8451
Fax: 515-792-7989

☐ 3012 [illegible]orough Ave.
Waterloo, IA 50701
Phone: 319-235-4440
Fax: 319-235-2480

☐ 1515 Walnut St.
Kansas City, MO 64108
Phone: 816-471-1515
Fax: 816-471-7915

PRINT OR TYPE INFORMATION BELOW

SAMPLER: Kevin Armstrong
SITE NAME: Camp Dodge Preliminary Assessment
ADDRESS:
CITY/ST/ZIP:
PHONE:

REPORT TO:
NAME: Kevin Armstrong
COMPANY NAME: Montgomery Watson
ADDRESS: 11107 Aurora Ave
CITY/ST/ZIP: Des Moines IA 50322
PHONE: 515-253-0830
FAX: 515-253-9592

BILL TO:
NAME: Kevin Armstrong
COMPANY NAME:
ADDRESS:
CITY/ST/ZIP:
PHONE:

Keystone Quote No.: (If Applicable)

CLIENT SAMPLE NUMBER	DATE	TIME	SAMPLE LOCATION	NO. OF CONTAINERS	MATRIX	GRAB/COMPOSITE	ANALYSES REQUIRED: OA-1	BNAs - 8270	Metals (RCRA)	Explosives	VOCs-8260				LAB USE ONLY: LABORATORY SAMPLE NUMBER
DP-3 1ft	10/19/98	0940	Demo Pit	1	soil	G				✓	✓				1825598
DP-4 1ft	10/19/98	0955	Demo Pit	1	soil	G				✓	✓				25599
IN-UP	10/19/98	1330	Incinerator Area	5	water	G	✓	✓	✓						25600
IN-DN	10/19/98	1315	Incinerator Area	5	water	G	✓	✓	✓						25601
DP-3 3ft	10/19/98	0945	Demo Pit	1	soil	G	HOLD →								25602
DP-4 3ft	10/19/98	1000	Demo Pit	1	soil	G	HOLD →								25603

LABORATORY WORK ORDER NO.: 1810.0606

SAMPLE CONDITION AS RECEIVED:
CHILLED ☐ YES ☐ NO
SEALED ☐ YES ☐ NO

SAMPLE CONDITION/COMMENTS

KGA

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time	Turn-Around:
Kevin G Armstrong	10-20-98 / 830			☒ Standard ☐ Rush ____ Contact Lab Prior to Submission
Relinquished by: (Signature)	Date / Time	Received for Lab by: (Signature)	Date / Time	Remarks: HOLD last two samples.
		[illegible]	10-20-98 / 10:40	

Original - Return with Report • Yellow - Lab Copy • Pink - Sampler Copy

FORM: CCR 7-97

Keystone LABORATORIES, INC.

MEMBER ACIL

ANALYTICAL REPORT

Report To

Kevin Armstrong
Montgomery-Watson
11107 Aurora Avenue

Des Moines, IA 50322

Sample Information

Work Order: 1811.0761
Date Received: 11/25/98 10:50 AM
Collector: Kevin Armstrong
Collector Phone: 515-253-0830
Report Date: 12/10/98

Site Information

IAARNG
Camp Dodge Prelim. Assess.

Comments

Specific sample comments (if any) are shown below.

Sample No : Description : Date Collected : Matrix

Analyte	Analysis Result		Detection Limit	Method	Analyst	Date Analyzed
8918 RD-UP - Range Dump : 11/24/98 10:30:00 AM : sediment						
nzene	< 0.2	mg/kg	0.2	Iowa OA-1	TVA	12/02/98
Toluene	< 0.2	mg/kg	0.2	Iowa OA-1	TVA	12/02/98
Ethylbenzene	< 0.2	mg/kg	0.2	Iowa OA-1	TVA	12/02/98
Xylenes, total	< 0.2	mg/kg	0.2	Iowa OA-1	TVA	12/02/98
TEH, as gasoline	< 20.	mg/kg	20.	Iowa OA-2	FWM	12/04/98
TEH, as #2 diesel fuel	< 20.	mg/kg	20.	Iowa OA-2	FWM	12/04/98
TEH, as waste oil	43.	mg/kg	20.	Iowa OA-2	FWM	12/04/98
Total Extractable Hydrocarbons	43.	mg/kg	20.	Iowa OA-2	FWM	12/04/98
Arsenic	6.4	mg/kg	2.	EPA 7060	LKM	12/01/98
Barium	179.	mg/kg	1.	EPA 6010	LKM	12/01/98
Cadmium	< 1.	mg/kg	1.	EPA 6010	LKM	12/01/98
Chromium	15.	mg/kg	3.	EPA 6010	LKM	12/01/98
Lead	< 50.	mg/kg	50.	EPA 6010	LKM	12/01/98
Mercury	< 0.5	mg/kg	0.5	EPA 7471	BNS	12/01/98
Selenium	< 2.	mg/kg	2.	EPA 7740	LKM	12/02/98
Silver	< 3.	mg/kg	3.	EPA 6010	LKM	12/01/98
Percent Solids	59.8	%		EPA	MMM	11/30/98
Soil extraction for TEH				EPA 3550	PTB	12/02/98

Sample analyzed cannot be reliably matched with the laboratory standard used for waste oil.

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

Note: This report may not be reproduced except in full, without written approval of the laboratory.

Keystone
LABORATORIES, INC.

MEMBER ACIL

Work Order: 1811.0761
Report Date: 12/10/98

Sample No : Description : Date Collected : Matrix Analyte	Analysis Result		Detection Limit	Method	Analyst	Date Analyzed
1828919 RD-DN - Range Dump : 11/24/98 9:45:00 AM : sediment						
Benzene	< 0.2	mg/kg	0.2	Iowa OA-1	TVA	12/02/98
Toluene	< 0.2	mg/kg	0.2	Iowa OA-1	TVA	12/02/98
Ethylbenzene	< 0.2	mg/kg	0.2	Iowa OA-1	TVA	12/02/98
Xylenes, total	< 0.2	mg/kg	0.2	Iowa OA-1	TVA	12/02/98
TEH, as gasoline	< 5.	mg/kg	5.	Iowa OA-2	FWM	12/04/98
TEH, as #2 diesel fuel	< 5.	mg/kg	5.	Iowa OA-2	FWM	12/04/98
TEH, as waste oil	< 5.	mg/kg	5.	Iowa OA-2	FWM	12/04/98
Total Extractable Hydrocarbons	< 5.	mg/kg	5.	Iowa OA-2	FWM	12/04/98
Arsenic	2.9	mg/kg	2.	EPA 7060	LKM	12/01/98
Barium	114.	mg/kg	1.	EPA 6010	LKM	12/01/98
Cadmium	< 1.	mg/kg	1.	EPA 6010	LKM	12/01/98
Chromium	12.	mg/kg	3.	EPA 6010	LKM	12/01/98
Lead	< 50.	mg/kg	50.	EPA 6010	LKM	12/01/98
Mercury	< 0.5	mg/kg	0.5	EPA 7471	BNS	12/01/98
Selenium	< 2.	mg/kg	2.	EPA 7740	LKM	12/02/98
Silver	< 3.	mg/kg	3.	EPA 6010	LKM	12/01/98
Percent Solids	76.	%		EPA	MMM	11/30/98
Soil extraction for TEH				EPA 3550	PTB	12/02/98

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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Keystone LABORATORIES, INC.

MEMBER ACIL

Work Order: 1811.0761
Report Date: 12/10/98

Sample No : Description : Date Collected : Matrix Analyte	Analysis Result		Detection Limit	Method	Analyst	Date Analyzed
1828920 RD-UP - Range Dump : 11/24/98 10:35:00 AM : water						
Benzene	< 1.	ug/L	1.	Iowa OA-1	TVA	12/01/98
Toluene	< 1.	ug/L	1.	Iowa OA-1	TVA	12/01/98
Ethylbenzene	< 1.	ug/L	1.	Iowa OA-1	TVA	12/01/98
Xylenes, total	< 1.	ug/L	1.	Iowa OA-1	TVA	12/01/98
TEH, as gasoline	< 0.1	mg/L	0.1	Iowa OA-2	EPP	12/02/98
TEH, as #2 diesel fuel	< 0.1	mg/L	0.1	Iowa OA-2	EPP	12/02/98
TEH, as waste oil	< 0.1	mg/L	0.1	Iowa OA-2	EPP	12/02/98
Total Extractable Hydrocarbons	< 0.1	mg/L	0.1	Iowa OA-2	EPP	12/02/98
Arsenic, total	0.006	mg/L	0.005	EPA 7060	LKM	12/01/98
Barium, total	0.158	mg/L	0.01	EPA 6010	LKM	12/01/98
Cadmium, total	< 0.001	mg/L	0.001	EPA 7131	LAR	12/09/98
Chromium, total	< 0.03	mg/L	0.03	EPA 6010	LKM	12/01/98
[illegible]d, total	0.011	mg/L	0.005	EPA 7421	LAR	12/03/98
[illegible]rcury, total	< 0.0005	mg/L	0.0005	EPA 7470	BNS	12/01/98
Selenium, total	< 0.005	mg/L	0.005	EPA 7740	LKM	12/02/98
Silver, total	< 0.03	mg/L	0.03	EPA 6010	LKM	12/01/98
Water extraction for TEH				EPA 3510	PTB	12/01/98

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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Keystone
LABORATORIES, INC.

MEMBER ACIL

Work Order: 1811.0761
Report Date: 12/10/98

Sample No : Description : Date Collected : Matrix Analyte	Analysis Result		Detection Limit	Method	Analyst	Date Analyzed
1828921 RD-DN - Range Dump : 11/24/98 9:55:00 AM : water						
Benzene	< 1.	ug/L	1.	Iowa OA-1	TVA	12/01/98
Toluene	< 1.	ug/L	1.	Iowa OA-1	TVA	12/01/98
Ethylbenzene	< 1.	ug/L	1.	Iowa OA-1	TVA	12/01/98
Xylenes, total	< 1.	ug/L	1.	Iowa OA-1	TVA	12/01/98
TEH, as gasoline	< 0.1	mg/L	0.1	Iowa OA-2	CLM	12/03/98
TEH, as #2 diesel fuel	< 0.1	mg/L	0.1	Iowa OA-2	CLM	12/03/98
TEH, as waste oil	< 0.1	mg/L	0.1	Iowa OA-2	CLM	12/03/98
Total Extractable Hydrocarbons	< 0.1	mg/L	0.1	Iowa OA-2	CLM	12/03/98
Arsenic, total	< 0.005	mg/L	0.005	EPA 7060	LKM	12/01/98
Barium, total	0.111	mg/L	0.01	EPA 6010	LKM	12/01/98
Cadmium, total	< 0.001	mg/L	0.001	EPA 7131	LAR	12/09/98
Chromium, total	< 0.03	mg/L	0.03	EPA 6010	LKM	12/01/98
Lead, total	< 0.005	mg/L	0.005	EPA 7421	LAR	12/03/9[illegible]
Mercury, total	< 0.0005	mg/L	0.0005	EPA 7470	BNS	12/01/9[illegible]
Selenium, total	< 0.005	mg/L	0.005	EPA 7740	LKM	12/02/98
Silver, total	< 0.03	mg/L	0.03	EPA 6010	LKM	12/01/98
Water extraction for TEH				EPA 3510	PTB	12/01/98

Jeff King
Keystone Laboratories, Inc.

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

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CHAIN OF CUSTODY RECORD

Keystone LABORATORIES, INC.

☒ 600 E. 17th St. S.
Newton, IA 50208
Phone: 515-792-8451
Fax: 515-792-7989

☐ 3012 [illegible]rough Ave.
Waterloo, IA 50701
Phone: 319-235-4440
Fax: 319-235-2480

☐ 1515 Walnut St.
Kansas City, MO 64108
Phone: 816-471-1515
Fax: 816-471-7915

7.4

PRINT OR TYPE INFORMATION BELOW

SAMPLER: Kevin Armstrong
SITE NAME: IA ARNG - Camp Dodge Prelim. Assess.
ADDRESS:
CITY/ST/ZIP:
PHONE:

REPORT TO:
NAME: Kevin Armstrong
COMPANY NAME: Montgomery Watson
ADDRESS: 11107 Aurora Ave
CITY/ST/ZIP: Des Moines IA 50322
PHONE: 515-253-0830
FAX: 515-253-9592

BILL TO:
NAME: Kevin Armstrong
COMPANY NAME: Montgomery Watson
ADDRESS:
CITY/ST/ZIP:
PHONE:

Keystone Quote No.: (If Applicable)

CLIENT SAMPLE NUMBER	DATE	TIME	SAMPLE LOCATION	NO. OF CONTAINERS	MATRIX	GRAB/COMPOSITE	ANALYSES REQUIRED: OA-1/OA-2	ANALYSES REQUIRED: RCRA Metals							LAB USE ONLY: SAMPLE CONDITION/COMMENTS	LABORATORY SAMPLE NUMBER
RD-UP	11/24/98	1030	Range Dump	2	sediment	G	✓	✓								1828918
RD-DN	11/24/98	945	Range Dump	2	sediment	G	✓	✓								28919
RD-UP	11/24/98	1035	Range Dump	4	water	G	✓	✓								28920
RD-DN	11/24/98	955	Range Dump	4	water	G	✓	✓								28921
	KGA															

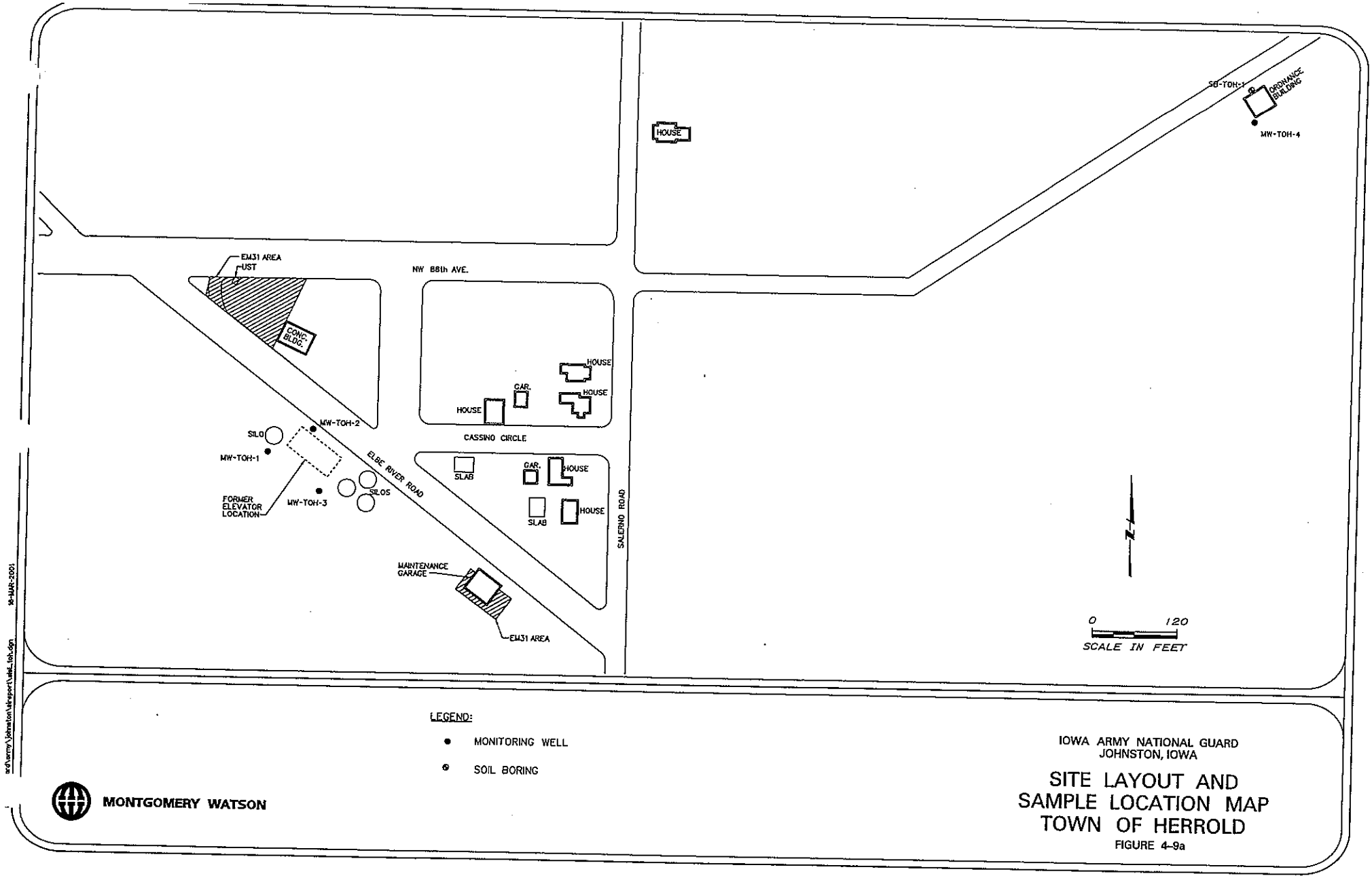
LABORATORY WORK ORDER NO.: 1811.0761

SAMPLE CONDITION AS RECEIVED:
CHILLED ☒ YES ☐ NO
SEALED ☒ YES ☐ NO

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time	Turn-Around:
Kevin Armstrong	11-25-98 / 0900			☒ Standard ☐ Rush _____ Contact Lab Prior to Submission
Relinquished by: (Signature)	Date / Time	Received for Lab by: (Signature)	Date / Time	Remarks:
		[illegible]	11-25-98 / 10:50	

Original - Return with Report • Yellow - Lab Copy • Pink - Sampler Copy

FORM: CCR 7-97



LEGEND:

- ● MONITORING WELL
- ⊗ SOIL BORING

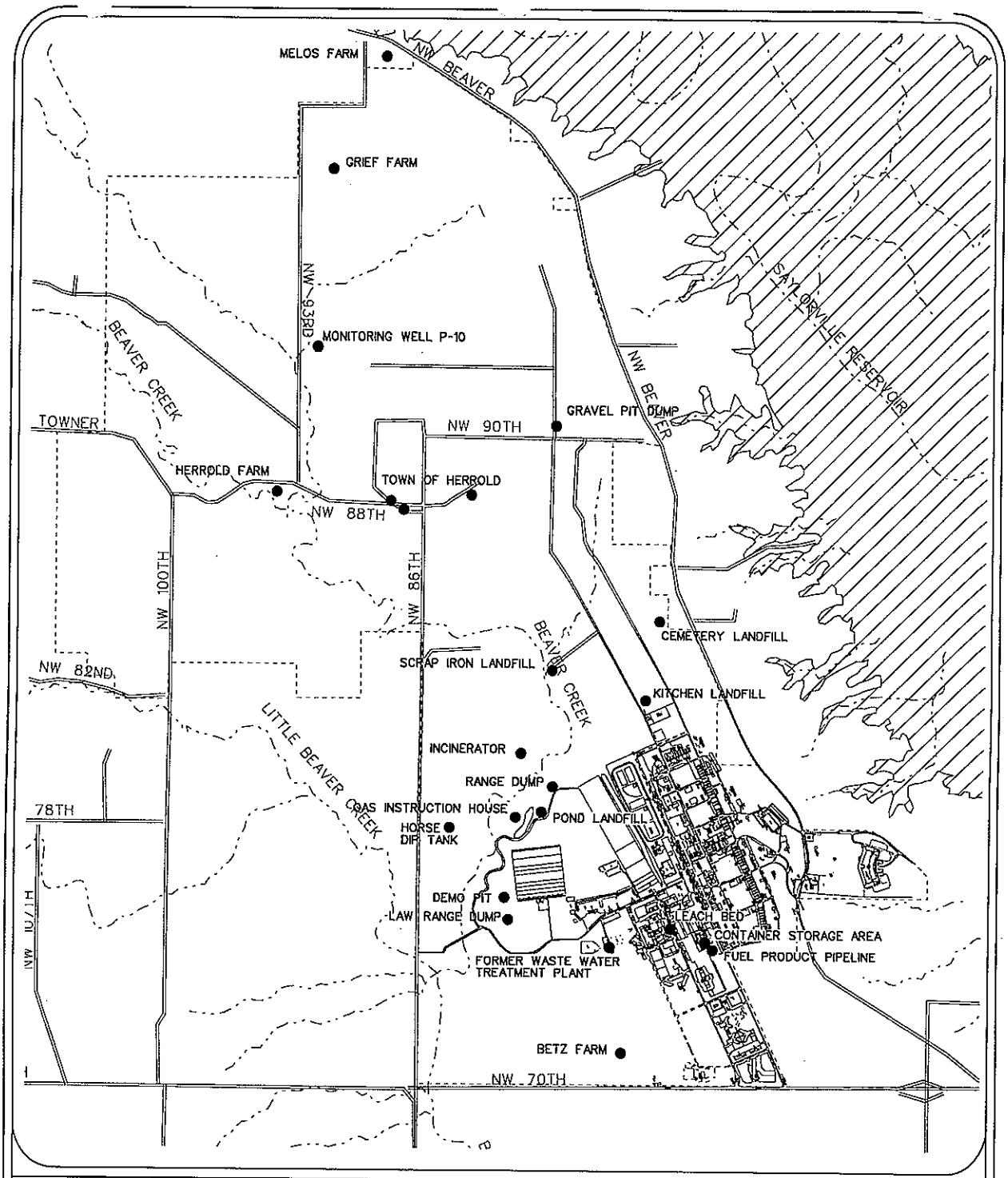
src\army\johnston\site-sport\site_loh.dgn 16-MAR-2001

MONTGOMERY WATSON

IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

SITE LAYOUT AND SAMPLE LOCATION MAP TOWN OF HERROLD

FIGURE 4-9a



N

0 2000

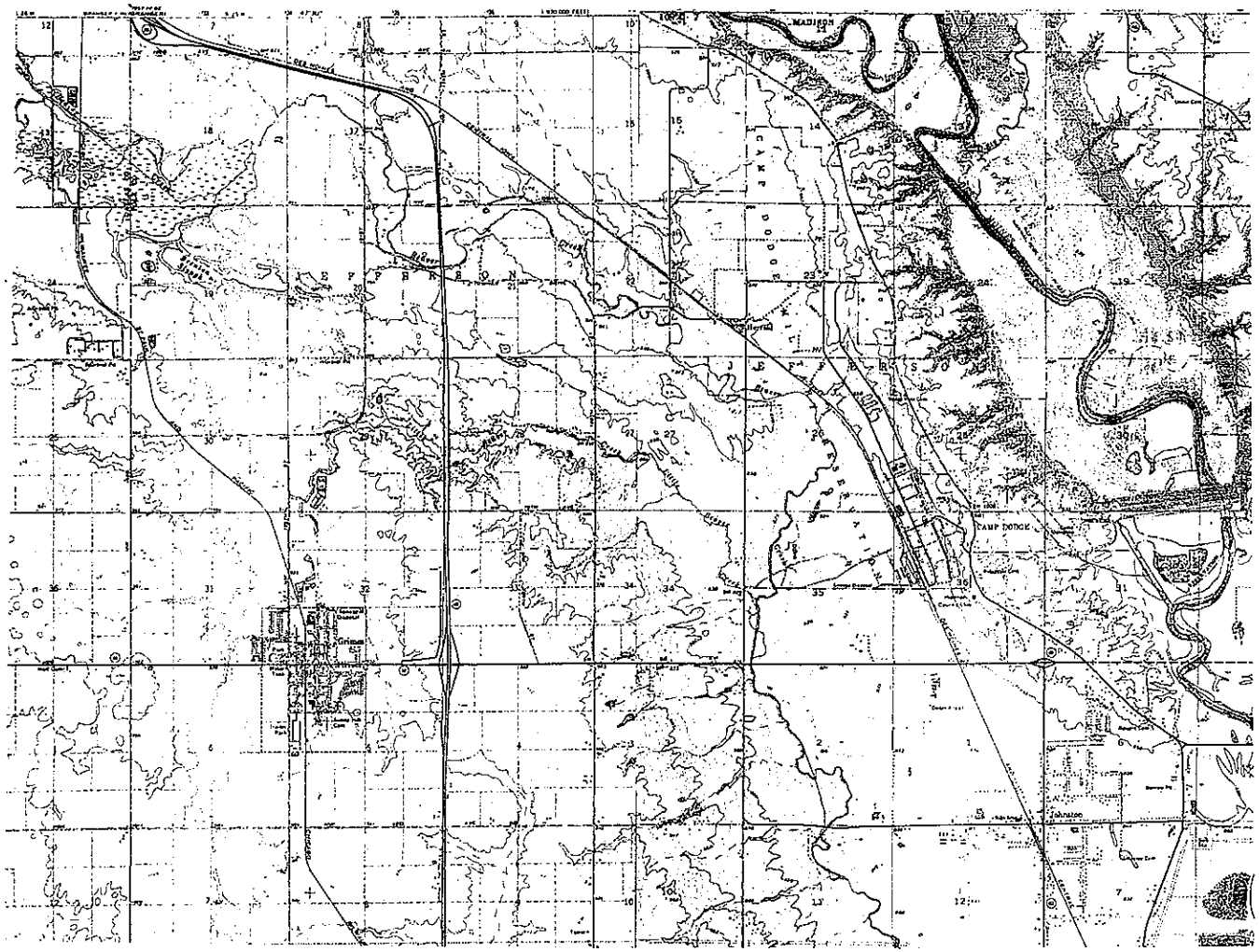
SCALE IN FEET

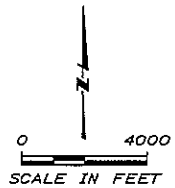
MONTGOMERY WATSON

IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

LOCATION OF PA SITES

FIGURE 3-1





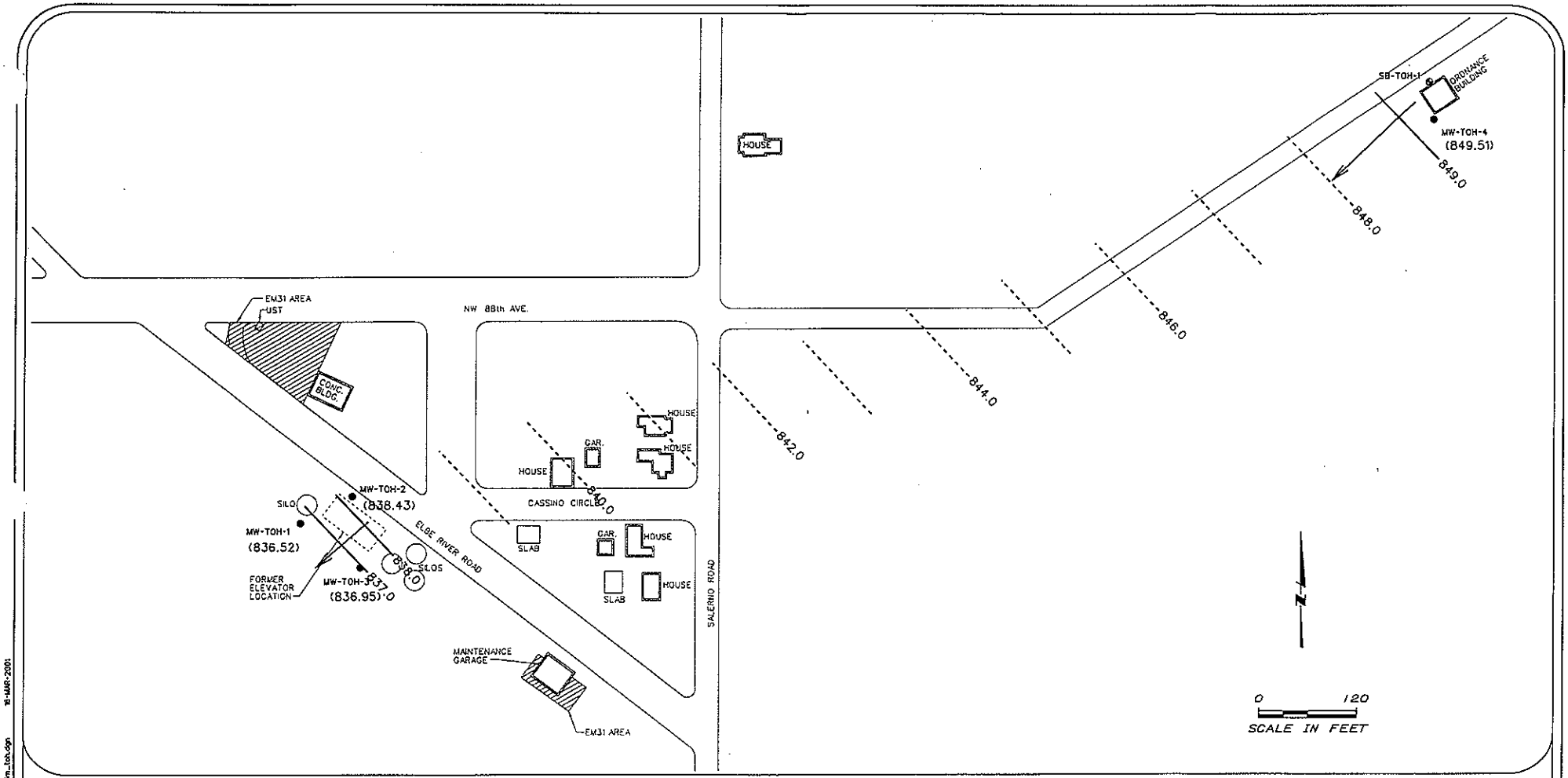
MAP SOURCE:
USGS TOPOGRAPHIC MAPS,
DES MOINES NW QUADRANGLE (1976),
GRIMES QUADRANGLE (1976).

MONTGOMERY WATSON

IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

TOPOGRAPHIC MAP

FIGURE 2-3



LEGEND:

- ● MONITORING WELL
- ⊙ SOIL BORING
- ← INFERRED DIRECTION OF GROUNDWATER FLOW
- —— WATER TABLE CONTOUR
- (836.95) WATER TABLE ELEVATION

MONTGOMERY WATSON

IOWA ARMY NATIONAL GUARD
JOHNSTON, IOWA

GROUNDWATER FLOW DIRECTION MAP NOVEMBER 16, 2000 TOWN OF HERROLD

FIGURE 4-9b

\army\johnston\sireport\gldm_toh.dgn 16-MAR-2001

Fields of Opportunities

STATE OF IOWA

CHESTER J. CULVER, GOVERNOR
PATTY JUDGE, LT. GOVERNOR

DEPARTMENT OF NATURAL RESOURCES
RICHARD A. LEOPOLD, DIRECTOR

December 20, 2007

Curtis Madsen
Iowa Army National Guard
Building B-61, Camp Dodge
7700 NW Beaver Drive,
Johnston, Iowa 50131-1902

Re: Additional Site Inspection Activities, Camp Dodge Training Site, Johnson, Iowa dated November 30, 2007

Dear Mr. Madsen

The Iowa Department of Natural Resources, Contaminated Sites Section (Department), has reviewed the above referenced report describing the groundwater perchlorate testing performed by MWH. The Department agrees with the findings, conclusions, and recommendations found within. The Department considers the sites found in the August 2007 Additional Site Inspection Activities Report (Scrap Iron Landfill, Demolition Pit, Former Wastewater Treatment Plant, Drinking Water Wells #7 and #8, Fuel Product Pipeline and the Former Bulk Fuel Point) to be properly assessed and no further environmental work is required.

If you have any questions or need further information please feel free to call or e-mail at (515) 281-4171 or dan.cook@dnr.iowa.gov.

Sincerely,

Daniel Cook
Environmental Specialist Senior
Contaminated Sites

c: Ron King U.S. Environmental Protection Agency, N. 5th Street, Kansas City, Kansas 66101

IDNR Field Office 5

Camp Dodge
Joint Maneuver Training Center
Polk County, Iowa

Integrated Natural Resources Management Plan

2013
Plan Period 2013-2017

Iowa Army National Guard

August 2013

Final

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Camp Dodge
Johnston, Iowa

Integrated Natural Resources Management Plan

2002–2007

Signature Page

This Integrated Natural Resources Management Plan (INRMP) meets the requirements for INRMPs listed in the Sikes Act (16 U.S.C. 670a *et seq.*), AR 200–3, and the "Executive Summary and Scope" within this plan. It has set appropriate and adequate actions for conserving and protecting the natural resources of Camp Dodge training areas.

APPROVING OFFICIALS - NATIONAL GUARD BUREAU

DATE

5 September 2001

RICHARD O. MURPHY
Colonel, National Guard Bureau
Chief, Environmental Programs Division

APPROVING OFFICIALS - IOWA ARMY NATIONAL GUARD

DATE

17 Sep 01

RON DARDIS
Major General, Iowa ANG
The Adjutant General

17 Sep 01

MARK E. ZIRKELBACH
Colonel, Iowa ARNG
Deputy Adjutant General, Army

11 Sept 01

MICHAEL A. GARDNER
Colonel, Iowa ARNG
Chief of Staff, Army

17 Sep 01

MICHAEL BEAMAN
Colonel, Iowa ARNG
Deputy Chief of Staff for Operations

13 Sep 01

ROBERT C. KING
Colonel, Iowa ARNG
Public Affairs Officer

18 Sep 01

BERNARD P. KOZOSKY
Colonel, National Guard Bureau
U.S. Property and Fiscal Officer, Iowa

20 Sep 01

DAVID B. ROGERS
Colonel, Iowa ARNG
Construction and Facilities Management Officer

13 SEP 01

MICHAEL A. KUEHN
Major, Iowa ARNG
Staff Judge Advocate

10 Sep 01

CURTIS L. MADSEN
Environmental Program Manager
Iowa ARNG

10 Sep 01

MARY L. JONES
Natural and Cultural Resources Manager
Iowa ARNG

Review for Operation and Effect For Plan Period 2013-2017

At the end of the period covered by the previous Integrated Natural Resources Management Plan (INRMP) update, the document was evaluated for operation and effect. At this time the Iowa Army National Guard (IA ARNG) solicited input from interested parties and regulatory agency partners (listed in Appendices F and G).

Current guidance stipulates that if the INRMP requires only minor updates, these updates may be noted and the original master INRMP will continue to be in force. If major changes have occurred in the site's known natural resources or in the types of activities occurring at the training area, then the document must be revised and public input invited.

It was determined that changes to the known natural environment at Camp Dodge were minor and that although some military units have reorganized, their training impacts on the post have not changed significantly. Letters of concurrence from the Iowa Department of Natural Resources, the United States Fish and Wildlife Service and the State Historical Preservation Officer have been solicited and are included in Appendix G.

The updated INRMP has been revised in the attached document, to include updated natural and cultural resources information, as well as changes in training activities.

2013 INRMP Update Changes to 2007-2012 INRMP Update	
Section Number	**Change**
Review for Operation and Effect	Updated to current status.
1.3	Military mission updated to latest unit configuration. No significant change to land use.
1.6	Training Site Utilization updated to latest unit training needs. No significant change to land use.
3.6.1	Update to agricultural land use figures.
5.8	Agricultural statistics updated.
6.0	Added reference and discussion of required component plans outlined in the latest National Guard Bureau guidance.
References	Added additional research documents completed since the last INRMP.
Appendix H	Updated project list with new timeline. Projects delayed due to mission change and funding limitations are noted.
Appendix J	Added funding matrix outlining sources of funding.
Appendix K	Added appendix to outline land management changes to increase protection of migratory birds.
Appendix L	Added updated Integrated Wildland Fire Management Plan.
Appendix M	Added bald eagle protection protocol should nesting begin on CDJMTC.
Various appendices	Removed documents pertaining to earlier updates. They are filed with their respective five-year plan.

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Camp Dodge Joint Maneuver Training Center
Johnston, Iowa

Integrated Natural Resources Management Plan
2013 Update
Plan Years 2013-2017

SIGNATURE PAGE

This Integrated Natural Resources Management Plan (INRMP) update meets the requirements for INRMPs listed in the Sikes Act (16 U.S.C. 670a *et seq*), AR 200-1, and the "Executive Summary and Scope" within this plan. It has set appropriate and adequate actions for conserving and protecting the natural resources of Camp Dodge training areas.

Reviewing Officials – Iowa Army National Guard

Timothy E Orr — 13 Aug 13
TIMOTHY E. ORR — Date
Major General, Iowa National Guard
The Adjutant General

Gary A Freese — 9 Jul 13
GARY A. FREESE — Date
Colonel, Iowa Army National Guard
Chief of Staff

Scott A. Ayres — 9 Jul 13
SCOTT A. AYRES — Date
Colonel, Iowa Army National Guard
Director of Installation Management (G7)

26 July 2013
MICHAEL G. AMUNDSON — Date
Colonel, Iowa Army National Guard
Director of Operations (G3)

10 JULY 2013
BENJAMIN S. CORELL — Date
Brigadier General, Iowa Army National Guard
Installation Officer in Charge

Mary L Jones — 9 Jul 13
MARY L. JONES — Date
Natural Resources Manager
Iowa Army National Guard

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Reviewing Officials – U.S. Fish and Wildlife Service
Reviewing Officials – Iowa Department of Natural Resources

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June 5, 2013

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The Iowa Army National Guard is conducting a Review of Operation and Effect (ROE) as part of the 5-year review of our Integrated Natural Resources Management Plan (INRMP). The development of the original document (and its update for plan years 2008-2012), was coordinated with various agencies, including the Iowa Department of Natural Resources and the US Fish and Wildlife Service, so that management goals complemented other natural resources management plans and met all legal requirements.

At this time we would request any input and advice from your office as we begin the review and update process. I have included a summary of the current INRMP status and the proposed updates we are considering. I have also included an electronic copy of the draft copy of the five-year update.

The biggest change in the plan is the application of survey data in instituting a new grassland mowing plan. The post has become a popular nesting area for a number of "at risk" bird species. Mowing and haying plans are being adjusted to provide increased protection during the nesting season. The survey data and updated mowing plan can be found in Appendix K of the enclosed CD.

I may be contacted by mail at the above address or by phone at 515-252-4648. If you would prefer to correspond by e-mail, please contact me at mary.l.jones389.nfg@mail.mil .

Sincerely,

Mary L Jones

Mary L. Jones
Senior Environmental Specialist
Iowa Army National Guard

MEMORANDUM FOR RECORD

As of 19 August 2013 no reply or comment has been received from the Iowa Department of Natural Resources or the regional office of the United States Fish and Wildlife Service.

On 7 August 2013 Heidi Weber of the Rock Island USFWS Field Office contacted this office, discussed the plan and indicated that the plan is sufficient. We are to contact her if there are further questions of issues.

On 8 August 2013 Drew Becker, the bald eagle specialist with USFWS also contacted this office to ensure that all questions had been answered as to the management of bald eagles at Camp Dodge, should the bald eagle begin nesting or nesting behaviors on the post.

Mary L. Jones

Executive Summary

Preparation and implementation of this Integrated Natural Resources Management Plan (INRMP) is required by the Sikes Act Improvement Amendments and several other Federal directives and regulations. The purpose of the Camp Dodge Joint Maneuver Training Center INRMP is to establish a plan for the management of natural resources that is consistent with the use of Camp Dodge to ensure the preparedness of the military forces. This report focuses on the management of natural resources in the training area (land outside of the cantonment area), which includes approximately 3,300 acres. The INRMP will support the military mission at Camp Dodge, ensure sound land management, and ensure compliance with all relevant regulations. This plan will provide the Installation Officer in Charge (OIC), Training Center personnel, the G7 Environmental Branch, and Camp Dodge Director of Public Works (DPW) maintenance personnel with the ability to:

- Ensure natural resource management and military training are accomplished concurrently.
- Manage the natural resources of Camp Dodge in coordination with federal and state natural resource agencies.
- Identify existing natural resources at the site.
- Identify and protect environmentally sensitive areas.
- Choose optimal seasons and sites for training activities with knowledge of the resources present.
- Minimize damage and destruction of valuable natural resources from fire, insects, disease, and military training activities.
- Promote natural resources education, public awareness and outreach programs.
- Maintain positive public relations by conducting good land stewardship.

The focus of this plan is on the implementation of goals, objectives and management techniques based on ecosystem management, with the additional goal of ensuring military preparedness. This plan was prepared in cooperation with the United States Fish and Wildlife Service (USFWS) and the Iowa Department of Natural Resources (IDNR).

The methods in this INRMP are designed to emphasize natural resource stewardship and sustainability while improving training opportunities and minimizing maintenance. In addition, the plan outlines how these principles are applied to other related Iowa Army National Guard plans.

The original INRMP was written for plan years 2001-2007 and was updated for the period 2008-2012. The current update proposes minor changes to wildlife management based on additional survey data. There have also been minor changes training mission and updates to wetland protection and enhancement projects.

Annual reviews and updates will be placed in Appendix H. Five year reviews will be coordinated with the regional office of the USFWS and the IDNR. Annual reviews will be coordinated with the USFWS field office and the IDNR.

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Chapter 1.0 Training Site Overview

1.1 Location and Size

The Camp Dodge Joint Maneuver Training Center (shortened to “Camp Dodge” for the remainder of the document) is located in Polk County in central Iowa (Figure 1), partially within the city limits of Johnston, Iowa. It occupies parts of Sections 14 to 16, 21 to 23, 25 to 28, and 35 to 36 in Township 80N, Range 25W. Additional training land is under a mutual use agreement with the U.S. Army Corps of Engineers and encompasses land parcels to the east and north of the camp proper. Camp Dodge has a total area of approximately 4,400 acres and has the capacity to train 2,400 Soldiers at one time. In addition to military training, Camp Dodge is used by federal, state, and local law enforcement agencies, schools, business groups, not-for-profit groups, and the general public. This plan focuses on the management of natural resources in the training area (land outside the cantonment area), approximately 3,300 acres.

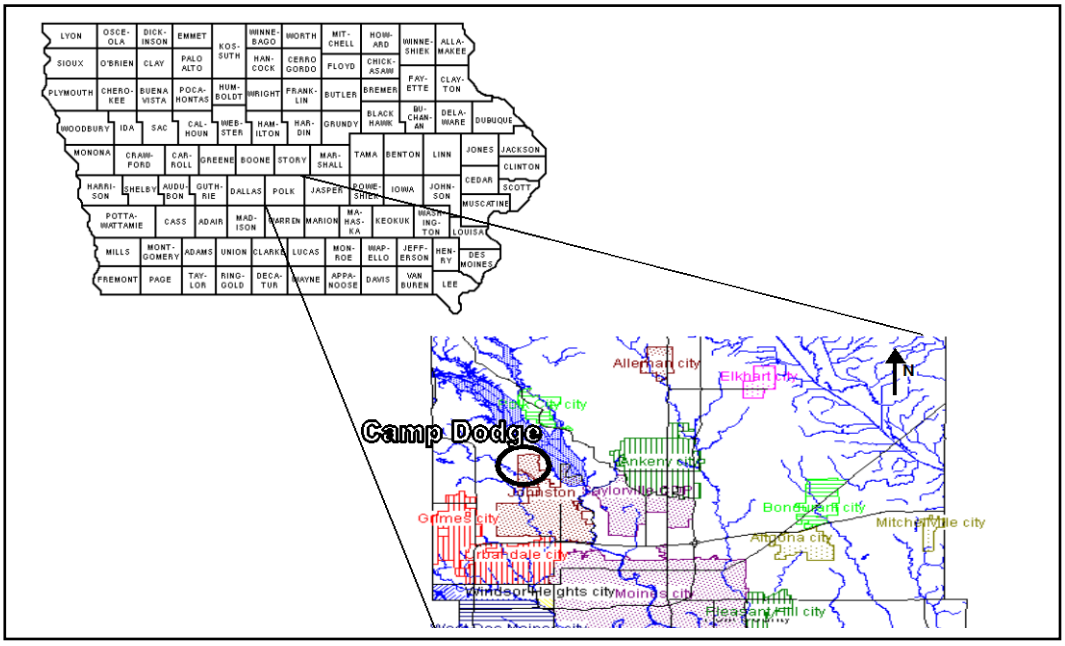


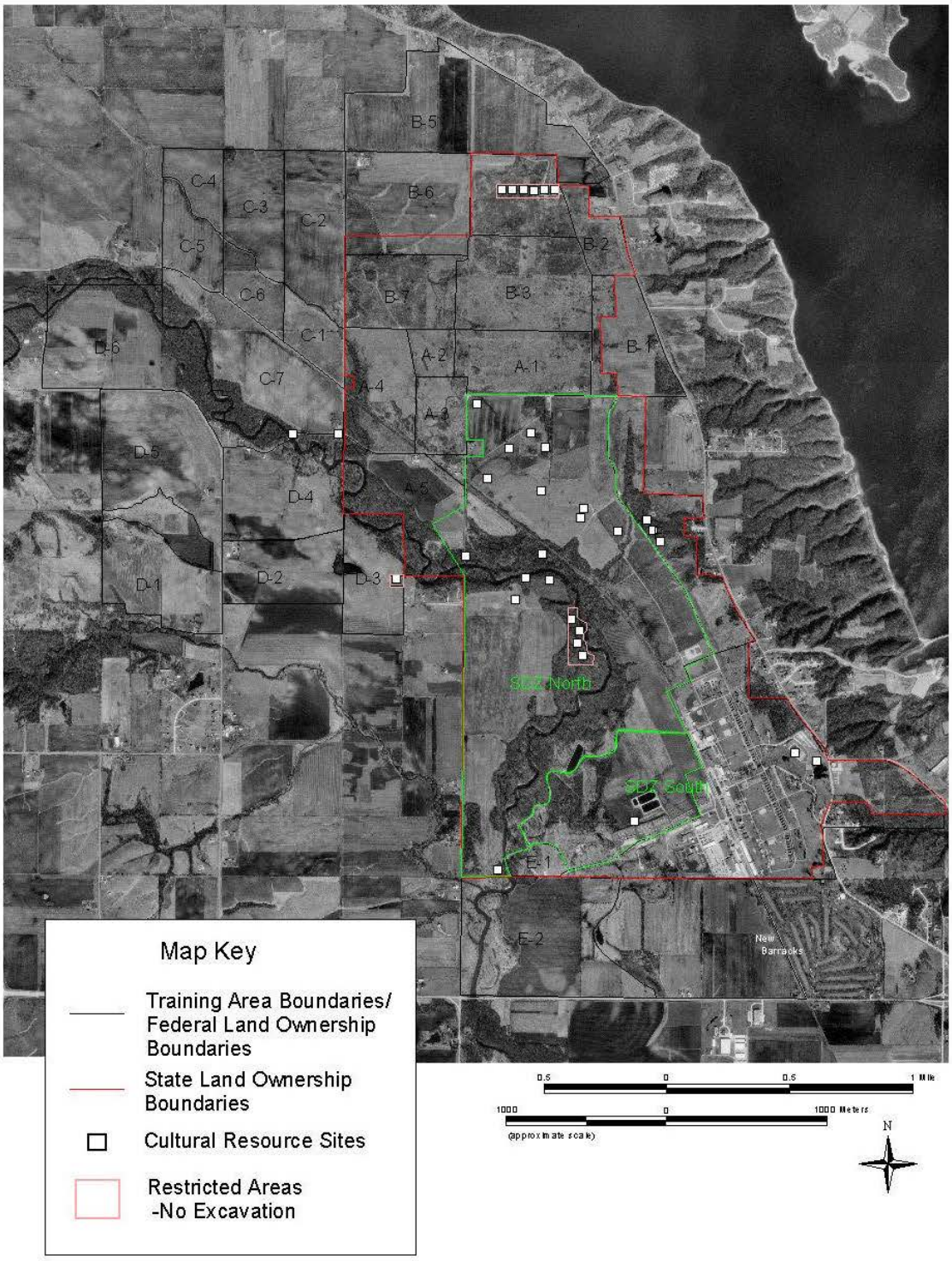
Figure 1. Location of Camp Dodge

1.2 History of the Area

Between 1909 and 1917, the State of Iowa purchased land to supplement an existing federal rifle range, formally establishing Camp Dodge. This area was greatly expanded during World War I with the purchase of 2,695 acres by the federal government. The post decreased in size after WWI and then was expanded again in WWII. Federal land acquired during this time was conveyed to the State of Iowa in 1954. At present, approximately 2,400 acres are under a state reversionary clause. This land is owned by the State of Iowa while used by the Iowa Army National Guard (IA ARNG), but if not used by the IA ARNG then it reverts to federal ownership. The boundaries of the land under the reversionary clause are designated in Figure 2. The remaining 2,000 acres are federally owned and licensed for use for IA ARNG facilities and training. The boundaries of this area are shown in Figure 2.

1.3 Military Mission

The IA ARNG and its training site, Camp Dodge Joint Maneuver Training Center, serve many missions. The IA ARNG provides combat ready units and equipment in support of the federal military strategy. On a state level, the IA ARNG provides units and equipment to protect life and property, preserve peace and order, and ensure the public safety of Iowa’s citizens as ordered by the Governor of Iowa. Iowa communities are served by the Iowa Army National Guard’s participation in programs that add value to the communities of Iowa.



Camp Dodge Integrated Natural Resource Management Plan
Figure 2. Federal and State Land Ownership Boundaries at Camp Dodge. Potential and Known Cultural Resource Locations

Among the Guard units stationed in Iowa are 2nd Brigade Combat Team (2BCT), 734th Regional Support Group (734 RSG), 67th Troop Command (67 TC), Joint Forces Headquarters (JFHQ) and 671st Troop Command (671 TC).

Camp Dodge is located just north of Iowa's capitol, Des Moines. The post serves as a training area for the Army National Guard, Air National Guard, Army Reserve, Marine Corps Reserve, Reserve Officer's Training Corps, as well as state law enforcement agencies. Local communities are also encouraged to make use of IA ARNG facilities. Camp Dodge is used by state agencies, youth organizations, veteran's groups, and environmental groups. Camp Dodge training areas are also used for hunting and fishing.

The main post is the site of various military equipment maintenance and rehabilitation facilities, including the National Maintenance Training Center (NMTC), the Regional Training Institute (RTI), and the Ordnance Training Regiment (OTR).

Camp Dodge is also home station for the Battle Command Training Center - Dodge (BCTC), Distributed Learning Development Center (DLDC), a Military Entrance Processing Station (MEPS), the Iowa Communications Network (ICN), Iowa Homeland Security and Emergency Management (HLSEM), Midwest Counter Drug Training Center (MCTC), and Iowa Law Enforcement Academy (ILEA).

In Training Year (TY) 2011, over 219,110 service members from all DOD branches of service, including the more that 7,400 Iowa National Guard Soldiers used CDJMTC. In addition, 119,655 civilians used facilities at Camp Dodge Joint Maneuver Training Center.

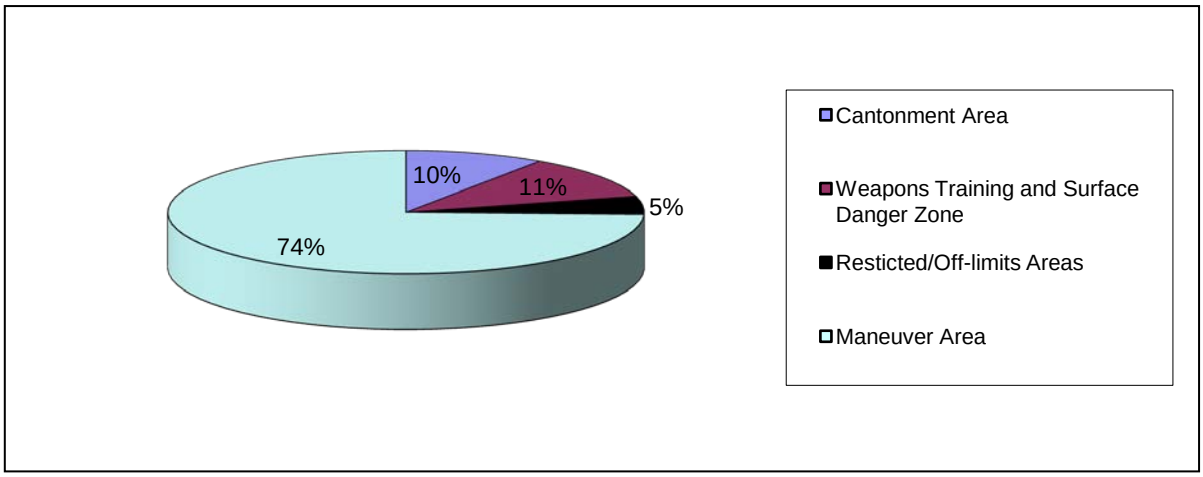
1.4 Philosophy of Land Management at Camp Dodge

The overall philosophy of land management at Camp Dodge is the concept that the primary mission of military use drives natural resources management. In other words, because the National Guard must train, the National Guard will manage Camp Dodge to preserve valuable training resources. Responsible land management will ensure sustainable use of training lands as well as taking into consideration the surrounding environment and public concerns.

1.5 Description of Training Site Land Use

Camp Dodge has a total land area of approximately 4,400 acres. Most of the buildings, streets, and training facilities are located in the cantonment area (approximately 400 acres). Natural resources are maintained in a suburban like fashion in this intensively used area. The weapons training ranges and adjoining surface danger zone occupy nearly 500 acres. Much of the surface danger zone is leased for row crop production. About 200 acres of Camp Dodge is restricted or off limits to training activities. Restricted areas include archeological/historical sites, wetlands, native prairie, and disturbed areas under special management. Finally, about 3,300 acres of land are available for training and maneuver exercises. This land is divided into training facilities and areas according to the various training exercises that are done at these sites. This area contains a variety of vegetation types from dense bottomland forest to mowed hay fields. Chart 1 shows the Land Use percentage at Camp Dodge.

Chart 1. Land Uses on Camp Dodge



1.6 Training Site Utilization

The impact of military training activities on natural resources may be considered heavy, medium, or light, depending on the activity and length of stay in a particular area. Military training activities in the training area that have the potential to impact the natural resources of Camp Dodge are:

- Tactical bivouac occupation
- Cold weather operations
- Command post exercises without troops
- Tactical cover and concealment
- Field fortifications
- Construction of obstacles
- Breaching and clearing operations
- Cut, fill, and haul operations
- Rafting/bridge operations
- Fording operations
- Communications equipment setup and use
- Water purification
- Helicopter traffic

Mechanized training at Camp Dodge includes wheeled and tracked vehicles of various weights and heights. The ground pressure for the wheeled vehicles is much greater than the tracked vehicles, enabling wheeled vehicles to potentially cause greater soil compaction and have a higher likeliness of getting stuck during wet soil conditions. Tracked vehicles generally cause the greatest vegetation damage if they are turned quickly.

Generally, transportation, communication, medical and water purification units are the primary users of wheeled vehicles in the training area. Camp Dodge also serves as a drop zone for airborne, air assault, and air mobility training.

1.7 Existing Natural Resources at Camp Dodge

Camp Dodge is the only Iowa National Guard owned military training site in the state of Iowa. As such, the natural resources within the site's boundaries are exposed to repeated activities that may decrease the value of the resources if not adequately managed. Chapter 3 of this document describes these resources. Chapters 4 and 5 describe the methodology for managing these resources while remaining consistent with the Camp Dodge mission. The various resources that will be impacted and improved by following this INRMP include the soils, surface and groundwater resources, animal species inhabiting the site, and the various vegetation communities that exist in the landscape that makes up Camp Dodge.

1.8 Effects of the Military Mission on Natural Resources at Camp Dodge

Military training can have both negative effects and positive benefits to natural resources. Maneuver damage has by far the largest negative effect on the natural resources at Camp Dodge. Maneuvering heavy vehicles across even the best-suited landscapes can cause damage to vegetation and soils. For this reason, soils at Camp Dodge require timely land rehabilitation efforts at appropriate intervals. Vegetation (and occasionally soils) can be damaged by regular use on areas such as trails, bivouac sites, and firing points. Wildlife populations can also be harmed by field equipment training, small arms firing, or by mission-related wildfires.

Five basic management techniques can be used to minimize military training effects to the soil and vegetation resources. These techniques are: limit total use, redistribute use, modify kinds of uses, alter the types of use, and manipulate the natural resources for increased durability.

The greatest positive effect of the IA ARNG mission on natural resources is the military presence. IA ARNG land managers have instituted good land use practices such as reducing erosion and negative effects to streams and wetlands. Destructive landscape disturbances (for example, additional or new agricultural tillage, pesticide and fertilizer application, reduction of forest and wildlife habitat, and much recreational vehicle damage) are minimized or avoided on Camp Dodge, so that natural communities are relatively undisturbed and left to return to their natural compositions.

Chapter 2.0 Compliance and Responsibilities

2.1 Required and Relevant Environmental Regulations

Required and relevant environmental regulations (both federal and state) are referenced in Appendix A. There are at least 49 federal and state laws and regulations that apply to natural resources management. Copies of available laws and regulations are maintained in the IA ARNG Environmental Branch library, and are available for review by all personnel involved in natural resources management.

2.2 Environmental Review (NEPA Compliance)

The National Environmental Policy Act (NEPA) was created to identify environmental concerns with human activities to evaluate the environmental impact a proposed project would have on the surrounding area. The IA ARNG uses NEPA to ensure its activities are properly planned, coordinated, and documented. The IA ARNG prepares NEPA documentation for proposed unit projects at Camp Dodge that are beyond the existing level of documentation developed for the training site. This additional NEPA documentation can then be used for identification of potential problems or impacts on the natural resources of Camp Dodge.

NEPA is a three-stage process. The three steps are:

1. A Record of Environmental Consideration document is prepared for the project and, if the proposed action meets a categorical exclusion in 32 CFR 651 (Environmental Analysis of Army Activities, 29 March 2002), the project may proceed as planned.
2. An Environmental Assessment may be required when the conditions for categorical exclusion are not met. This often happens when extensive new military exercises, major construction, or land acquisition is planned; when the planned action involves a large area; or when wetlands or endangered species may be involved. A Finding of No Significant Impact (FONSI) is required for the action to proceed as planned. Environmental Assessments are comprehensive documents that describe a proposed action and the alternatives to the action. A review period is provided for public comment.
3. An Environmental Impact Statement (EIS) would be prepared if the Environmental Assessment indicates that more information is needed concerning the impact a proposed project would have on the environment. This can be a lengthy document that requires significant time to prepare. The EIS concludes in a Record of Decision (ROD) following a public comment period and public hearing.

This INRMP was a proposed action that was reviewed in accordance with NEPA and 32 CFR 651 prior to implementation of the projects, objectives and goals found within. If the INRMP is reviewed and only minor revisions are indicated, a Record of Environmental Consideration is appropriate.

2.3 Responsibilities

2.3.1 National Guard Bureau Responsibilities

At the Army National Guard Directorate, the Environmental Programs Division (ARNG-ILE), the Installations Division (ARNG - ILI), and Operations Division (ARNG-OD) formed a partnership in April 1996 to implement the Integrated Training Area Management (ITAM) Program (National Guard Bureau, 1996a). The ITAM program is now part of the Sustainable Range Program (SRP). The ITAM-related responsibilities of each Directorate are as follows:

- The ITAM program manager at ARNG-OD ensures coordination of the ITAM program with other training support requirements.
- The Natural Resources Manager at ARNG-ILE is responsible for reviewing the INRMP and advising the IA ARNG Environmental Branch, who also submits the plan to the U.S. Fish and Wildlife Service, the Iowa Department of Natural Resources, and the State Historical Society of Iowa (SHSI).
- The ARNG-ILI coordinates proposed construction projects with ARNG-OD and ARNG-ILE and provides design and construction support.

The National Guard Bureau issued ITAM policy and implementation guidance to the states (National Guard Bureau, 1996b). ITAM responsibilities for IA ARNG offices have been outlined with reference to NGB's implementation guidance document.

2.3.2 IA ARNG Responsibilities

IA ARNG responsibilities for implementation of the natural resources management plan have been identified and assigned to each project identified in this plan.

The Adjutant General (TAG) is responsible for the operations of the Iowa National Guard, including implementation of this INRMP. TAG ensures that all installation land users are aware of, and comply with procedures, requirements, or applicable laws and regulations that accomplish the objectives of the INRMP. TAG also ensures coordination of projects and construction between environmental, training, and engineering staffs. The installation's Environmental Quality Control Committee (EQCC), a component of the Installations Committee, is chaired by the Chief of Staff, Army (COS).

The G3 (formerly known as Deputy Chief of Staff for Operations [DCSOPS]) has the primary responsibility for planning, developing, and executing strategies, programs, and resources to train, mobilize and deploy, reconstitute and sustain units in order to provide ready military forces. Important to that goal is maintaining a high-quality training environment. The G3 is responsible for coordinating the ITAM program; developing a baseline of current and projected training requirements and training lands/facilities for the training site; assisting the Environmental Branch in determining carrying capacity for the training site by providing military usage and training data; planning for land use based on accomplishing training requirements while minimizing negative environmental effects.

The Camp Dodge Joint Maneuver Training Center section, which includes Public Works (formerly Buildings and Grounds), Range Operations, Logistics and Plans and Operations, is the primary stakeholder, who will ultimately implement this plan and assure its success. The personnel in this section are familiar with all aspects of the training site, including training scheduling (and conflicts), locations of training facilities, impairments or problems with human-made structures or natural functions, and needs for improvement or maintenance of the training land. The CDJMTC operations section ensures that Land Rehabilitation and Maintenance (LRAM) projects are identified and executed, vegetation cover is maintained on erodible soils, wetlands and rare species habitats are protected from construction and training activities, stream banks are monitored for erosion, pests are adequately managed and Environmental Awareness materials are distributed to the troops.

The G7 (formerly known as Construction and Facilities Management Officer [CFMO]) provides a full range of financial and engineering disciplines for all facilities under the jurisdiction of the IA ARNG, including Camp Dodge. The G7 is responsible for master planning and ensuring that all construction projects comply with environmental regulations.

The G7 Environmental Branch is responsible for characterizing flora, fauna, air quality, and water quality of the training sites, identifying compliance needs, and advising staff on the best ways to comply with federal and state environmental laws and regulations. The Environmental Branch provides technical assistance to training site personnel including: developing projects, securing permits, conducting field studies, providing Environmental Awareness materials, locating and mapping natural and cultural resources, preparing plans, annual review of the INRMP and a revision or update after five years. The Environmental Branch also oversees the National Environmental Policy Act (NEPA) process for the IAARNG.

The Public Affairs and Strategic Communications Office functions as a liaison with the public in public meetings and community educational events.

The Staff Judge Advocate (SJA) advises the IAARNG on laws and regulations that affect training land use and environmental compliance.

Chapter 3.0 Natural and Cultural Resources on Camp Dodge

The purpose of this chapter is to present baseline data relevant to the preparation and establishment of a plan that is consistent with Camp Dodge's mission and ensures stewardship of Camp Dodge's natural and cultural resources.

3.1 Physiography and Topography

Camp Dodge lies on what is called the Des Moines River Basin. The physiographic features of this basin are the result of an old erosional topography modified by several advances of continental glaciers and subsequent erosion within the past million years. The training site is located at the end of what is known as the Cary region of the Wisconsin Drift. This area is relatively flat and at one time contained numerous wetland areas. Camp Dodge is bisected from north to south by a two-mile section of Beaver Creek. This ancient river system, predating the larger Des Moines River valley, which now passes east of the site, is rich in geological and archaeological research potential. With both the upland ridges of the river valley, and the riparian lowlands, the area is abundant in natural resources with many diverse systems located in this small region.

3.2 Geology

During the Wisconsian glacial stage of the Pleistocene Epoch of geologic time, a surging lobe of glacial ice expanded briefly into Iowa from a much larger continental ice sheet, which lay to the north. This lasted approximately 1,500 years and occurred between 14,000 and 12,500 years ago. The geologically fresh deposits of the Des Moines Lobe still display the special landscape shapes that result from contact with melting and disintegrating glacial ice. As a result, Camp Dodge is home to what is believed to be the southernmost prairie pothole wetland left in existence.

Deposits that accumulated in direct contact with the Des Moines Lobe glacier compose the Dows Formation, which consists of two different kinds of glacial till. Sediment deposited beneath or at the base of the glacier is a uniform, massive, dense loam textured, slowly permeable, subglacial till called the Alden Member. This deposit is overlain by the Morgan Member, a less dense, variably textured till formed by mudflows, debris flows, and flowing water at the surface of the ice. The Morgan Member also contains continuous to discontinuous sand, gravel and silt deposits that accumulated in the former glacial karst system draining the stagnant glacier.

3.3 Soils

3.3.1 Soil Descriptions

The soils underlying Camp Dodge have developed since the last glacial episode 12,000 to 14,000 years ago. During the final retreat of the Wisconsian continental glacier, an ice sheet surged southward into central Iowa, forming what is now called the Des Moines Lobe (Prior, 1991). Three ice surges occurred in central Iowa, followed by a stagnation of the glacier and slow decay and disintegration of the ice sheet. An intricate array of rooms, crevices, and tunnels formed within and beneath the ice sheet as it melted. Camp Dodge is located on the southern tip of the Des Moines Lobe. The soils and landforms vary depending on how the ice sheet decayed at a particular location.

Soil types with similar characteristics, relief, and drainage are grouped into associations, named for the major soils it contains. Three soil associations are found in Camp Dodge: Clarion, Nicollet, and Webster; Clarion and Lester; and Dickinson and Farrar. Each soil association's origin, erodibility, and general location in Camp Dodge are described in Appendix B (Soil Conservation Service, 1990). The location of all soils is shown in Appendix B, Soils and their Properties.

To assist planners and training officers in recognizing highly erodible areas, the highly erodible land (HEL) rating, used by the Soil Conservation Service, is listed for all the soils found at Camp Dodge (Appendix B). This rate is determined by the universal soil loss equation and the wind erosion equation. The ratings range from 1 to 3. The value of 1 indicates that the map unit is highly erodible; 2, that the map unit is potentially highly erodible; and 3, that the map unit is not highly erodible.

3.3.2 Soil Erosion Potential

Clarion loam, Dickinson fine sandy loam, Lester loams, Storden and Zenor–Storden Complex soils with slopes greater than 5 percent are highly or potentially highly erodible (Appendix B). However, the Lester loams and Storden soils are predominately located on the ridge on the eastern side of Camp Dodge or form terraces along Beaver Creek in the bottomland forest, areas of limited or no training activity. The Dickinson fine sandy loam and Storden soils are located on the steep slopes surrounding the restored wetland (Training Areas D-1, D-5) and in Training Area C-7. Clarion loam is found on the steep slopes of eastern portions of Training Areas B-2 to B-4.

Other highly erodible soils include Farrar fine sandy loam. The Farrar soils with a slope of 5 to 9 percent cover moderately large areas of the Training Area (A-3, A-4 and D-2, D-4 respectively) and could be susceptible to high erosion depending on weather conditions.

Hydric soils are soils that have extended periods of wetness or flooding during the growing season. The hydric soils in Camp Dodge are designated on the map in Appendix B. Major hydric soils include Webster, Biscay, Spillville, Canisteo, and Palms. Many hydric soils are located in areas restricted to wheeled and tracked vehicles.

3.4 Water Resources

3.4.1 Surface Water

Drainage Systems. The training site is situated on the Des Moines River Basin, at the southernmost tip of the Upper Des Moines Sub basin. The entire Des Moines watershed includes 14,500 square miles of land and water, while the Upper portion of the watershed encompasses over 6,000 square miles.

Beaver Creek, several ponds, a 12-acre wetland, a 25-acre wetland and a 30-acre wetland are the primary surface water areas on Camp Dodge. Other hydrologic features include intermittent streams and some ephemeral wetlands that retain water for periods after rainfall events.

Beaver Creek, the major tributary running through Camp Dodge, has a total drainage area of 372 square miles. Beaver Creek flows along what was once the Des Moines River bed. The creek enters Camp Dodge property along the west boundary and moves off the reservation at the southwest boundary. Beaver Creek has an approximate overall length of 13 miles and enters the Des Moines River south of Camp Dodge. Sections of Camp Dodge are located within the 100-year flood plain.

The pond located between the Beaver Creek channel and the east boundary of the surface danger area receives much of the stormwater runoff from the Camp Dodge cantonment area, along with the treated effluent from the camp's wastewater treatment lagoons.

Floodplains. Floodplains in Camp Dodge occur along Beaver Creek and its tributaries. Areas surrounding Beaver Creek and its tributaries that are statistically expected to flood once during a hundred years (the 100-year floodplain) cover approximately 750 acres. A cross section of Beaver Creek typically consists of two terraces. The 100-year floodplain includes the terrace closest to the waterway and is predominately vegetated with bottomland hardwood forest. (See Appendix C, Wetland Inventory, for additional maps and information on wetlands and floodplains.)

3.4.2 Ground Water Resources

The occurrence of groundwater is influenced by geology. Geologic units that store and transmit substantial quantities of water are referred to as aquifers. There are two principal types of aquifers in Camp Dodge, the loose, unconsolidated materials near the land surface that comprise the surficial layer and the deep rock aquifers. Ground water supply on Camp Dodge is from the Beaver Channel strata. Recharge of the Beaver Channel strata occurs by surface water percolation through the glacial drift and precipitation.

Drinking water is drawn from two wells sunk into the Pleistocene aquifer. Permits limit drawing capacity for both wells combined to 800 gallons per minute or 1,152,000 gallons per day.

3.5.1 Climate Data

Camp Dodge has a continental climate meaning hot, humid summers and extremely cold winters with possible heavy snowfall. Average monthly temperatures range from 11.3 to 85˚ Fahrenheit (F) with a mean annual temperature of 48.6˚ F (9.2˚ C) (National Oceanic and Atmospheric Administration, 1951-1996). January is usually the coldest month and temperatures gradually increase, peaking in July. December, January, and February have mean monthly temperatures below freezing. The growing period occurs approximately when temperatures rise above 50˚ F (10˚ C), from April to September. Further details are in Figure 6 below.

Figure 6. Climate Diagram for Camp Dodge

Based on climate data for Des Moines, Iowa (Des Moines Int'l Airport), 1981-2010 normals

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Record high °F	67	78	91	93	103	105	110	110	101	95	82	69	110
Average high	31.0	36.0	49.0	62.2	72.3	81.6	85.7	83.8	76.1	63.1	47.9	34.0	60.2
Average low	14.0	18.5	29.3	40.7	51.8	61.7	66.5	64.5	54.8	42.6	30.1	17.6	41.0
Record low	−30 (−34)	−26 (−32)	−22 (−30)	9 (−13)	26 (−3)	37 (3)	47 (8)	40 (4)	26 (−3)	7 (−14)	−10 (−23)	−22 (−30)	−30 (−34)
Precipitation inches	.94	1.26	2.26	3.86	4.74	4.94	4.47	4.13	3.05	2.64	2.18	1.40	35.87
Snowfall inches	9.0	8.9	5.3	1.9	0	0	0	0	0	.4	2.9	8.7	37.1
Avg. precip. days	7.4	7.8	9.7	11.2	12.5	11.5	10.1	9.1	8.4	8.9	8.2	8.4	113.2
Avg. snowy days	6.9	5.9	3.6	1.1	0	0	0	0	0	.3	2.2	6.3	26.3
% possible sunshine	51	54	57	56	61	68	72	70	66	62	49	45	59

The probability of weekly precipitation is defined as the likelihood of receiving more than a given amount of total precipitation during a specified one-week period and was calculated following Tazik *et al*. (1990). Much of the precipitation during the summer falls during short, intense thunderstorm events.

The climate diagram and probability of weekly rainfall indicate annual precipitation and temperature trends that can be linked to average soil moisture conditions. Temperature greatly affects the length of time that soils will remain wet, but generally as precipitation increases and exceeds the temperature curve, soil moisture will be at its highest levels. Other periods of high soil moisture occur during the year, such as during the spring when soil is still partially frozen, but temperatures are high enough to allow precipitation to fall as rain. A potentially dry period occurs in October and November, where temperature and precipitation lines meet. This information may be useful for scheduling training and vegetation restoration projects.

Generally, soil moisture increases as the precipitation curve exceeds the temperature curve. Vertical lined areas are more humid. A potentially dry period occurs in October and November, where temperature and precipitation lines meet. Average temperatures above 10˚ C (50˚ F) indicate approximate growing season. Average temperatures below 0˚ C (32˚ F) indicate approximate periods of frozen soils.

3.5.2 Climate and Training Exercises

Average annual precipitation is undoubtedly the single most important factor in determining the ability of natural resources to recover from military maneuver training effects. The seasonal distribution of rainfall and the distribution of mechanized maneuver training throughout the year both influence the ability of the land to revegetate naturally or be revegetated through the Land Rehabilitation and Maintenance program with the assistance of the Installation OIC. Because Polk County receives 31.3 inches (79.5 cm) of rain per year, vegetative cover can be regenerated with minimal effort and in a short period of time (unlike desert ecosystems in the western United States). Training schedules that take into consideration rainfall and vegetation recovery enable Camp Dodge to be utilized for mechanized maneuver training.

Approximately 60 percent of all rainfall occurs from May to September, causing soils to be wetter during these months. The ideal time for scheduling exercises would be during the months of September, October, January or February when precipitation levels and the humid period are at their lowest during the year. Damage to vegetation and soils can be decreased by scheduling training exercises during these months, rather than during the months of March to May or November and December. Revegetation and maneuver damage repair is also most effective when performed as early as possible in the fall months (no later than November 15) or in the spring months when temperatures begin to increase and rainfall is high.

3.6 Communities, Ecosystems, and Biological Diversity of Camp Dodge

The success of a natural resources management plan is, in part, dependent upon an accurate assessment of the natural resources that are being managed. This section outlines the various ecosystems and species that must be managed in this INRMP.

3.6.1 Vegetation Community Classification

Descriptions of vegetation prior to European settlement from the General Land Office township plat maps indicate that the area of Camp Dodge was predominately prairie with timber along Beaver Creek and the Des Moines River (Anderson, 1996).

Fire was a major force in maintaining the prairie and savanna vegetation communities. Knowledge of the pre-European settlement vegetation communities provides a baseline framework by which to judge current land use practices and a model for possible vegetation community preservation and restoration at Camp Dodge.

Today, topography, waterways, and human activity have created diverse vegetation communities in Camp Dodge (Figure 8). Upland vegetation communities consist of agricultural land, successional old fields, prairie, woodland, and remnant oak savanna. Lowland vegetation communities include forested wetlands, wet meadows, rivers, and ponds. No federally designated threatened or endangered plant species have been found in Camp Dodge during vegetation surveys. However, two species have special state designation. *Viburnum prunifolium* (black haw) is classified as a species of special concern on the State of Iowa endangered, threatened and special concern plant list. In addition, tube penstemon *(Penstemon tubiflorus)* is listed as a state species of special concern. Appendix D contains a plant species list for Camp Dodge.

Table 1. Major Vegetation Communities (including cantonment area and buildings)

Vegetation Community	Total Area (acres)	Percent of Total
Agriculture - Row crop – State Lease	417	10
Hay Fields / Training Area	1155.3	26
Forest - Upland	92.8	2
Prairie	308.7	7
Sand Prairie	7.3	0.2
Savanna	19.5	0.4
Successional Field	1216.7	28
Wetland - Bottomland Forest	587.2	13
- Emergent, seasonal	93	2
- Low Prairie, Temporary	33.5	0.8
- Scrub/Shrub	39.2	0.9
Cantonment Area/Buildings	417.4	10
Total	4387.6	99.4* Totals rounded

Agricultural Land

Approximately 417 acres of Camp Dodge is leased for agricultural production (Table 1). Intensive agricultural production of corn and soybeans occurs on 417 acres, mostly in the northern surface danger zone. Hay and alfalfa are cut once or twice a year on about 1,100 acres, according to a habitat protection plan.

Agricultural production on Camp Dodge lands is conducted with standard agricultural leases. The leases are made for two to three years with the possibility of subsequent annual renewals. The leases are awarded by competitive bid and specify conditions of the land use. Specifications include the type of crop that can be planted, cutting times (for hay), and planting and fertilizing requirements. State row crop leases are administered through the State Quartermaster. Hay field/training areas are administered through land management agreements.

Prairie

Prairie communities are dominated by native perennial grasses and forbs and contain little to no woody vegetation. Plant species composition in the prairie community shifts along a moisture gradient from upland to low prairie areas. Camp Dodge contains both 5 acres of native prairie, located in Training Area E-1 and 229 acres of restored prairie communities (Table 1), contained in Training Areas B-6 and C-2 (Figure 8). Training Areas C-4 and C-5 are in the process of conversion to a prairie grass community. Woody plant control and prairie plant regeneration are achieved by periodic burning. Dominant plant species include: big bluestem (Andropogon gerardii), little bluestem (Andropogon scoparium), Indian grass (Sorghastrum nutans), switch grass (Panicum virgatum), and goldenrod (Solidago spp.).

Prairies growing in soils with greater sand content (often formed from windblown sand) are called sand prairies. Two small sand prairie areas occur in Camp Dodge, in Training Areas F and B-1, occupying 7.5 acres (Figure 8).

Successional Old Field

Large areas (1,167 acres, 27 percent of Camp Dodge) of the training and maneuver area are previously cultivated fields in various stages of plant succession. Clumps and rows of shrubs and understory trees have been allowed to grow to provide concealment during training exercises. Non–native plant species in

these areas play an acceptable role in the troop training activities at Camp Dodge. The grass surrounding the trees and shrubs is mowed once a year in late summer or fall to prevent excessive woody plant growth. Dominant plant species in the tree/shrub clumps: Siberian elm (Ulmus pumila), mulberry (Morus alba), black cherry (Prunus serotina), and red osier dogwood (Cornus stolonifera). The dominant plant species in the mowed area is brome grass (Bromus spp.).

Savanna

Savanna forms the transition land between prairie and forestland, an area comprised of large, widely spaced canopy trees with an understory of prairie grasses. Savanna exists as both oak barrens and pine barrens, but only oak savanna is found in the area of Camp Dodge. Savanna is one of the most threatened upland habitats in North America, now comprising about 0.02 percent of their original extent (Nuzzo, 1986). Two major factors have reduced savanna habitat. The first being that savanna was easily converted to agriculture, but is not easily recovered because of the long time needed for canopy trees to grow. Second, as a result of fire suppression, shrubs have invaded unconverted savanna (Haney and Apfelbaum, 1990).

Riparian Zones

Riparian zones are lands adjacent to streams, rivers, lakes, and wetlands. They can be highly productive ecosystems because they receive nutrients, water, and energy from the adjacent uplands. They are important features of the training site because they intercept overland drainage, reduce stream bank erosion, help trap sediments and nutrients, filter water and replenish groundwater reserves, and help to moderate flooding.

Upland Forest

Deciduous broad-leaved forests are characterized by woody vegetation 18 feet or taller in well drained soils. Upland forest communities cover 93 acres, occupying 2 percent of the total area of Camp Dodge (Table 1). Most of these forests are young (early successional), are of moderate to poor quality forests that are small in area, isolated remnants, contain degraded understory vegetation, or have many non-native shrubs. Dominant plant species include: green ash (Fraxinus pennsylvanica), black cherry (Prunis serotina), Siberian elm (Ulmus pumila), slippery elm (Ulmus rubra), and eastern cottonwood (Populus deltoides).

Wetlands

Wetlands are transitional areas between terrestrial and aquatic habitats where the water table is usually at or near the soil surface or the land is covered by shallow water. The wetlands at Camp Dodge vary in their hydrology, which ranges from temporarily or seasonally flooded to semi permanently flooded. All of the wetlands in Camp Dodge have been delineated to the planning level (Fuchs, 1998). Wetlands were classified as riverine or palustrine, following the U.S. Fish and Wildlife Service system (Cowardin, 1979). The riverine wetlands are lower tributary perennial wetlands with unconsolidated bottoms. They are found along the tributaries of Beaver Creek. Palustrine wetlands are nontidal wetlands dominated by deciduous broad-leaved forests, deciduous broad-leaved scrub/shrubs, or persistent emergent vegetation. All three of these wetland vegetation types are present at Camp Dodge and each wetland type is described below.

- Deciduous broad-leaved forests are characterized by woody vegetation 18 feet or taller with saturated or seasonally flooded water regimes. This vegetation class includes hardwood bottomland forests and is found primarily along Beaver Creek. A series of two terraces of variable width generally parallel Beaver Creek within Camp Dodge. Bottomland forests occur on the first terrace, an area subject to flooding and water ponding (ephemeral pools). Deciduous broad leaved forests cover 587 acres, 13.4 percent of the total area of Camp Dodge (Table 1). Dominant plant species include: black walnut (*Juglans nigra*), silver maple (*Acer saccharinum*), white oak (*Quercus alba*), green ash (*Fraxinus pennsylvanica*), sycamore (*Platanus occidentalis*), eastern cottonwood (*Populus deltoides*), and hackberry (*Celtis occidentalis*).
- Deciduous broad-leaved scrub/shrub wetlands are characterized by woody vegetation less than 18 feet tall with saturated or seasonally flooded water regimes. Approximately 17 acres of scrub/shrub vegetation occurs in Camp Dodge. Scrub/shrub is generally found along forest edges, in the transition zone between forest and emergent wetland areas, and along

shallow swales in the successional old-field communities. Dominant plant species include: sandbar willow (Salix exigua), slippery elm (Ulmus rubra), and red osier dogwood (Cornus stolonifera).

- Persistent emergent wetlands consist of erect, rooted, herbaceous hydrophytes that remain standing until the beginning of the next growing season. Emergent wetlands with both temporary and seasonal hydrologic regimes are present at Camp Dodge. Persistent emergent vegetation with a seasonal hydrology covers approximately 93 acres and is found in the restored and natural prairie potholes located in Camp Dodge. Dominant plant species include: *Carex* spp., cattail (*Typha latifolia*), and reed canary grass (*Phalaris arundinacea*). Temporary emergent wetlands (wet meadows) occupy approximately 34 acres (Table 1). Dominant species include Kentucky bluegrass (*Poa pratensis*), juncus (*Juncus tenius*), late goldenrod (*Solidago gigantea*), milkweed (*Asclepias incarnata*), brome grass (*Bromus* spp.), and *Carex* spp.

Non–native Plants and Noxious Weeds

A total of 599 plant species have been identified at Camp Dodge, and 114 (19 percent) of these species are not native to the United States (Eilers and Roosa, 1994). Non–native plant species are designated in Appendix D.

Six primary noxious weeds and nine secondary noxious weeds have been identified at Camp Dodge (97 Acts, ch 317.1). Iowa's noxious weed law treats primary and secondary weed species the same, but the law only requires that weed commissioners report on the status of the primary noxious weeds (John Pearson, Department of Natural Resources, personal communication). Iowa noxious weed species are listed in Table 4 and also designated in Appendix D. Landowners are expected to control all noxious weeds listed in Table 8 (97 Acts, ch 317.10).

Table 2. Designated Iowa Primary and Secondary Noxious Weeds Located at Camp Dodge

Scientific Name	Common Name
Primary Noxious Weeds	
Agropyron repens (L.) Beauv	Quackgrass
Carduus nutans L.	Musk thistle
Cirsium arvense (L.) Scop.	Canada thistle
Cirsium vulgare (Savi) Tenore	Bull thistle
Solanum carolinense L.	Horsenettle
Sonchus arvensis L.	Perennial sowthistle
Secondary Noxious Weeds	
Abutilon theophrasti Medic	Velvetleaf
Daucus carota L.	Wild carrot
Helianthus annuus L.	Wild sunflower
Plantago lanceolata L.	Buckhorn plantain
Rosa multiflora Thunb. ex Murray	Multiflora rose
Rumex acetosella L.	Red sorrel
Rumex altissimus Wood	Smooth dock
Rumx crispus L.	Curly dock
Xanthium strumarium L.	Cocklebur

3.6.2 Rare, Threatened, and Endangered Species Inventories

Survey for Listed Plant Species

Two state listed plant species were identified at the training site. Black haw (*Viburnum prunifolium*) is classified as a species of special concern on the State of Iowa endangered, threatened, and special concern plant list. Black haw is generally found on dry, well-drained soils such as savanna, upland dry, steep rocky hillsides, creeks and stream banks and woods edge. Tube penstemon (*Penstemon tubiflorus*) is also classified as a species of special concern. It occurs naturally in dry prairies, rocky

glades, and open woods from Nebraska to Texas, east to Mississippi, Tennessee, Indiana, and Wisconsin.

Survey for Amphibians and Reptiles

Surveys conducted at Camp Dodge in 1995 and 2000 identified 18 species of reptiles and amphibians on post. Eight species were amphibians and ten were reptile species. A complete list of observed species is found in Appendix E.

In addition to the observed species, other reptiles and amphibians are suspected, but were not confirmed by the studies. These include the northern red-bellied snake, Graham's water snake, red milk snake, and northern prairie skink. Camp Dodge contains potential habitat for these species and is located within their historical distribution area.

Survey for Currently and Formerly Listed Animal Species

Several threatened and endangered animal species could potentially inhabit Camp Dodge throughout the year. The now delisted bald eagle (*Haliaeetus leucocephalus*) is listed as wintering along large rivers, lakes, and reservoirs in Polk County. The state endangered peregrine falcon (*Falco pereginus*) is listed as breeding in Polk County. The piping plover (*Charadrius melodus*), which is threatened in Iowa, can be found nesting in Polk County while the federally endangered Indiana bat (*Myotis sodalis*) occurs in other areas of Polk County. Of the aforementioned species, only the Bald Eagle has been observed at Camp Dodge. However, nesting activities have not been discovered as of yet. Because of all of these species' classification and high potential for inhabiting the site necessitates the need to plan for them. The plains pocket mouse (*Perognathus flavescens*), designated as a State of Iowa endangered species, was live trapped and released over multiple years during scientific studies in Training Areas D–2 and D–3. The spotted skunk, (*Spilogale putorious*) has been sighted on a nearly annual basis in the center of Camp Dodge.

In addition to state and federal designations of at risk species, the Migratory Bird Treaty Act (16 U.S.C. 703-711) provides protection for migratory birds. Under the Act willful and knowing attempts to take, kill, or remove migratory birds is unlawful unless authorized by the U.S. Fish and Wildlife Service (USFWS). Feathers or other parts, nests, eggs, and products made from migratory birds are also covered by the Act. Take is defined as pursuing, hunting, shooting, poisoning, wounding, killing, capturing, trapping, or collecting. Migratory bird hunting regulations, established by the USFWS, allow the taking, during designated seasons, of ducks, geese, doves, rail, woodcock, and some other species. In addition, permits may be granted for various non-commercial activities involving migratory birds and some commercial activities involving captive-bred migratory birds. Misdemeanor or felony violations of the Act by individuals or organizations may result in significant fines or imprisonment. Surveys outlined in Appendix K outline additional efforts to protect nesting migratory bird species at Camp Dodge.

Bald eagle (*Haliaeetus leucocephalus*)

The bald eagle is the only eagle unique to North America. Mature bald eagles range from 7 to 14 pounds and have a wingspan as wide as 8 feet though 6 to 7 feet is more common. Features of this bird include large, pale eyes, a powerful yellow beak, distinctive white head and tail feathers, and black talons used to capture fish from the water. Bald eagles mate for life and normally lay two to three eggs, which hatch after about 35 days, once a year. Sometimes as few as half the offspring will survive their first year due to disease, lack of food, bad weather or human interference. The staple of the bald eagle's diet is fish although they also feed on ducks, rodents, snakes, and carrion. Because bald eagles are high on the food chain, they easily fall victim to bioaccumulation, most often of pesticides. Although delisted from the Endangered Species Act, bald eagles will continue to be protected by the **Bald and Golden Eagle Protection Act** (BGEPA) and the **Migratory Bird Treaty Act** (MBTA). Both acts protect bald eagles by prohibiting killing, selling or otherwise harming eagles, their nests or eggs. The BGEPA also protects eagles from disturbance. Should bald eagles begin to nest on CDJMTC, notification and management protocols are outlined in Appendix M.

Peregrine Falcon (*Falco pereginus*)

The peregrine falcon is a state endangered bird that ranges in weight from 1 to 2 pounds with a wingspan from 3 to 4 feet. The peregrine is the fastest flyer in the natural world, reaching speeds in excess of 200

miles per hour. Generally, peregrine falcons favor open habitats such as tundra, savanna, and coastal areas while during migration they may be found near marshes, lakes, and ponds with high concentrations of waterfowl and shorebirds. Peregrines breed between March and August. Between 3 and 7 eggs are lain at two to three day intervals. Incubation lasts between 28 and 35 days and the offspring can fly between 35 and 42 days later. Like the bald eagle, the peregrine falcon was threatened with extinction as the result of DDT and other chemical usage. It too is protected by the Migratory Bird Treaty Act.

Piping Plover (*Charadrius melodus*)
The piping plover is a small, stocky shorebird with a sand-colored upper body, a white underside, and orange legs. The type of habitat in which a piping plover would be found is that of wide, flat, open, sandy beaches with little grass or other vegetation. Piping plovers feed on insects, spiders, and crustaceans. The females lay three to four eggs once between the months of March and May. The eggs hatch after 30 days and the young can fly 30 days later. The piping plover is a threatened species in the State of Iowa.

Indiana Bat (*Myotis sodalis*)
The Indiana bat is a medium-sized myotis with dull grayish chestnut fur. The females and their young can be found near the foliage of riparian and floodplain trees while the males prefer a densely wooded area near the tops of the trees where each of the sexes captures insects on which to feed. These bats breed during the first ten days of October, and hibernation occurs in November. The Indiana bat is a federally endangered species.

Plains Pocket Mouse (*Perognathus flavescens*)
The plains pocket mouse is a small rodent that prefers open grassy areas with sparse vegetation and sandy soils. An interesting characteristic of the pocket mouse is its ability to live for months without drinking water. Their food consists largely of seeds of grasses and weeds. Their breeding season extends from April through to November during which time they have two or more litters of three to six young. Few plains pocket mice remain in Iowa today; thus they are listed as an endangered species in the State of Iowa.

3.6.3 Wetlands Inventory and Mapping

To meet the definition of "jurisdictional wetland" under Section 404 of the Clean Water Act, an area must exhibit three traits: (1) hydrophytic vegetation, (2) hydric soil, and (3) wetland hydrology. Areas that are periodically wet but do not meet all three criteria are not jurisdictional wetlands subject to Section 404 of the Clean Water Act. Areas that have been disturbed or that are classified as problem area wetlands, however, may not meet all three criteria as a result of man-induced reasons, but are still considered jurisdictional wetlands. Wetlands store water and minimize flooding. They filter sediment, excess nutrients, and other impurities from water, as it is stored. The aquatic vegetation found in wetlands protects shorelines form erosion and provides food and cover for wildlife. Wetlands provide habitat for micro and macro invertebrates that use or break down nutrients and contaminants.

There are several interesting hydrologic surface features found on Camp Dodge, such as hillside wetlands and springs. The two hillside wetlands are both long and narrow. The first one is located in the northeast part of the north surface danger area, along the southwest part of Training Area B-1, follows the eastern part of area B-3, and ends in the east central part of area B-4. This feature is intermittent over its length and its width varies from approximately 20 feet to about 75 feet. The underlying soil forms an impermeable layer which forces water moving through the till above it to move laterally over this layer. The water will continue to move laterally until it can find a way around the barrier. In this case, the way around is to exit the side of the hill, flow downhill until it has passed the barrier, and then reenter the soil stratum below it. The second hillside wetland is located on the former Betz farm (Training Area E-2) along the eastern edge of the wetland. Soil survey maps (USDA Soil Conservation Service 1959) indicate the presence of a bedrock escarpment though there is no visible physical evidence.

There are two distinct drainage ways to which special treatment should be considered. First, Training Area B-7 forms the junction of several drainages. Areas B-6, C-2, C-3, and C-4 drain into B-7 from the northwest, B-4 and B-5 from the northeast, and areas A-1 and B-3 from the east via two separate paths. These drainages provide corridors for the movement of wildlife, especially amphibians. Amphibians also benefit from the isolated shallow ephemeral pools that form here, as fish are not able to survive in these

pools. The land should be managed in such a way as to maintain these corridors. Second, a seasonally flooded excavated palustrine wetland with emergent vegetation separates areas C-1, C-5, and C-6 from areas C-2, C-3, and C-4. This ditch receives surface runoff from these training areas and also from upstream areas that are out of the Camp's boundaries. This channel must be maintained so that water does not back up onto private property.

Three springs have been located on the post. The biggest one is located in the southeast corner of area D-6. Flow is the greatest in the spring and slowly tapers off during the summer. If the existing shed is removed from the training area, and the now prevalent reed canary grass can be controlled, the area could be restored to a sedge meadow/emergent vegetation wetland. The second spring is in the southeast corner of area D-4. This spring creates a small wetland that persists throughout the summer. The flow is continuous but less than the flow of the aforementioned spring. This area is just off of the river and is in a sedge meadow area. The third spring is in the southeast corner of Training Area A-3 along the road north of Herrold. This is the smallest of the three springs and its flow tends to cease during the mid to late summer. A small mostly wooded wetland is associated with this spring.

In addition, a wetland mitigation site now exists on Camp Dodge, located in Training Area E-2. The approximately 50 acre site was excavated for use as a borrow site and then converted to a wetland.

Another abandoned borrow site, located in Training Area F, has also been converted into a wetland/retention basin.

There are numerous wetlands located throughout Camp Dodge. An extensive table of the wetlands that were identified in a survey completed by Iowa State University is located in Appendix C.

3.7 Cultural and Historic Resources Inventory

3.7.1 Prehistoric Background

The cultural chronology of Iowa can be divided into four stages: Paleo-Indian (11,000-8,500 B.C.), Archaic (8,500-800 B.C.), Woodland (800 B.C.-A.D. 1,000), and Late Prehistoric (A.D. 1,000-1,650). The main criterion for the division of these periods is typological differences in projectile point forms and the introduction of agriculture.

The **Paleo-Indian Stage** (11,000-8,500 B.C.) is the first known period of human occupation in the Iowa region. This stage is identified by abundant examples of fluted points in the Iowa area. The first humans to use the Interior Low Plateaus can be best described as small highly mobile bands of big game hunters and extremely adaptive gatherers. None of the Paleo-Indian sites appear to have been occupied for an extended period of time.

The **Archaic Stage** (8,500 B.C.-1,000 B.C.) is divided into the Early Archaic (8,500-5,500 B.C.), Middle Archaic (5,500-2,500 B.C.), and Late Archaic (2,500-800 B.C.) periods. The Archaic stage came as an adaptation to the quickly changing environment. The Archaic people developed a more diversified subsistence economy than the earlier Paleo-Indians.

The **Woodland Stage** is best described as a period of technological advances and increased sedentism. Horticulture became more important. Pottery was introduced during this period. The period is divided into Early Woodland (800-300 B.C.), Middle Woodland (300 B.C.-A.D. 600), and Late Woodland (A.D. 600-1,000) Periods. These divisions are primarily based on technological changes and the presence or absence of certain mortuary practices rather than on changes in climatic conditions.

The **Late Prehistoric Stage** (A.D. 1,000-1,650) is divided into several different cultures including the Great Oasis, Mill Creek, Glenwood, and Oneota. Many of the people of this time lived in established villages inside of typically large earthlodge houses.

3.7.2 Historic Background

The prehistoric period in Iowa ended at the time of contact between Native Americans and Euro Americans. The Sac (Sauk) and Fox (Mesquakie) tribes inhabited the Mississippi River Valley long

before French explorers claimed the land for France and paved the way for fur traders and trappers who followed.

The vicinity of Des Moines has always had a certain military interest because early Army posts were established in the area as the Des Moines Valley was settled.

In 1909, William McHarg signed a warranty deed that transferred 78.5 acres of land to the State-owned training ground for the Iowa National Guard. A year later, on April 29, 1910, Iowa Adjutant General Guy E. Logan issued General Order No. 9, which named the campground in honor of Major General Grenville M. Dodge. Expansion of the campgrounds would continue for the next seven years until the United States entered the first World War and it became necessary to establish training camps for assembling and drilling of the Army. Des Moines was chosen as one of these camp sites.

When the Federal government took over Camp Dodge in 1917, it undertook a mammoth construction program. The Camp extended north nearly three miles beyond the present cantonment area and, during its peak was home to over 28,000 service members.

After the Camp was returned to state ownership, the buildings were sold to the public and Camp Dodge again became the state training ground for the IA ARNG. During the 1920's and 1930's many of the existing buildings were constructed. When World War II broke out, the federal government exercised its option to reactivate Camp Dodge. This time, however, it was only to be used as an induction center for the armed services. At the close of the war Camp Dodge returned to a state-owned training center, which it continues to be today.

3.7.3 Native American Resources

The area that would eventually become Camp Dodge was under the control of Native Americans for thousands of years. Succeeding Native American cultures marked their residence in the Beaver Creek and Des Moines River valleys. The archaeological sites of the pottery-producing Woodland peoples include burial mounds on high points above watercourses. In Iowa and surrounding states these Woodland peoples diversified in their material and environmental adaptations, producing such archaeological cultures as the Mill Creek and the Oneota.

The Oneota sites found along the Des Moines River have been studied and documented. The Oneota culture gave rise to the Iowa and Otoe Indians among others. At the time of contact with Euro Americans in the 1700s, the Des Moines River was the territory of the Iowa (or Ioway) Indians.

By the mid 1800s, the Sac and Fox (properly, the Sauk and Mesquakie) had extended their territory from across the Mississippi and pushed west into Iowa. The U.S. Government recognized their land claims along with those of the Iowans in a series of treaties, including a treaty in 1837 that transferred aboriginal title of these central Iowa lands to the U.S. government.

The IA ARNG does not expect this plan to have the potential to significantly affect protected tribal resources, tribal rights, or Indian land. If, however, any actions were determined, by the IA ARNG, to affect these resources, the affected tribe would be contacted. This consultation is required only if the federally recognized Native American Tribe notifies the IA ARNG that there are tribal resources that could be affected and there is a need to collaborate. In such a situation, the IA ARNG needs to adhere to the Department of Defense Annotated American Indian and Alaska Native Policy, 27 Oct 99.

See Appendix F for a list of Native American Tribes that have a potential interest in the areas associated with the IA ARNG. These tribes have been invited to act as a consulting party to the original INRMP and subsequent updates, in compliance with 36 CFR Part 800.2, EO 13175, and DoD Native American and Alaska Native Policy. The letters associated with the invitation are presented in Appendix F.

3.7.4 Cultural Resources Identified from Camp Dodge

Cultural resources include prehistoric and historic sites, structures, or any evidence of human activity considered important to a community. The proximity of Camp Dodge to the Des Moines River suggests the potential existence of prehistoric encampments, while its recent historic role as a military training

center suggest potential cultural resources that may be eligible for the National Register of Historic Places. Camp Dodge's history as a military post is important to Iowa's history because the creation of the 13th Divisional Cantonment during World War I was an example of the development of state and federal government's role of working together to defend the nation, and America's response to entering World War I. Camp Dodge is also historically important in the context of the evolution of the Iowa National Guard.

A number of archaeological sites have been found within the camp limits. All archaeological sites are associated with European settlement and military construction and have been determined not eligible for listing to the National Register of Historic Places. No traditional cultural properties have been identified.

An architectural history survey of all of the buildings within the present Camp Dodge cantonment has been completed. In addition, the Herrold School, the World War I ammunition barn, and the WPA-era entrance guardhouse and fence were examined (Wall 2000a). Two sites (the Pool Complex and the Herrold Bridge) located on Camp Dodge are already listed on the National Register of Historic Places (NRHP).

Given the agricultural land use history of Camp Dodge, activities that disturb the plow zone (18–24 inches) are not expected to affect unknown cultural resources. If cultural artifacts are found during minor activities, such as tree planting, work is stopped immediately and the Installation OIC or the Environmental Branch is notified. Any activity that has the potential to affect cultural resources, will comply with all applicable federal and state cultural resources requirements, and will be coordinated through the Environmental Branch.

The IA ARNG has prepared an Integrated Cultural Resources Management Plan that provides an overview of the cultural resources at Camp Dodge.

Chapter 4.0 Missionscape/Training Area Requirements

The purpose of this chapter is to describe the role of training requirements as a critical component of the INRMP. The goal of the IA ARNG is to design a "missionscape" that meets training needs while practicing environmental stewardship. Missionscape is the concept of shaping the natural landscape to support training requirements. A practical application of this concept is for trainers and land managers to plan for future training needs and to design the desired landscape features and conditions that will meet these needs. There are a number of tools that enable missionscape planning, including the Range and Training Land Program, the Integrated Training Area Management program and Geographic Information Systems. Proposed projects to support training area requirements are included in Appendix H.

4.1 Range and Training Land Program (RTLP)

The Army's RTLP provides for the management and budget programming for modernization of the Army's ranges and their day-to-day operations. Objectives include:

- Integrate mission support, environmental stewardship, and economic feasibility and define procedures for determining range projects and training land requirements to support training.
- Establish the procedures and means by which the Army range infrastructure is managed and maintained on a daily basis in support of the training mission.

4.2 Integrated Training Area Management (ITAM)

The ITAM program provides the Army with the capabilities to manage and maintain training and testing lands by integrating mission requirements with environmental and land management practices.

The objectives of the Army's ITAM program are to:

- Achieve optimal sustained use of lands for the execution of realistic training by providing a sustainable core capability that balances usage, condition, and level of maintenance.
- Implement a management and decision-making process that integrates Army training and other mission requirements for land use with sound natural resources management.
- Advocate proactive conservation and land management practices by aligning Army training land management priorities with the Army training and readiness priorities.

The four major components of the ITAM program are Training Requirements Integration; Range and Training Land Assessment, formerly Land Condition Trend Analysis; Land Rehabilitation and Maintenance; and Sustainable Range Awareness, formerly Environmental Awareness. These components combine to provide the means to understand how the Army's training requirements impact land management practices, what the impact of training is on the land, how to mitigate and repair the impact, and communicate the ITAM message to Soldiers and the public.

4.2.1 Training Requirements Integration (TRI)

TRI is a planning measure that involves the coordination of training requirements with land management and natural and cultural resources management. By using the RTLP program as a tool for long term planning, TRI integrates training requirements for land by planning military missions in areas best capable of supporting the activities. In addition, TRI provides land managers with the information needed to integrate training with land constraints and determine the training land carrying capacity.

4.2.2 Range and Training Land Assessment (RTLA)

RTLA uses standard methods to collect, analyze, and report natural resources data, and is the Army's standard for land inventory and monitoring. It provides the data needed to evaluate the capability of training lands to meet multiple use demands on a sustainable basis. It incorporates a relational database and GIS to determine sustainable land use. After data analysis, trends are analyzed and recommendations are made for management action.

The RTLA program at Camp Dodge began in 1995. Researchers surveyed thirty plots and recorded vegetative data that will support decision-making related training and natural resource projects. By scheduling land maneuvers according to their potential impact, the installation not only provides realistic training, but also effective land management. Units are assigned to particular training areas based on the

nature of their training activities, the condition of the natural resources at the site, and tolerance of the ecosystem to disturbance.

4.2.3 Land Rehabilitation and Maintenance (LRAM)

LRAM is the component of the ITAM Program that provides a preventive and corrective land rehabilitation and maintenance procedure to reduce the long-term impacts of training on an installation. It includes training area redesign and/or reconfiguration to meet training requirements. The LRAM Program addresses issues of soil erosion, vegetation depletion, and water resources. Although LRAM often involves repairing military damage, the primary goal is to maintain lands in an acceptable condition. Current research involves methods to maintain a durable environment capable of withstanding the potential damage associated with military training.

4.2.4 Sustainable Range Awareness (SRA)

The awareness of natural resources at Camp Dodge results in safer training, a greater sense of pride and stewardship, and minimal damage to resources. By providing educational materials such as posters, field cards, press releases, and a website, land users can reduce the potential for impact on training land. These materials can also be made available to others interested in the site. School groups and other neighbors are encouraged to use the natural areas at Camp Dodge. Environmental awareness communicates the stewardship of sustaining mission activities while preserving Army National Guard land.

4.3 Geographic Information System (GIS) Databases and Applications

Camp Dodge land managers rely upon GIS to provide analysis and display of natural resource data gathered at the training site. GIS will also provide support for the entire environmental program as well as the training community.

The following data layers are available or are planned for Camp Dodge:

- Topography
- Soils
- Hydrology
- Boundaries
- Training areas
- Transportation
- Rare species habitat locations
- Prescribed burning areas
- Vegetation communities
- LRAM project sites
- RTLA plots
- Invasive species locations
- Mowing management areas
- Food plots

The databases can be used for projects such as:

- Providing maps for military training purposes
- Selecting suitable areas for specialized training exercises
- Planning land rehabilitation projects
- Providing special maps for environmental awareness materials
- Ensuring avoidance of cultural resources during ground disturbing projects
- Ensuring avoidance of rare species habitats and other areas of special concern during construction projects or training events
- Ensuring avoidance or consideration of wetlands when planning construction projects
- Monitoring effects of wildfires and prescribed burning activities
- Identifying site options for use during NEPA evaluation of alternative sites
- Calculating drainages and water flows

Chapter 5.0 Ecosystem Management

The purpose of this chapter is to set forth the concept of ecosystem management. Ecosystem management is a necessary component to establish an integrated natural resources management plan that will be consistent with the military mission and ensures stewardship of Camp Dodge's natural resources.

5.1 Introduction

In 1994, the Office of the Under Secretary of Defense for Environmental Security issued a memorandum to all forces in the Department of Defense (DoD) to implement Ecosystem Management on DoD lands. Ecosystem management blends multiple-use needs, provides a consistent framework to manage installations, and ensures that the integrity of the system of DoD lands remains intact. DoD Instruction 4715.3 "Environmental Conservation Program", implements policy, assigns responsibilities, and prescribes procedures for the integrated management of natural and cultural resources on property under DoD control. The guidelines issued by the Department of Defense in both documents were incorporated into the goals and objectives of this plan.

The goal of ecosystem management on military training lands is to ensure that military lands support present and future training requirements while preserving, improving, and enhancing ecosystem integrity. Over the long term, this approach will maintain and improve the sustainability and biological diversity of terrestrial and wetland ecosystems while supporting sustainable economies, human use, and the environment required for realistic military training operations (DoD Instruction 4715.3). The goals, objectives, and action items presented in this section ensure that secondary activities do not conflict with primary ecological management activities designed to support training. Secondary activities at Camp Dodge include agricultural leases, fishing and hunting, and outdoor recreation. Without proper planning, secondary activities could potentially compete with the primary activity, either by using needed space or by the additional consumption of natural resources.

5.2 Goals and Objectives

Using guidelines for ecosystem management and training land management, the following goals have been outlined as priorities:

GOAL 1. To protect and maintain Camp Dodge's ecosystems for the purposes of military training, soil stabilization, vegetative cover, wildlife food and cover, and rare species protection.

OBJECTIVES

1a. To coordinate with the Camp Dodge leadership to ensure natural resource management supports training needs.

1b. To protect, restore, and maintain viable populations of native species found in each ecosystem and rare community type including rare, threatened and endangered flora and fauna species, in accordance with state and federal laws and regulations, and adhering to the principles of ecosystem management.

1c. To use prescribed fire, mowing, and canopy thinning as cost-effective management tools to achieve a wide range of management objectives, including habitat management, fuel hazard reduction, mission support, seed bed preparation, and maintenance of these ecosystems.

1d. To repair damage to the ecosystem at the earliest opportunity following maneuvers.

1e. To routinely monitor animal and plant populations dependent on Camp Dodge's ecosystems. Implement additional single species monitoring as necessary.

1f. To eradicate invasive exotic species from Camp Dodge.

1g. To maintain stable populations of whitetail deer and other upland game species through implementation of sound population management strategies (for example, monitoring, controlled hunting, and disease control) in coordination with IDNR. This implementation will also give consideration to the management strategy's effect on non-game species and natural ecosystems.

1h. To protect, restore, and maintain ecosystems.

GOAL 2. Protect, restore, and maintain wetland ecosystems found on Camp Dodge, in accordance with state and federal laws and regulations and adhering to the principles of ecosystem management (See Section 5.3).

OBJECTIVES

2a. To plan training and maintenance activities to avoid impacts to federal jurisdictional wetlands and rare, threatened and endangered species that depend on wetlands.

2b. To continue surveying and restoring wetlands that provide habitat for rare, threatened and endangered species.

GOAL 3. To provide cost-effective and compatible landscaping for the cantonment area (See Section 5.15).

OBJECTIVES

3. To consider native tree species, shrubs, and perennial plants when landscaping the cantonment area.

GOAL 4. To protect and preserve cultural resources on Camp Dodge in accordance with state and federal laws and regulations (See Section 5.16).

OBJECTIVES

4. To comply with all federal, state, and local laws and regulations pertaining to cultural resources found on the training site.

GOAL 5. To use integrated pest management practices that maximize safety, minimize pesticide use and potential hazards to humans, wildlife and the environment.

OBJECTIVES

5a. To comply with all federal, state, and local laws and regulations pertaining to pest management and pesticide use on the training site.

5b. To support the findings of the invasive plant inventory and supply information regarding areas of Camp Dodge needing invasive plant removal.

5c. To apply the most effective management strategies when populations exceed defined levels. Pest management will be achieved by non-chemical control whenever feasible and economical.

5d. To prevent the introduction of noxious plant and animal species to the training site to the greatest extent possible.

GOAL 6. To develop recreational opportunities in response to identified needs within the constraints of the military mission and consistent with sound ecological principles (See Section 5.17).

OBJECTIVES

6a. To provide fishing and hunting opportunities on Camp Dodge as identified by IDNR and IA ARNG.

6b. To provide tours and field days to allow public access to various natural areas within Camp Dodge.

6c. To use partnerships and cooperation with other agencies as a means of providing quality recreation to citizens of Polk County when consistent with the military mission.

GOAL 7. To promote and support all laws, regulations, and standard operating procedures applicable to responsible use of Camp Dodge.

OBJECTIVES

7. To enforce Camp Dodge standard operating procedures among troops and civilians using Camp Dodge.

GOAL 8. To form communication links with other agencies, organizations, and the public to share information and aid in decision making.

OBJECTIVES

8a. To use the best available scientific and field-tested information in making decisions and selecting the most appropriate technologies in management of natural resources.

8b. To implement adaptive management by implementing new commercial and scientific techniques as they become known.

8c. To emphasize public involvement, communication, and incorporation of public needs into management decisions.

5.3 Wetlands and Floodplain Management

Management of floodplains and wetlands is subject to the provisions of Executive Order 11988, "Floodplain Management" (42 USC 4321), Executive Order 11990, "Protection of Wetlands" (42 USC 4321), the Rivers and Harbors Act (33 USC 401 et seq.), Section 404 of the Clean Water Act (33 USC 1344) and Section 61.3 of the Iowa Water Quality Standards Act. These require that activities be undertaken in such a way that impacts

to streams and wetlands are avoided or mitigated. Although specific wetlands criteria are not provided within the general Water Quality Criteria, the best management practices identified for surface waters are applicable to wetland ecosystems. As waters of the state, wetlands are designated for the uses of fish and aquatic habitat and recreation.

Approximately 17 percent of the Camp Dodge land area is covered by wetlands. These wetlands range from deciduous broad-leaved forests that occur primarily as bottomland forests along Beaver Creek, to shallow prairie pothole wetlands with emergent vegetation. The largest and most important wetland complexes are listed in Table 5. The largest wetland on post is the Beaver Creek bottomland forest, with several moderate sized wetland complexes in the western and southern sections of the post. Many of the wetlands that existed prior to European settlement have been drained and no longer exist. Other wetlands have been negatively impacted by ditching, tiling, invasion of exotic plant species, and the effects of surrounding agricultural land use. Many of these wetlands are small remnants of much larger wetland complexes. All of the wetlands in Camp Dodge have been delineated to the planning level (Fuchs, 1998). National Wetland Inventory map boundaries and hydric soil boundaries are also available to Camp Dodge environmental planners on Geographic Information System layers.

Table 3. Description of Largest and Most Ecologically Important Existing Wetland Sites

Wetland Site (Figure Location)	Location (Training Area)	Approximate Size (Acres)	Brief Description
Bottomland Forest (Figure 8)	Along Beaver Creek	587	Mature, deciduous broad–leaved forest along Beaver Creek. Subject to flooding; contains ephemeral pools.
Betz Farm (Figure 9,10)	E–2	37	Highly diverse mosaic of sedge meadow wetlands. Formed in abandoned river channels and spring fed.
Prairie Pothole (Figure 9, 11)	D–2/D–3	1	Vegetatively diverse, kettlehole wetland. Semi–permanently flooded.
Wet Meadow (Figure 8, 12)	B–3	7.8	Diverse wet meadow/wet prairie, partially tiled, temporarily flooded.
Western Wetland (Figure 8, 11)	D–1/D–5	33	Wetland in basin surrounded by steep terraces. Half of the wetland was tiled and planted with row crops; many exotic plant species.
Complex of Small Wetlands (Figures 8,9,12)	B–7	4	A series of forested and herbaceous shallow wetlands, degraded by exotic plant species and land use. Temporarily to seasonally flooded hydrology.
Wetland Mitigation Site (Figures 8,10)	E-2	15	Restoration site.

Wetland ecosystems are viewed not only as important biological features of the landscape, but also necessary to provide diverse training environments at Camp Dodge. The goal of wetlands management at Camp Dodge is to keep the existing wetland ecosystems intact and biologically functional. This goal is achieved by allowing only foot traffic in all wetland areas, including the bottomland forests. Digging is prohibited within 300 feet, and signs that describe permitable activities are posted around unique wetland areas. Various wetland areas are also designated as “foot traffic only” on maps given to units training at Camp Dodge.

Wetland Management

- Present all construction project plans to the Environmental Branch for review as far in advance as possible; special permits are required when disturbing federal jurisdictional wetlands, perennial or intermittent streams.
- Designate wetland areas on post maps and keep these areas posted with signs. Provide troops with brief educational information on the value of wetlands on the landscape.
- Restrict vehicles from wetland areas and vegetated buffers during periods of high moisture.

- Prohibit ecological isolation of wetland areas. Wetlands provide a diverse training environment, important breeding and forage habitat for wildlife, and water storage capacity on the landscape. More than any other habitat, they can be easily isolated ecologically from upland prairie or forest. It is important to provide vegetation corridors or "links" between wetlands and surrounding habitats.
- Reseed disturbed areas with grasses and forbs native to Iowa, restore non-native vegetation areas with native vegetation, and follow soil erosion management techniques. All of these practices will reduce soil erosion, lowering siltation and nutrient inputs into wetlands.
- Restrict building and filling in the Beaver Creek floodplain.
- Prohibit mechanized operations from causing adverse impacts, such as sediment loading in adjacent wetlands and watercourses.

Floodplain/Bottomland Forest Management

- Restrict any fill into the 100-year floodplain boundaries. Adding fill displaces floodwaters, causing a higher water level in the floodplain downstream.
- Restrict the construction of permanent structures within the 100-year floodplain boundaries.
- Prohibit the disturbance of bottomland forests. Restrict encroachment along the edges of the bottomland forest. These forests protect Beaver Creek stream banks and provide valuable wildlife habitat for the entire region.
- Protect the bottomland forests and Beaver Creek stream banks by concentrating vegetation plantings along the edge of the bottomland forest and its lower order tributaries (including swales). Maintain a vegetated buffer of at least 300 feet on each side of Beaver Creek. Vegetation buffers, trees, shrubs, or grasses enhance the training opportunities at Camp Dodge by diversifying the landscape.

Wetland Enhancement and Restoration Activities

Section 404 of the Clean Water Act protects the wetlands within the Camp Dodge boundaries. The major wetland systems under protection are listed in Table 6, and a complete list of Camp Dodge wetlands is found in Appendix C. In order to create a diverse training environment, and in an effort to be good land stewards, Camp Dodge officials recognize the importance of enhancing existing wetlands and restoring historic ones. Wetland restorations focus on restoring the entire ecosystem, both the wetland and surrounding upland. Not restoring the entire ecosystem diminishes the success of the wetland restoration.

Enhancement activities of existing wetlands generally include planting native grasses and forbs around the wetland to control erosion and reduce nutrient inputs and controlling exotic or invasive species and woody vegetation. Restoration of wetlands begins by restoring the former hydrology, usually by breaking tile lines, planting native wetland species, and planting the surrounding area with native grasses. Wetland enhancement and restoration activities are expensive and time consuming. The cost and time of these activities are the two major institutional circumstances that may limit or impede the achievement of wetland management goals. In addition, enhancement and restoration plans must complement the training mission of Camp Dodge.

Table 4. Existing Wetland Areas and Other Sites with Potential for Wetland Enhancement and/or Restoration. Sites are listed in order of highest to lowest priority of action.

Wetland Site (Figure Location)	Location (Training Area) [Size (acres)]	Protection Required	Brief Description of Possible Enhancement or Restoration Activities
Bottomland Forest (Figure 6)	Along Beaver Creek [587]	Yes	• Allow forest succession within 100 yr. floodplain boundaries.
Betz Farm (Figure 9, 10)	E–2 [37]	Yes	• Minimize woody invasion with periodic burning. • Control reed canary grass.
Prairie Pothole (Figure 9, 11)	D–2/D–3 [1]	Yes	• Restore prairie vegetation on surrounding hillsides. • Monitor for exotic plant invasions.
Western Wetland (Figure 9, 11)	D–1/D–5 [33]	Yes	• Break drainage tile. • Seed native wetland plants to prevent domination by weedy exotics. • Control reed canary grass. • Seed surrounding hillsides with native prairie vegetation. • Restore savanna ecosystems.
Wet Meadow (Figure 9, 12)	B–3 [8]	Yes	• Break drainage tile. • Landscape and plant drainage ditch out of wetland. • Frequently burn the wetland. • Opportunity to restore rare and ecologically valuable wet meadow wetland types.
Complex of Small Wetlands (Figure 9, 12)	B–7 [4]	Yes	• Plug drainage ditch. • Remove and control woody vegetation form some wetlands. • Plant buffer strip of native vegetation around wetlands. Burn buffer strips periodically.
Prairie Pothole (Figure 9, 11)	NW Corner D–2 [7]	Not at this time	• Break drainage tile. • Seed native wetland plants to prevent domination by weedy exotics. • Seed surrounding hillsides with native prairie vegetation.
Wet Meadows/ Floodplain Forest (Figure 9, 10)	E–2 [40]	Not at this time	• Break any drainage tiles. • Plant trees near Beaver Creek. • Seed native wetland plants in low areas and native prairie grasses and forbs in surrounding areas. • Opportunity to restore rare and ecologically valuable wet meadow wetland types.

5.4 Prairie Vegetation Management

Prairies are an important vegetation community to Camp Dodge. They provide wildlife habitat for small mammals, birds, insects, reptiles, and amphibians. Due to their massive root systems, prairies prevent erosion while rebuilding worn out soil. The predominance of perennial plants in the prairie helps control weeds. In Iowa, 150 years ago, nearly 85 percent of the state was tall grass prairie. Today less than 0.1 percent of this prairie remains (Iowa Natural Heritage Foundation, 2000). The following management techniques will aide in the development and restoration of the native prairie on Camp Dodge:

- Burn the prairie areas every two to four years. Burning prevents thatch buildup and enables prairie plants to successfully compete against weedy exotics. The removal of grass thatch allows prairie forbs to dominate the prairie flora for a few years before the grass thatch accumulates enough to prohibit germination and growth of forbs. Burning also controls invasion of woody plants.
- Mow in early spring (March) or late fall (October/November) if prairie cannot be burned. Some prairie areas may not be burned because of unsafe burn conditions or the area is too close to adjacent

private property. In these cases, mow the prairie and collect the thatch (if mowed with a scythe mower).

- Plant native species to reduce extensive trampling from either foot or vehicle damage. Give each prairie field a rest period following a given interval of training activities.
- Cut all black locust trees out of prairie areas. Locust trees proliferate quickly in a prairie and are dangerous to troops. After cutting, apply herbicide (Round-Up™ or Cross-Bow™) to stump to prevent growth of suckers.
- Re-seed prairie areas damaged by vehicles quickly to prevent weed invasion and soil erosion. Re-seeding should include both native grass and forbs plant species.

5.4.1 Sand Prairie Vegetation Management

Sand prairies should be managed like the other prairies at Camp Dodge:

- Have fire crew leaders attend fire management course.
- Burn the prairie every two to four years. Burning the prairie more frequently will decrease the amount of fuel, which will reduce the size and intensity of the fire for manageability. Burn no more than 50 percent of the prairie in one given year.
- Make a fire break and start the prairie burn at the top of the hill with east wind (east side of prairie). The fire will move more slowly downhill then uphill, and be more easily controlled.

5.5 Successional Old Field Management

The old-field areas of the training site are highly used and vegetation is managed with troop training goals as a priority. The old-field vegetation areas are in the process of plant succession from annual agricultural vegetation to a forest/prairie mosaic. To enhance training activities, clumps and rows of shrubs and understory trees have been allowed to grow to provide concealment during training exercises. The grass surrounding the trees and shrubs is mowed once a year in late summer or fall to prevent excessive woody plant growth. Old-field habitats of the training area are places where a limited amount of woody vegetation may be cut for concealment exercises or damaged by vehicles during maneuvers with limited ecological impacts. These non–native plant species play an acceptable role in the troop training activities at Camp Dodge. Vegetation management of old-field areas is similar to prairie habitats. Management techniques include:

- Continue annual mowing to control woody vegetation, while allowing woody vegetation to grow in certain areas for concealment.
- Burn the grass areas as an alternative to mowing to control woody vegetation. Burning has the added advantage of killing poison ivy.
- Allow the sucessional old fields time to recover from extensive training activities. Planting native species will help resist the damaging effects of trampling.
- Re-seed exposed soil areas with vegetation native to Iowa. Plant selected old-field areas with native prairie grasses and forbs when the opportunity arises. Use existing natural vegetation features as foundations for prairie plantings, such as a wetland, the wet meadow in Training Area B-3, or a clump of trees. Gradually, portions of the old-field habitats will be vegetated with drought tolerant, highly durable prairie plants. Soil conservation practices should be aggressively employed (see Soil Management).
- Prioritize areas of old field conversion to native grasses and forbs. Native vegetation has the dual advantage of being more drought tolerant and they shade poison ivy. Areas of high poison ivy infestation should be given priority for conversion. Second priority should go to areas that border waterways or current restoration projects, and that form potential wildlife corridors between major landscape features (e.g., wetlands, floodplain forests). Areas of secondary priority conversion include: Training Area B–3, especially around the wet meadow (Figure 6, Section 3.6.1), and Training Areas B–7 and A–4 (borders stream and completes wildlife connection with prairie in C–2 and B–6).

5.6 Riparian Zone Management

The management of riparian zones relies heavily on the development of buffer zones that protect the neighboring water bodies. Riparian Forest Buffer Systems (RFBS) provide critical habitat for over half of the terrestrial wildlife species, buffer the inflow of sediment and nutrients, and cool the adjacent water body. The following three zone RFBS provides the best system for removing both sediment and some nutrients from surface runoff (Lawrence et al., 1995). RFBS are needed at Camp Dodge at the margin of any intermittent or

permanently flooded, environmentally sensitive, open water wetlands that occur at the lower edge of upslope grassland maneuver areas.

Guidelines for Three-Zone RFBS Design:

Zone 1: Undisturbed Forest - Permanent woody vegetation is established at the stream edge. This zone controls light, moderates temperature, stabilizes stream channel, provides tree roots for habitat, and develops forest litter. Species composition from representative sites of natural and undisturbed riparian ecosystems can indicate the correct species and planting for Zone 1. Zone 1 should be at least 30 feet wide.

Zone 2: Managed Forest - The primary purpose of Zone 2 is to remove, store, or transform sediment and chemicals from the upland area into the adjacent wetland ecosystem. Predominant vegetation should be composed of riparian trees and shrubs suitable to the site, with emphasis on native species as well as other species to stabilize soil during the establishment period. The use of nitrogen-fixing species is discouraged when nitrogen removal or buffering is desired. Vegetation and litter form a mechanical barrier and hence, harvesting is permissible as long as the litter remains. Of course, rotation of the harvesting area is important. In the subsurface, nutrients are removed by plants and transformed by microbes. Zone 2 may range from 60 feet to 100 feet. The width of Zone 2 should be increased to occupy any soils designated as Hydrologic Group D and those soils of Hydrologic Group C, which are subject to frequent flooding.

Zone 3: Runoff control - Grass vegetated filter strips spread surface runoff, enhance infiltration, filter sediment, and trap some nutrients. The most important attribute of grass vegetated filter strips is that they be sufficient in size and design to spread any concentrated flow into shallow, relatively uniform flow. Vegetation is composed of dense grasses and forbs for structure stabilization, sediment control, and nutrient uptake. Mowing is necessary to recycle sequestered nutrients, promote vigorous sod and control weed growth. Zone 3 should have a minimum width of 20 feet and may be as large as 90 feet. The use of native grasses on Zone 3 has not been researched. Integrating knowledge about native grasses and RFBS requirements, it is speculated that native grasses would function well once established.

Wetlands that receive runoff from upslope maneuver areas should be maintained with riparian vegetation in Zones 1, 2 and 3 as described above. All remaining sides should be maintained with riparian vegetation in Zones 1 and 3. Zone 1 and 2 vegetation should consist of native streamside tree species on soils of Hydrologic Groups D and C and native upland tree species on soils of Hydrologic Group B. Plan to establish trees early in the dormant season for maximum viability. Zone 3 vegetation should consist of native perennial grasses and forbs. Some examples of native streamside and upland tree species and native perennial grasses and forbs are given in Table 7. Use of other species may also be appropriate.

Riparian Zone Management techniques include:

- Protect Beaver Creek and large water bodies by a buffer zone between 150 to 300 feet wide on each side while smaller streams and water bodies shall maintain a 50 to 100 feet tree, shrub, and/or grass buffer zone on each side.
- Restrict vehicle stream crossings. Construct hardened crossings where required.
- Inspect buffers routinely and immediately following severe storms for evidence of sediment deposit, erosion or concentrated flow channels. Prompt corrective action must be taken to stop erosion and restore sheet flow.
- Avoid vehicular traffic within buffer areas.
- Keep Zone 1 vegetation undisturbed except for removal of trees presenting unusual hazards such as potentially blocking culverts or creating troop safety issues
- Keep Zone 2 vegetation, undergrowth, forest floor, duff layer, and leaf litter undisturbed except for spot site preparation for regeneration purposes. Controlled burning for site preparation, consistent with good forest management practices could also be used in Zone 2.
- Mow Zone 3 vegetation as necessary to remove sequestered nutrient and promote dense growth for optimum soil stabilization. Hay uses can be made compatible with objectives of Zone 3.
- Inspect Zone 3 vegetation annually. Remedial measures should be taken as necessary to maintain vegetation density and remove problem sediment accumulations.
- Monitor stream bank and gully erosion along the streams within the training site boundaries. Walk the stream banks during the winter months when erosion is most visible. Mark erosion sites on a map and take appropriate corrective measures.

- Plant sod-forming native grasses or flood tolerant vegetation adjacent to the water's edge to stabilize stream banks or shorelines. Further upslope, plant shrub seedlings and/or stem cuttings of willow to establish cover.

Table 5. Suggested Native Species for Planting in Riparian Zones

Streamside Tree Species	Upland Tree Species	Perennial Grasses and Forbs
-Plant in Zones 1 and 2 -See above paragraph for soils	-Plant in Zones 1 and 2	-Plant in Zone 3
Silver Maple (*Acer saccharinum L.*) White oak (*Quercus alba*) Green ash (*Fraxinus pennsylvanica Marsh.*) Buttonbush *(Cephalanthus occidentalis L.)* Shagbark Hickory (*Carya ovata*)	Northern red oak (*Quercus vaulting Lam.*) White oak (*Quercus alba*) Hackberry (*Celtis occidentalis L.*) Black Walnut (*Juglans nigra L.*) Gray dogwood (*Cornus racemosa drummundi*)	Bottlebrush grass (*Emilus hysteria*) Hairy brome (*Bromus pubescens*) Elm leaved goldenrod (*Solidago ulmifolia*) Jumpseed (*Polygonum virginianum*) Joe-pye weed (*Eupatorium purpureum*)

5.7 Upland Forest/Savanna Management

Upland forests account for nearly 93 acres of Camp Dodge's land area. Sale of forest products on the installation does not occur and is not proposed under this plan. They are young, successional forests, which are of moderate to poor quality. Proper management of these forests is necessary to ensure the domination of native flora to enable a healthy habitat for the fauna that exists or that should exist in Camp Dodge.

About 20 acres of the upland forest community is comprised of remnant oak savanna. Savanna forms the transition land between prairie and forest, an area comprised of large, widely spaced canopy trees with an understory of prairie grasses. The mature canopy trees are usually bur or white oak and grow singly or in widely spaced clumps of two to five individual trees with an understory of perennial prairie grasses. The widely spaced mature trees enable enough light to reach the ground to allow prairie grasses to flourish.

Camp Dodge has two remnant savannas. One area exists in the surface danger zone south, west of the shooting range, surrounding Camp Dodge's holding pond. Savanna forms the transition area between the bottomland forest and the mowed shooting range. These areas have relatively few shrubs and an understory of brome grass. Interspersed in the grass is the creeping form of poison ivy. The other area is located on three glacial hills, south of the restored wetland in Training Area D-1. These savanna areas have been extensively invaded by shrubs and small trees, but still contain patches of native prairie vegetation.

Two additional locations readily lend themselves to savanna creation. On the ridge that begins north of the restored wetland in Training Area D-5, goes eastward across the road in Training Area D-2 toward the existing prairie wetland. This area encompasses a constructed hibernaculum and large trees from an former homestead. Savanna with a prairie understory would provide partial concealment for scouting maneuvers and establishment points for military training exercises as well as an upland vegetation corridor between the restored and existing wetlands. At the site of the Betz Farm in Training Area E-2, some large canopy trees already exist, and forest and savanna restoration activities are occurring. A hill savanna at this location compliments plans for a prairie/sand prairie restoration in the borrow pit and wetland restoration along the southern property line.

The existence of savanna and upland forests depend on repeated fire disturbance to eliminate encroaching shrubs, enhance grass and forb plant growth, and reduce the invasion of non-native herbaceous plants including poison ivy. In general, a periodic prescribed burn every three to five years is the most efficient, economical, and effective technique of managing a savanna (Payne and Bryant, 1994; Tester, 1989). Additional management techniques depend on the condition of the savanna.

Management of savanna located on glacial moraines, south of restored wetland in D-2 and D-3.

- Remove non-oak and oak saplings manually. Oak saplings could be transplanted to restored savanna areas or cantonment area. Oak saplings must be transplanted with a mechanical tree digger because of their large tap roots. Apply herbicide to stumps of non-oak species to prevent sprouting.
- Remove woody debris cut from the savanna area away from the site. If the debris is to be disposed of by burning, burn in an alfalfa field or on a road. Burning large brush piles creates intense heat that will destroy the soil seed bank under the pile.
- Burn in the spring a year after woody vegetation removal and the buildup of an understory fuel load. Because of dense understory shading, sufficient fuel load may not be present to carry a prairie fire.
- Burn annually or biannually in the spring until shrubs and undesirable herbaceous plants are removed.
- Seed the area to help prevent invasion of weedy species. It is expected that once woody vegetation has been removed and more light is allowed to penetrate the canopy, the prairie vegetation from existing plants and new plants from the seed bank will begin growing vigorously.
- Burn savanna every three to five years.

5.8 Agricultural Land Management

Corn and soybean crops are planted on about 403 acres of Camp Dodge property, primarily in the surface danger zone of the range complex. Planting row crops requires access to the land several times during the growing season and the ranges are closed when farmers are operating in the fields. Row crop production provides important income directly to Camp Dodge. Corn and soybean crops are planted through intermittent stream ways and as close to the Beaver Creek floodplain terraces as possible. After the row crops are harvested foot and vehicle traffic is permitted on the land.

Camp Dodge also issues hay management agreements on approximately 1,100 acres to local farmers. Haying these areas provides vegetation management of a quarter of the land area of Camp Dodge at no cost. Alfalfa and brome grass hay may not be cut in specified fields until after certain dates to ensure breeding bird populations. Additional cuttings are made depending on the weather conditions. Normal training activities are allowed on the hay fields. Breeding bird surveys and management recommendations can be found in Appendix K.

Agricultural outleases for corn, soybean, and hay (Table 6) adversely impact the composition, structure, and function of natural communities and biological diversity but provide a practical method of maintaining almost 1,600 acres of Camp Dodge.

Table 6. Agricultural Land Management Practices

Ownership	Type	Acres	Crop	Renewal
State	Lease	42.19	Row (Corn/Soybeans)	Triennial*
State	Lease	178.1	Row (Corn/Soybeans)	Triennial*
State	Lease	182.6	Row (Corn/Soybeans)	Triennial*
Federal	Management Agreement	1,188.0	Brome/Alfalfa Prairie Grass	Annual

* At the expiration of the Triennial Agreement, annual addendums may be granted on state property leases by the Iowa Army National Guard State Quartermaster

Agricultural Land Management techniques include:

- Continue row crop production in certain areas of Camp Dodge. Row crop production provides important income directly to Camp Dodge. Because the row crop areas are restricted for safety reasons, training activities do not cause soil erosion or crop destruction.
- The first INRMP recommended planting a 25 foot buffer strip of native prairie vegetation around all agricultural fields planted in row crops. The purpose was to slow overland runoff and provide off road vehicle access. Site evaluation indicated that most agricultural fields had sufficient existing buffer and did not need this planted strip. In addition, consultation with Camp Dodge security resulted in their decision that a corridor for vehicles was not needed. If this necessary, this practice can be re-evaluated in the future.
- Plant vegetation buffers or increase the width of the existing vegetation along swales and intermittent streams. Restrict agricultural activity in these areas. The vegetation buffers or shelterbelts should be 25 to 100 feet wide on either side of waterway depending on the soil conditions and the slope of the

topography. Buffer strips can be planted or the areas could be seeded with grass, and woody vegetation allowed to grow. Such buffer strips will reduce erosion and improve water quality. Buffer strips would be particularly beneficial in Training Areas A-2 through A-5, and C-1. Refer to the section on buffer strips for design and plant species for more information.

- Stipulate in hay field agreement that the first cutting is done after certain dates in selected areas. Grassland birds are attracted to the vegetation structure of alfalfa and usually begin arriving from the south in mid- to late May, though sometimes as late as June 10. The establishment of territories, building of nests, and raising of fledglings requires 35-37 days. Mowing during this time destroys nests, eggs, and adult birds (Frawley and Best, 1991). If the weather and food resources are favorable, most bird species will lay a second clutch of eggs during the summer. Using a mowing bar, a bar that sweeps through the grass ahead of the cutter, would help flush adult birds off their nests to avoid being killed. Later harvesting is the best practice, but may be adjusted to allow a useable hay crop. An updated cutting schedule is included in Appendix K and is based on additional field surveys.
- Replace some areas of alfalfa and non–native grass fields with native prairie vegetation. Replacing alfalfa and non-native grass fields with native prairie vegetation will increase native plant and animal biodiversity, provide a drought resistant plant cover, and improve soil conservation with the formation of a dense prairie plant root structure. Birds provide a good example. Planting native grassland vegetation would greatly increase bird diversity and reproductive success, because the low plant species diversity and simple vegetation structure of alfalfa fields contribute to reduced bird abundance (Best *et al*., 1995). In addition, the lack of permanence of the alfalfa habitat, coupled with poor nesting success, disrupts site fidelity behavior in birds, resulting in lower bird abundance (Best *et al*., 1995). However, some species nest successfully in brome/alfalfa fields. All new prairie planting plans must be balanced with training risks of the tall grasses and their wildfire potential.

  Once established, prairie hay could be harvested from these areas under contract with local farmers. Maximum dry matter per acre of prairie hay is not known and, compared to alfalfa, prairie hay has less total digestible nutrient content (48 percent dry matter compared to 64 percent dry matter for late vegetative alfalfa) and metabolizable energy (1.74 Mcal/kg compared to 2.29 Mcal/kg) (National Research Council, 1996). However, prairie hay may command a good price in specialized markets with traditional cattle feeders (Iowa State University Extension, personal communication). Prairie hay must be cut at 5 to 6 inches (as opposed to 2.5 to 3 inches for alfalfa) and would contain the most nutrition if harvested in the vegetated stage, before flower stems elongated, in mid- to late July. Prairie hay should not be harvested after August 1, to allow the plants enough time to store nutrients for winter survival. Harvesting prairie hay in the end of July would also allow enough time for nesting grassland birds to complete their nesting cycle. Instead of harvesting hay, prairie seed may be harvested by prairie plant seed vendors.

  The replacement of alfalfa and non–native grasses with native plants will require vigilant management practices to maintain a reduced fire fuel load. Currently, this is achieved by planting alfalfa, mowing, and alerting troops training at Camp Dodge when the fire risk is high. Burning native grasses at regular intervals (every 3 to 5 years) with prescribed burns and alerting troops to high risk fire conditions, will reduce the risk of uncontrolled fires.

  Prioritize areas of alfalfa field conversion to native grasses. Priority should go to alfalfa fields that border waterways or current restoration projects that form potential wildlife corridors between major landscape features (i.e. wetlands, floodplain forests). Areas for conversion include: the portion of Training Area D–5 that borders the restored wetland, Training Areas D–1, D–2, D–3 (to improve habitat around the existing wetlands), and C–1 (borders stream and completes wildlife connection with prairie in C–2 and B–6) (Figure 6).

5.9 Fire Management

Vigorous and frequent use of fire is necessary for the management of prairie, savanna, and even wetlands during dry years. Fire is so essential to prairie management that prairie restoration should not be attempted if fire cannot be used on Camp Dodge. Burning in the spring clears away leaf litter and creates black ash. The black ash absorbs sunlight, causing the soil to warm faster than if litter were present and stimulating early prairie plant growth at a time of maximum soil moisture. This lengthens the growing season for warm-season grasses. Early spring fires also stimulate prairie species, enabling them to out-compete non-prairie species.

While other techniques, such as mechanical removal, may be used to reduce heavy fuels (e.g., grass mats, snags, logs, limbs) they cannot always replace the ecological role that fire plays. Fire not only reduces the build-up of dead and downed fuel, it performs many other critical ecosystem functions. Fire can recycle nutrients that might otherwise be trapped for long periods of time in the dead organic matter that exists in many environments with slow rates of decay. It can also stimulate the production of nutrients, release seeds, and provide the specific conditions (soil, light, and nutrients) that are critical for the reproduction of fire-dependent species. However, if fire proves not to be an effective means of removing above-ground biomass at Camp Dodge, annual mowing should be planned.

Presently, prescribed management burns are coordinated through several offices. The Environmental Branch assembles a prioritized list of sites, which is submitted to the Camp Dodge Joint Maneuver Training Center command. These are reviewed for the feasibility of each burn and trained manpower is coordinated for the burn projects. The Environmental Branch must apply for a burn permit from Polk County Air Quality Division.

Fire Management techniques include:

- Reduce accidental and uncontrollable forest fires.
- Report the size and location to Range Control immediately if a fire occurs. Units are to provide assistance to the fire-fighting teams.
- Non-prescribed fires are dealt with on a case-by-case basis. If deemed appropriate by Camp Dodge Range Control/Fire Brigade, the fire may be treated as a prescribed fire. The Fire Brigade will be responsible for controlling and distinguishing non-prescribed fires.
- Train at least two Camp Dodge personnel in ecosystem-oriented prescribed fire techniques to participate in prescribed burns.
- Burn no more than 30 percent (310 acres) of the grassland in any one year. Animal species, including birds, small mammals, and invertebrates will have to move to unburned areas, and below-ground areas until the vegetation revives in the burned areas.
- Allow patchiness (allow unburned areas to remain unburned) within burn units. This provides refuge, a source for re-colonization, and more habitat diversity for animal species.
- Conduct prescribed burns from February to mid-May and October 15 to the end of November to promote warm-season grasses. Many problem exotic species are cool-season species that are able to begin growing early in the year. Burning early in the spring takes away their competitive advantage over native species that primarily grow in the summer.
- Conduct prescribed burns under low-humidity conditions, use head fires, or allow heavy duff to build up at the base of woody species to reduce woody species.
- Restrict the use of pyrotechnics, smoke pots, and smoke grenades when fire danger is high. Also, smoke grenades and star cluster flares will be used only for emergency operations when under high fire danger conditions.

5.10 Soil Management

Soils on the Camp developed over thousands of years and have a complex ecology. Training activities can alter the soils of Camp Dodge through accelerated erosion, soil compaction, or removal of topsoil. Preventing soil erosion maintains a diverse vegetation structure and enhances stream and creek water quality. It should be given priority in all natural resource management activities.

Regulations regarding field operations may be found in Iowa National Guard Regulation 1-1. Vehicle movement should minimize soil disturbance and vegetation damage, particularly in wooded areas. Roads and trails must be used to travel to and from the training site and during downgraded conditions (when soil conditions allow excessive rutting or soil disturbance). Training exercises in the training area will be rotated among three areas, depending on the degradation of the soil and vegetation.

Soil Erosion Control techniques include:

- Continue to use erosion control structures and sod blocks where necessary.
- Mulch all areas of exposed soil in a timely manner. Mulch may consist of straw, wood chips, prairie hay, or erosion control mesh (in areas not mowed).
- Reseed exposed soil areas with vegetation native to North America. Use a native WET seed mixture for potentially wet areas and a DRY seed mixture for upland areas. These mixtures can be applied following the current reseeding procedure. Some plants introduced from Europe are aggressive and highly invasive, particularly in disturbed environments (agricultural fields, roadsides etc.). These

plants often out-compete native plants and take over large areas, but do not offer the best forage and cover to wildlife. Orchard grass is a common, but introduced species from Europe. Planting native, warm season grasses (grasses that flower at the end of the summer) is also cost effective. These plants are adapted to the environmental conditions of Camp Dodge. They do not require continual replanting and, unlike non-native grasses, will not die back in drought years.

- Plant trees and shrubs in appropriate areas (around the Beaver Creek Bridge for example) for long term soil holding capacity. The banks of Beaver Creek can be stabilized with willow (*Salix nigra*, *S. amygdaloides*, or *S. interior*) branches 4 to 5 feet long simply stuck in the mud. Black walnut (*Juglans nigra*), silver maple (*Acer saccharinum*), sycamore (*Platanus occidentalis*), hackberry (*Celtis occidentalis*), river birch (*Betula nigra*), and slippery elm (*Ulmus rubra*) should be planted in the floodplain area.
- Restrict vehicles from newly seeded and planted areas. New plants have immature root and stem structures that can be easily damaged or killed. Time and money are wasted if new vegetation is killed.
- Limit off-road vehicle use when soils are wet down to 6 inches and can be formed into a ball in the palm of one's hand. Moist soils are more susceptible to vehicle ruts and compaction. Plant roots have difficulty growing in compacted soils, limiting their growth. Compaction also slows water infiltration into the soil, increasing ponding and overland runoff.
- Continue to rotate off road vehicle training exercises among training areas.
- Continue to restrict vehicles from bottomland forested areas. The steep terraces and location on the floodplain make the bottomland forested wetlands highly susceptible to erosion.
- Restrict off road vehicle traffic in vegetation buffers of wetlands during period of high soil moisture.
- Limit off road vehicle use during extended periods of little or no precipitation. Driving on plants already stressed by low soil moisture may kill them, leading to possible soil erosion.
- Plant vegetated buffers in patterns that provide concealment opportunities during training.
- Drive vehicles across the slope of hills, instead of directly upslope whenever possible. Driving uphill may make tracks that concentrate water flow in them and result in gully formation.

5.11 Road and Roadside Management

- Shape drainage ditches in grassland areas to be broad and gently sloping. This shape will allow off road vehicles easy access to the road with minimal vegetation and soil disturbance.
- Culvert elevation should match surrounding topography. The ends of culverts should be placed at the same level as the natural ground levels to minimize "water falls" and the resulting soil erosion.
- Plant drainage ditches with proper native plant seed mix and mulch.
- Install necessary erosion control structures in drainage ditches until vegetation is established. Mulch, staked bales of straw, silt fences, sod blocks, terracing, large rocks, or railroad ties all may be used to control erosion.
- Minimize roadside mowing to only what is necessary for vehicle safety. Short grass vegetation should be planted along roadsides to eliminate the need to mow. If mowing is required, mow (at a height of 10 to 12 inches) only a single strip next to the pavement once during the summer. This provides the best habitat for birds and small animals (Payne and Bryant, 1994). Full width mowing every 3 to 4 years should prevent woody vegetation from encroaching on the roadside.

5.12Fish and Wildlife Management

The diverse vegetative habitat found in Camp Dodge supports a wide range of wildlife species. Two factors encourage diverse wildlife populations in Camp Dodge. The first factor is that Camp Dodge is located on the Mississippi River Flyway, and the Des Moines River is a major habitat tributary to the Flyway. Camp Dodge's close proximity to the Des Moines River and Saylorville Reservoir ensure that its vegetation communities offer extremely important wildlife habitat. The second factor is urban development surrounding Camp Dodge. This will continue to make Camp Dodge a refuge for wildlife, relatively isolated from human intrusions.

Currently, Camp Dodge is highly fragmented, with a high contrast between habitats, resulting in many edge habitats. Some wildlife thrive in edge habitats, other species require large, contiguous habitats. The Beaver Creek bottomland forest and the restored prairie in Training Areas B-6, C-2, C-4 and C-5 are the largest natural habitats in Camp Dodge providing valuable space for wildlife that require interior habitat. The newly formed wetland in Training Area E-2 has also become a valuable site for wildlife habitat.

Invertebrates

Wetlands and areas of Beaver Creek located in Camp Dodge were surveyed for dragonflies (Anisoptera) and damselflies (Zygoptera) from 1995 to 1997. Additional surveys were conducted in 2004-2006. A total of 43 species were recorded, approaching the expected number of species in this area of the state, with the types of habitats present. The species are listed in Appendix E. Surveys in 2004-2006 also identified 36 butterfly species, also listed in Appendix E.

Reptiles and Amphibians

The restored and natural wetland areas located in D-1/D-5 and D-2/D-3 respectively were surveyed for amphibians and reptiles during the spring and early summer of 1995 (Farrar *et al*., 1995). Listening surveys of male breeding calls, larval surveys, and visual observation were used to identify species and measure relative abundance. Species found during these surveys are listed in Appendix E.

Adequate food supplies for snakes appear to be available in and near the prairie wetland. However, agricultural land use surrounding the wetland has reduced the habitat quality and potential hibernation sites for snakes. An old house foundation located between the natural wetland and the restored wetland has been filled with loose debris and covered with soil to create a snake and salamander hibernaculum.

A baseline inventory for the entire training area was conducted in 1999-2000. No federally listed reptile or amphibian species were found during this study. The mudpuppy, a state-listed species, was specifically surveyed for during the study, but was not found. The survey found 18 species, eight being amphibian and ten reptile. Species were identified by training area to allow specific management techniques.

Three snake species and one lizard species were listed as notable by their absence during the study: the northern red-bellied snake, graham's water snake, red milk snake and northern prairie skink. Although Camp Dodge has adequate habitat for these species, they were not located.

Birds

The restored and natural wetland areas located in D-1/D-5 and D-2/D-3 were surveyed for birds during June and early July of 1995 (Dinsmore and VanRees-Siewert, 1995) and in 1996 through 1997. Random and permanent plots located in the emergent zone or on the basin edge and a 66 feet band of vegetation around each wetland were censured and searched for nests. Species found during these surveys are listed in Appendix E. Additional fieldwork was conducted during the summers of 1998 and 1999 by Iowa State University researchers and additional surveys have been conducted in conjunction with the wetland restoration project in Training Area E-2. Further surveys have been conducted for grassland and edge dwelling bird species in 2008-2012. These surveys were used to develop a more comprehensive management plan for vegetation management in the training area. Birds found are listed in Appendix E.

The bird surveys have been limited in season and area. The diversity of birds reported in Appendix E certainly is not the total number expected at Camp Dodge. Other species are likely present during migration or early in the breeding season.

The USFWS identified several threatened and endangered bird species whose ranges include Camp Dodge. The now delisted bald eagle (*Haliaeetus leucocephalus*) is listed as wintering along large rivers, lakes, and reservoirs in Polk County. The state endangered peregrine falcon (*Falco pereginus*) is listed as breeding in Polk County. It may be observed anywhere in the state as an occasional visitor, particularly along the Mississippi River during migration periods. The piping plover (*Charadrius melodus*) is threatened in Iowa where it nests on sandy beaches, bare alluvial, and dredged spoil islands adjacent to rivers, streams, lakes, and gravel pits. In Camp Dodge, these species may potentially occur in and along Beaver Creek. These birds must not be harassed, harmed or disturbed when present. Bald eagles have been observed on post, but no nests have been located.

Mammals

Camp Dodge has been systematically surveyed for small mammals using the Land Condition Trend Analysis (LCTA) plots allocated for plant material surveys. During the 1998 and 1999 field season, 14 species were live trapped and re-released on site. Two species of special interest were found. One species, the plains pocket mouse (*Perognatus flavescens)*, is listed as a State of Iowa endangered species. The second species, the

least weasel (*Mistela nivalis*), is usually found in northern Iowa. Their occurrence at Camp Dodge is indicative of a species at the edge of its geographic range. A list of all mammal species likely to be present in Camp Dodge are listed in Appendix E.

A third species of interest was identified in surveys conducted by Accipter Bioloigical Consultants. Four confirmed sightings of the Eastern Spotted Skunk (*Spilogale putorius*) occurred between 2001 and 2005. The spotted skunk is a state endangered species, and has not been recently reported in any other portion of the state.

A plains pocket mouse (*Perognathus flavescens*), designated as a State of Iowa endangered species, was trapped during a scientific study in Training Areas D–2 and D–3. It was found again during surveys conducted during 2001-2005. The plains pocket mouse is a species on the edge of its geographic range. It is a small rodent that prefers open grassy areas with sparse vegetation and sandy soils. The mouse is nocturnal and plugs the entrance to its burrow during daylight. The mice feed exclusively on grass seeds and normally must compete with other more common species. The sparse vegetation and sandy soil habitat is common around the prairie pothole that straddles Training Areas D–2 and D–3 and between the pothole and the Beaver Creek floodplain forest. Similar habitat is found in the sand prairie areas (Figure 6). These areas were surveyed 2001-2005, with no results. Later small mammal surveys located pocket mice in 2003 and 2004, but not 2005.

When the plains pocket mouse and spotted skunk were discovered on Camp Dodge, habitat protection and management was discussed with representatives of the Iowa Department of Natural Resources. No digging is allowed in the training areas that provide the habitat type needed by the mouse. Protection of the spotted skunk is more problematic, as they prefer areas of human habitation. Protective guidelines are in effect, with work crews cautioned when working in areas of rubble or old foundations that the skunk might frequent.

The federally endangered Indiana bat (*Myotis sodalis*) is listed as potentially occurring in Polk County by the USFWS. During the summer, the Indiana bat frequents small stream corridors with well-developed riparian woodlands as well as mature upland forests. The bat forages for insects along the stream corridor, within the forest canopy, over clearings with early successional vegetation (old fields), along the borders of croplands, and in pastures. The bats forage an area up to approximately 80 acres, depending on the season, the age, and sex of the animals. The bats roost and rear their young beneath the loose bark of large dead or dying trees. They winter in caves and abandoned mines. A bat survey conducted on Camp Dodge in 2001-2002 did not detect the presence of the Indiana bat.

Fish

A preliminary assessment of fish species in Beaver Creek was made in 1990. Species observed are listed in Appendix E.

Wildlife habitat management and enhancement techniques include:

- Continue existing hunting, trapping, and fishing policies.
- Restore existing savanna, prairie, and wetlands and enlarge these habitat types to promote landscape diversity. Promoting landscape diversity instead of site specific diversity and following aggressive soil conservation practices will enhance wildlife populations. Diverse wildlife habitats also provide a greater diversity of training opportunities.
- Provide landscape linkages between existing and restored habitats. The basic requirements of wildlife are food and water, cover, and space. A habitat surrounded by mowed field or agricultural land has limited wildlife value. Wildlife may risk predation moving to and from the habitat.
- Reduce habitat fragmentation and soften the contrast between adjacent habitat areas. Many of the suggestions made for planting vegetation buffers for soil conservation will accomplish this goal.
- Periodically re-conduct an inventory for Indiana bat, spotted skunk and plains pocket mouse and report any occurrence of the endangered species to the USFWS and IDNR. Areas hosting endangered species will be clearly marked.
- Map and mark “off-limits” areas of rare, threatened and endangered species.

A great threat to amphibian and reptile populations is habitat destruction. Land managers should not allow the collection of amphibians and reptiles except as allowed by law. In addition, the following general management measures are recommended:

- Discourage driving through water-filled ruts during the period from April 15 to August 31 of each year. This will avoid rutting of the roads, as well as preserve breeding habitats and potential food sources for reptile and amphibian species.
- Plant native vegetation around the perimeters of wetlands for erosion control and to reduce nutrient flow into the water, which could enhance all wetland areas. All amphibians and many aquatic reptiles are impacted by impurities in the water.
- Minimize use of chemical pesticides and non-biodegradable herbicides, especially within 300 feet of any wetland.
- Keep fish out of wetland areas, especially game fish. These species are highly predatory on amphibian eggs and larvae.
- Monitor and control bullfrog populations. The bullfrog has brought several native frog species to the brink of extinction.
- Allow hunting of bullfrogs to control their numbers, since no bullfrog predators exist at Camp Dodge.
- Provide and maintain vegetative corridors between wetlands and surrounding upland areas.
- Replace ground coverings such as rocks, logs, and boards when disturbed, to maintain a valuable habitat for amphibians and reptiles.

5.13Water Resources Management

The IDNR is the state agency responsible for water quality management in Iowa. The IDNR manages water quality through implementation of water quality standards, which are designed to protect and enhance the quality of all waters of the state. The IDNR is the agency responsible for preparation of the Iowa water quality inventory and status report as required by Section 305(b) of the federal Clean Water Act.

Streams on Camp Dodge are classified as Class B, which means that they are primarily used as a support for aquatic life. The designation of Beaver Creek is Class B with a sub classification of “LR”. Class B(LR) water bodies are limited resource warm water streams that support limited aquatic life populations primarily composed of minnows and other nongame fish species. It was listed as an Impaired Stream in 2004 for salinity, Total Dissolved Solids (TDS) and chlorides and in 2013 due to Escherichia Coli concentrating.

There are eight additional water quality criteria, which must be met by all State waters. All waters of the state shall be free from:

- Substances from point source discharges that will settle to form sludge deposits.
- Debris, oil, grease, scum, and other materials from wastewater discharges or agricultural practices in amounts sufficient to create a nuisance.
- Materials from wastewater discharges or agricultural practices producing objectionable color, odor, or other aesthetically objectionable conditions.
- Substances from wastewater discharges or agricultural practices in concentrations or combinations which are acutely toxic to human, animal, or plant life.
- Substances from wastewater discharges or agricultural practice in quantities which would produce undesirable or nuisance aquatic life.

In addition:

- The turbidity of a receiving water shall not be increased by more than 25 nephelometric turbidity units by any point source discharge.
- The amount of total dissolved solids shall not exceed 750 mg/l in any lake, impoundment, or in any stream with a flow rate equal to or greater than three times the flow rate of upstream point source discharges.
- The water which enters a sinkhole or losing stream segment shall not exceed a fecal coliform bacteria content of 200 organisms per 100 ml, except when the waters are materially affected by surface runoff; in no case shall fecal coliform levels downstream from an existing discharge which may contain pathogens to humans be more than 200 organisms per 100 ml higher than the background level upstream from the discharge. No new wastewater discharges will be allowed on watercourses, which directly or indirectly enter sinkholes or losing stream segments.

All management practices will be consistent with the Clean Water Act and other applicable federal, state, and local laws and regulations. Management will improve the quality of water originating within the training site’s boundaries and which may be affected by military activities. Techniques include:

- Implement erosion and sediment controls in construction areas and maneuver areas as well as stream bank stabilization methods.
- Provide adequate sewage treatment and disposal for all facilities. Sewage treatment and disposal are subject to the provisions of Executive Order 12088, "Federal Compliance with Pollution Control Standards" (42 USC 4321), and the Iowa Department of Natural Resources' Environmental Protection Rule 567, Chapter 61, "Water Quality Standards".
- Use appropriate methods for grading, filling, soil removal, and replacement, etc., to minimize erosion and sedimentation during construction.
- Monitor and direct the location and use of toxic substances, such as pesticides, petroleum products, and other hazardous substances to minimize the risk of water contamination.
- Observe and monitor upstream effects to Beaver Creek on Camp Dodge, adjacent land uses and their effects on the occurrence, quantity, and quality of water necessary for the training site's ecosystems. This will identify areas that should receive focused water-quality improvement efforts.
- Reduce soil erosion and improve the water quality at Camp Dodge by following the management techniques for wetlands and riparian zones.

5.14 Integrated Pest Management (IPM)

Plant species designated as noxious weeds by the State of Iowa are scattered throughout Camp Dodge. True to their primary successional life history, they are common in disturbed habitats - roadsides, heavily impacted training areas, row crop fields, hay fields, and successional fields. Further information is found in Table 8.

A total of 599 plant species have been identified on Camp Dodge, and 114 (19 percent) of these species are not native to the United States. Non-native plant species are designated in Appendix D.

Control of the noxious weed species found on Camp Dodge has been prioritized based on potential training and safety impacts, ability to detect the plant, likelihood of successful control, and ecological impact. None of the noxious weed species are expected to impact training activities on post. Those species with a Priority 1 designation will have the greatest ecological impact and will be most successfully controlled. Canada and bull thistle species crowd out native grasses and forbs and spread very quickly. Plants produce large quantities of seeds that are widely dispersed by the wind. The seeds may remain viable in the soil for up to 20 years (Solecki, 1997). Generally, these species grow in large monocultures and are easily detected.

Priority 2 plants are usually concentrated in smaller areas that have been highly disturbed (row crop fields) and generally have a smaller ecological impact. Except for multiflora rose, this group of plants are smaller and harder to detect, and thus more difficult to control. Rosa multiflora has sharp thorns and grows very densely and is the only species that may potentially disrupt training activities. This species is easy to detect, but difficult to completely control.

Priority 3 plants usually grow sporadically, can be hard to detect, have only a moderate potential ecological impact, and are difficult to control. All of these factors make controlling these species a lower priority.

Priority 4 species are species native to Iowa that are expected to have the least potential ecological impact, no training impact, difficult to find, and therefore have the least likelihood of control.

Weedy plant species take advantage of disturbed habitats to increase their populations. Disturbances include physical alterations on the landscape, such as vegetation removal or erosion, and more subtle disturbances such as an increase in nutrient inputs. Reducing the number of disturbed habitats in the camp and planting or enhancing stable vegetation communities achieves long term and permanent control of these species. Many of the soil and vegetation management strategies outlined in this chapter will have the secondary benefit of controlling noxious weeds. For example, rapid reseeding and mulching of disturbed areas either from tracked vehicles or construction projects will control soil erosion, reduce the invasion potential of noxious weeds, and insure viable training area for future troops that come to Camp Dodge. The conversion of successional fields to native grasses and forbs and the regular burning of the prairie and old successional fields will reduce noxious weed occurrence, with the additional benefit of reducing poison ivy occurrence, mowing requirements, woody plant growth, and enhance the training area.

Short term methods of controlling noxious/invasive weeds are listed in Table 8. These methods include repeated mowing or cutting (especially before plants flower), hand pulling, prescribed burning, and herbicide

application or a combination of actions. Visual surveys will be made of all noxious weed control actions for two growing seasons after the control method was deployed. Grounds personnel will be asked to report any populations of Priority 1 and 2 plants observed during the course of their regular duties.

Wetland ecosystems, birds, mammals, and insects can be negatively affected by pesticide use. For example, neotropical migratory birds, which pass through the training site feed primarily on insects. Pesticides that are sprayed to kill insects can accumulate in the tissues of higher mammals that eat the insects. This process is called “bioaccumulation” and can eventually lead to the death of the “bioaccumulator”. For this reason, non-chemical means of control for insects and plants have been stressed.

- Use biological control methods whenever feasible and economical. Only apply pesticides when no biological or mechanical control method can be found or is prohibitively expensive.
- Apply all pesticides according to label specifications, which is the law. Never exceed the manufacturer’s recommended dosage for pesticides, apply only to the target pests identified on the label, and wear required safety clothing. Apply the lowest labeled pesticide rate that adequately controls pests. Lower rates reduce the total amount of chemical in the environment. Rotate pesticides among chemical families to minimize pest resistance. IPM does not rely on continuous use of a single pesticide or pesticide family.
- Apply all chemicals according to manufacturer’s instructions and away from drainages. Fertilizers can also have a negative effect on water resources if applied to excess.
- Have only certified pesticide applicators purchase and spray pesticides. All applicators should become certified and remain current in new developments in pest management.
- Consult with the Environmental Branch before spraying pesticides aerially on the training site.
- Use rapidly degrading pesticides, which are less likely to contaminate soil and groundwater.
- Apply pesticides at times when they will be most effective against the pest. Pest cycles are influenced by temperature and moisture conditions. In many cases, pests under dormant or stressed conditions may not be susceptible to pesticide treatments. Avoid pesticide applications during adverse weather, especially windy, wet conditions. Do not apply volatile chemicals under high temperature conditions.
- Keep accurate records of all agricultural chemicals applied on the site to help IA ARNG make informed management decisions. By law, records of all restricted use pesticides must be maintained by operators for at least two years. This information has further value for use with crop and pest modeling programs and economic analyses.

Table 8. Noxious and/or Invasive Weed Species Found at Camp Dodge

Priority Ranking of Species Control	Plant Species	Vegetation Community Where Located (Figure 6)	Method of Control
1	*Alliaria sp.* (Garlic Mustard)	Woodland, Grassland (Sporadic)	Hand cut/pull plants in spring before seed production. Apply Roundup in fall. Garlic Mustard has not been declared a noxious weed, but is highly invasive.
1	*Carduus nutans* (Musk thistle)	Successional Field, Prairie	Hand cut/pull plants 3x each season Mow before plant flowers Apply Roundup in spring when plants 6–10" tall
1	*Cirsium arvense* (Canada thistle)	Successional Field, Hay Field (Sporadic)	Same as *Carduus nutans*
1	*Cirsium vulgare* (Bull thistle)	Successional Field, Hay Field (Sporadic)	Same as *Carduus nutans*
2	*Abutilon theophrasti* (Velvetleaf)	Successional Field, Row Crop	Spot spay with broad leaved herbicide
2	*Rosa multiflora* (Multiflora rose)	Scrub Forest, Roadsides	Prescribed burning Hand pull, all roots must be removed Mow 3 to 6 times per yr. for 2 to 4 yrs Mow in late summer/fall, spray resprouts with Garlon 3A in spring
2	*Sonchus arvensis* (Perennial sowthistle)	Successional Field, Row Crop	Spot spay with broad leaved herbicide
2	*Xanthium strumarium* (Cocklebur)	Row Crop	Spot spay with broad leaved herbicide
3	*Agropyron repens* (Quackgrass)	Roadsides	Spot spay with 2% Round up herbicide.
3	*Daucus carota* (Wild carrot)	Successional Field, Roadsides	Prescribed burns Mow before flowers.
3	*Plantago lanceolata* (Buckhorn plantain)	Successional Field, Roadsides	Spot spay with 2% Round up herbicide Control only if very large monocultures are found
3	*Rumex crispus* (Curly dock)	Low Prairie,	Found in wet areas– control only if very large monocultures are found Spay with aquatic safe herbicide
4	*Helianthus annuus* (Wild sunflower)	Prairie	Native to Iowa, control only if very large monocultures are found.
4	*Rumex acetosella* (Red sorrel)	Prairie	Native to Iowa, in high quality vegetation area, control only if very large monocultures are found.
4	*Rumex altissimus* (Smooth dock)	Successional Field, Prairie	Native to Iowa, control only if very large monocultures are found.
4	*Solanum carolinense* (Horsenettle)	Prairie Remnant (Trng. Area E–1)	Native to Iowa, in high quality vegetation area, control only if very large monocultures are found.

5.14.1 Poison Ivy and Wild Parsnip Control

While poison ivy (Rhus radicans) and wild parsnip (Pastinaca sativa) are not considered Iowa noxious or invasive weeds, their invasive growing habits and their threat to Soldier health and safety require special control on Camp Dodge.

Poison ivy (*Rhus radicans*) contains a poisonous sap that is present in the roots, stems, leaves, and fruit. The sap can cause mild to severe allergic reactions when it comes in contact with human skin. The poisonous sap is released only after one of these plant organs is crushed or ruptured. The sap remains toxic all year, but poison ivy rash is easier to contract during the spring and early summer, when leaves are tender and bruise easily. In the past, large numbers of troops training in the field maneuver area have contracted some form of poison ivy.

Poison ivy grows best in moist soils with partial shade, where there is little competition for light and space from other plants. The plant has two forms. The first is vine form that grows up trees, often with its own extensive branching. This form is found primarily on the edges of the bottomland hardwood forest and in trees growing in successional old fields. The second form is a low, creeping morphology generally 12 to 18 inches tall. This form is found in sparsely covered successional field, areas of brome grass, fence rows, partially shaded disturbed sites, and moist waste areas.

Wild parsnip spends one or more years in a rosette stage, then blooms under favorable conditions, and then dies. It is about six inches high in the rosette stage and about four feet high in the flowering stage. The flower clusters are flat-topped and broad, with five-petaled yellow flowers, blooming from June to late summer. It was brought to the United States from Europe and Asia, where it is grown as a root vegetable.

When exposed to the sun, the sap of the wild parsnip can cause a rash, discoloration and blistering on skin. Wild parsnip adapts easily to disturbed habitats and can severely modify open dry or moist habitats.

Currently poison ivy and wild parsnip is controlled with the use of herbicides such as Garlon, Trimec or Weedon in the spring and fall, in addition to spot mowing. The herbicide is being applied with backpacks and truck mounted sprayers. In addition, prescribed burns are targeting poison ivy infested areas.

The poison ivy and wild parsnip control program should eradicate areas of heavy infestation to minimize risk of Soldier exposure. It is not expected that the control program will eliminate either from Camp Dodge. Soldier risk will be most greatly minimized by focusing the control program on priority areas: areas where the potential human contact is high and bivouac and training areas with high Soldier traffic. Other specific actions include:

- Continue an education and personal hygiene program. A control program should include an education initiative to teach Soldiers the identifying characteristics of the plants and the patterns of sap transfer. Aggressive hygiene practices should be encouraged (including the issue of strong soaps to each Soldier) to reduce the possibility or severity of the reaction to the plants. Commanders should be encouraged to bring Soldiers in from the field on a frequent rotation to allow bathing when training in areas of heavy infestation.
- Use fire to control poison ivy in successional old-field and forest communities. Poison ivy is not tolerant of burning and repeated early spring burning for 2-3 years effectively kills it. This technique has been successfully used on land managed by the U.S. Army Corps of Engineers around Saylorville Reservoir (Jim Gubbels, personal communication). Using fire, the Corps has been able to quickly and cost effectively eliminate poison ivy from large grass and forest areas. However, great care must be taken in planning controlled burns for poison ivy. Burning poison ivy may cause the sap on soot particles to be carried into the atmosphere by smoke, possibly causing allergic reactions in the mouth, throat, and nasal passages. Burning has not been as successful in controlling wild parsnip. Because it tends to grow in disturbed areas, burning tends to open up these sparsely vegetated sites and allows the seeds to sprout.
- Continue herbicide application in high use areas (bivouac sites, troop movement corridors) and along fence rows, in disturbed areas, and in vegetation transitional zones. Garlon 3A at a 1 percent solution sprayed on active leaves effectively kills poison ivy, as well as most woody plants. To be most effective, Garlon 3A must be applied with a surfactant (Silkin™ is recommended) to penetrate the waxy cuticle layer on poison ivy leaves. Garlon 3A, a water based herbicide, is recommended

because it has low toxicity for animals (including humans) and is practically non-toxic to aquatic organisms. Garlon 3A has a half life residence time of 15 days, compared to the 40 day half-life of 2,4,D based herbicides, such as Trimec and Weedon. A second application may be necessary as soon as new plant growth begins to appear. Material Safety Data Sheets (MSDS) must be available and accessible to the Camp Dodge staff.

- Cut poison ivy vines growing in trees and apply herbicide to stumps. Controlling poison ivy growing in trees reduces further dispersal of the plant and reduces Soldier contact with stems and leaves. If using Garlon 3A, spray or paint the surfaces of freshly cut stumps with an undiluted solution. A second method (Loren Lown, personal communication), is the application of a 6 percent Garlon 4 solution in water or 25 percent Garlon 4 and 75 percent an EPA approved carrier, sprayed on the bottom 12 inches of the vine. Spray application methods should be done when other plants are dormant.
- Plant native grasses. Native grasses form a denser root mass that discourages poison ivy and wild parsnip establishment.
- The best way to control wild parsnip is early detection and eradication. An effective control method is to cut the entire root just below ground level with a sharp shovel or spade. Cutting below ground level prevents resprouting. In some soil types in wet conditions, the plants can be pulled out of the ground by hand. All seeds must be removed from the site and disposed of in a landfill or by burning. If the population is too large to hand-cut or pull, a power brush-cutter can be used just after peak flowering and before the seeds set. Plants may resprout when cut above the ground, and should be cut again a few weeks later to prevent flowering. Cutting done after seed set will greatly reduce the likelihood that the plants will be able to resprout and flower. Plants cut at this time must all be gathered and removed from the site if at all possible, to prevent mature seed from developing and falling to the ground. Another effective way to eliminate reseeding is to hand-collect all seeds after they have set. If control of flowering or seeding plants is carried out over several years, the population will decrease as the seed bank is depleted.

5.15Grounds Improvements and Landscaping

Environmentally and economically beneficial landscaping practices can reduce maintenance costs while also providing wildlife habitat (Presidential Memorandum, 1994, and 60 FR 40837).

Cantonment Area Grounds Management

- Use selective landscaping, vegetative management, including pruning, cutting, or planting to provide for regeneration, tree development, pest hazard reduction, hazard tree control, and site stabilization.
- Plant windbreaks or shelter belts of trees around the borders of parking lots and near buildings. These provide a barrier against winter winds and reduce heating costs for buildings. Choose shrubs and trees that provide food and cover for wildlife, with preference for native species, such as maple trees (*Acer* spp.), sycamore (*Platanus occidentalis L.*), dogwood (*Cornus* spp.), and eastern red cedar (*Juniperus viginiana L.*). Shrubs should be spaced about 4 to 6 feet apart; and trees approximately 10 feet apart. To create shelter belts, plant several rows of larger trees, smaller trees, and shrubs with rows about 15 feet apart.

5.16Cultural Resources Management

Cultural resources are protected in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, its implementing regulation 36 CFR 800, the Antiquities Act of 1906 (16 USC 431-433), the Archeological Resources Protection Act (16 USC 470aa-11), and AR 420-40. Executive Order 11593 requires installations to locate, inventory, and nominate all sites, buildings, districts, and objects under their jurisdiction or control that appear to quality for listing on the National Register of Historic Places. Some military training activities (e.g., engineering training and other ground disturbing activities) are considered “undertakings” as defined by the above regulations and will require evaluation.

The IA ARNG has prepared an Integrated Cultural Resources Management Plan (ICRMP) for the years 2013 through 2017. For more specific methods of managing Cultural Resources at Camp Dodge, reference should be made to the ICRMP.

- Report any artifacts or archaeological sites that may be discovered during a training exercise or routine maintenance work to the Installation OIC and/or the Environmental Branch.

- Contact the Cultural Resources Manager (CRM) for all actions affecting Historic Structures as defined in 16 U.S.C. 470 – 470(w).
- Create a buffer zone to prevent damage caused by bivouac and tactical positioning in the event that any significant cultural resources are discovered.
- Communicate cultural resource discoveries to the State Historical Society of Iowa.

5.17 Safe and Effective Training and Protection of Natural Resources

This plan provides for sustainable use by the public of natural resources to the extent that the use is not inconsistent with the needs of fish and wildlife resources. In addition to the specific management of ecosystems, there are some simple actions that can be employed in order to increase the sustainability of Camp Dodge and its resources. These measures are outlined below:

Vehicle Movement

- Stay on the established roads when moving from place to place. Observe the posted speed limits.
- Stay on established trails and in open, regularly mowed areas when off-road maneuvers are conducted.
- Stay out of "Off-Limits" and "Foot Traffic Only" areas, such as rare species habitats, wetlands and cultural resource sites.
- Avoid making J-turns, and neutral steer turns. Stay out of ditch lines and avoid roadside grassy areas.

Litter

- Police all areas for litter before and after training activities.
- Place all garbage in the dumpster at the range or at the cantonment area. No chemical or oil waste is allowed.
- Police all barbed, communications, concertina, and trip wires after training activities.

Hazardous Materials and Regulated Wastes

- The Environmental Branch should be contacted immediately if a reportable spill occurs.
- Commanding Officers are responsible for any and all environmental damage that might occur.

5.17.1 Public Access and Outdoor Recreation

Outdoor recreation at Camp Dodge is limited due to the primary training mission of the training site. Additional limitations on public access have been set due to the presence of hazards related to training activities and on-going construction activities. Some possible threats to public safety related to training activities include: small arms firing, training residue (e.g., fox holes and concertina wire), and military vehicle maneuvering. All of these are potential hazards to outdoor recreationists on foot or in a vehicle. For this reason, secured gates control public access to the training site.

Natural resource education at Camp Dodge has two audiences: the visiting troops using the facility, and the general public. Education of troops will improve safety, protect natural resources, and save money. Educating the community about the natural resources protection activities occurring at Camp Dodge will encourage public knowledge and support for the facility. In addition to employing over 800 people full time, Camp Dodge serves as a type of "convention center", whose visitors directly and indirectly use the services of many local businesses. Camp Dodge also provides open space in a rapidly expanding urban area. Even though this space has restricted access, the open land area increases property values of the surrounding residences.

The leaders of Camp Dodge give environmental stewardship prominence in the local management policies of the camp (INGR 1-1, Chapter 4). The managers of Camp Dodge recognize that natural resources enhance the training opportunities. Damages to natural resources are costly to repair and can create safety hazards for troops. Finally, natural resource protection ensures that the camp will be a useful training facility in the future, and ensures continued support for the camp from the surrounding community.

Natural Resource Education Activities

- Continue to implement and emphasize natural resource management policies.
- Ensure that pocket guides and posters are available to Soldiers.
- Distribute community newsletter or news articles. These publications may describe some of the training taking place at the facility, any special programs, and dates when residents may hear loud

noises (explosions, helicopters), or see increased activity. Public portions of the camp such as facility rental could also be included.

- Conduct a Camp Dodge "open-house" or field day. Inform people of the mission of Camp Dodge, have displays of Camp Dodge history, demonstrate equipment, provide learning activities, conduct tours of the facility.
- Showcase conservation programs and practices conducted at Camp Dodge. In the past, Camp Dodge has hosted Eagle Scout wetland tours, National Public Lands Day events and field tours of Camp Dodge's training areas.
- Continue speakers bureau presentations to interested organizations.
- Continue working with local nature/conservation and youth groups.
- Continue to encourage school groups to use the natural areas of Camp Dodge.

5.17.2 Hunting and Fishing Activities

Hunting/fishing privileges are open to state employees working at Camp Dodge, IA ARNG military personnel, and all retired military personnel. The users obtain the required IDNR licenses off post and must provide a copy of current licensure to use the training area. Camp Dodge does not issue licenses.

- Hunters must carry a valid Iowa hunting license and the appropriate military permit(s) on their person while in the field. All juveniles must have hunters' safety training in accordance with State hunting regulations.
- The only guns allowed for use on Camp Dodge are shotguns, pistols, and small caliber rifles.
- Hunters and persons accompanying them hunting during a period and in a location where firearms are permitted for deer hunting must wear solid, unbroken hunter orange color visible from all sides on the head, back, and chest. Hunter orange garments must be worn as the outer coverings. Camouflage-patterned hunter orange garments do not meet these requirements.

5.17.3 Watchable Wildlife Program

In 1990, DoD signed a Memorandum of Understanding with Defenders of Wildlife and 12 other public and private organizations to set up public wildlife viewing stations on Federal, State, and private lands. The Watchable Wildlife program seeks to protect wildlife habitat, educate visitors, and enhance public support of wildlife resource conservation. It addresses the public's growing interest in viewing and photographing animals in natural settings. The Iowa Watchable Wildlife program began only a few years ago and will continue to grow as Iowans become more conservation-minded. Potential wildlife-viewing opportunities may exist at Camp Dodge.

5.18Natural Resources Law Enforcement

Many aspects of natural resources management require effective enforcement if they are to be successful. Features such as hunting/fishing harvest controls, protection of wetlands, water pollution prevention, rare species protection, and others are dependent on law enforcement. At Camp Dodge, state-employed security guards conduct routine patrols, observe all activities on the training site, and notify the proper law enforcement personnel when law enforcement is needed.

5.19Partnerships with Federal, State, and Local Entities

This section lists agencies that will be provided with appropriate natural resources information. An ecosystem approach depends not only on the actions and practices of DoD, but also on those of neighboring public and private landowners. The IA ARNG has already formed several partnerships with local, state, and federal agencies. During the next 5-year period, other partnerships will be formed and greater public outreach will be accomplished to promote sharing of natural resources information.

5.19.1 U.S. Fish and Wildlife Service (USFWS)

The USFWS is the principal federal agency responsible for conserving, protecting, and enhancing fish, wildlife, and their habitats for the continuing benefit of the American people. The agency also enforces federal wildlife laws, manages migratory bird populations, stocks recreational fisheries, conserves and restores wildlife habitat such as wetlands, and administers the Endangered Species Act. USFWS is a cooperator in preparation of this plan in accordance with the Sikes Act. The agency is responsible for reviewing the fish and wildlife portions of this INRMP and providing guidance on federally-listed rare species and wetland management. Appendix G contains documentation showing coordination with both federal and state fish and wildlife agencies for the protection, development and management of fish and wildlife resources at Camp Dodge.

5.19.2 Natural Resources Conservation Service (NRCS)

The NRCS (formerly Soil Conservation Service) has partnered with Camp Dodge in the past. Partner projects include: wetland delineation, wetland development, waterway design, and farm conservation plans.

5.19.3 Iowa Department of Natural Resources (IDNR)

The IDNR is also a cooperator in the preparation of this plan in accordance with the Sikes Act. This agency, along with the USFWS, has assisted the Environmental Branch in developing portions of the plan so that a mutual agreement is reached among the installation and the agencies. Appendix G contains coordination with IDNR for the protection, development and management of fish and wildlife resources at Camp Dodge.

5.19.4 The Nature Conservancy (TNC)

In 1988 and 1995, DoD and TNC signed agreements to work together in inventorying plant and animal species on DoD lands and to identify rare species and their habitats. The Nature Conservancy originally developed the widely used heritage methodology for analyzing biological data and maintains partnerships with State Natural Heritage Programs. The DoD now has partnerships with many of these heritage programs to continue species inventories on military installations and determine the significance of a particular species or community. The IA ARNG partnered with TNC for the post's vegetation survey.

5.19.5 State Historical Society of Iowa (SHSI)

The SHSI is a cooperator in ensuring that this plan is implemented in accordance with Section 106 of the National Historic Preservation Act. This agency and the State Historic Preservation Officer (SHPO) will review this plan and will provide comments. Appendix G contains coordination with agencies for the protection and management of cultural resources at Camp Dodge.

5.20Project Implementation

Due to their changing nature, projects developed through this plan are listed in Appendix H. An annual update of this plan and project list is located in Appendix I.

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Chapter 6.0 Plan Implementation and Plan Integration

Implementation is the final step in the planning process, marking the end of planning and the beginning of action. Plans must be implemented if goals and objectives are to be transferred from paper to the resources themselves. In addition, the INRMP must integrate with other relevant planning documents.

In support of the training mission, the natural resources of Camp Dodge are to be managed correctly; goals and objectives should be accomplished. Activities critical to successful plan implementation include:

- Public environmental review and support
- Priorities and scheduling
- Providing administrative requirements and staffing
- Cooperation and coordination with other agencies and funding options
- Implementation costs of projects, objectives, and goals
- Plan amendments and revisions

The following are considered component plans of the INRMP:

- Soil Erosion and Sediment Control Component
- Endangered Species Management
- Invasive Species Management
- Integrated Wildland Fire Management Plan

The following plans should coordinate and integrate with the INRMP, as applicable:

- Forest Management Plan
- Wildlife Management Plans
- Agriculture Conservation Plan
- Integrated Pest Management Plan
- Integrated Cultural Resources Management Plan

6.1 Coordination

This plan reflects consultation with multiple partners concerning maintaining and enhancing Camp Dodge's training site through conservation, protection, and management of natural resources. Coordination conducted between the installation and regulatory agencies during development of the plan and public coordination conducted during the National Environmental Policy Act (NEPA) process help ensure proper management of Camp Dodge's natural resources.

6.2 Staffing

Essential to plan implementation is a balanced team of trained professionals and technical staff. Staffing sources for the natural resources program at Camp Dodge include:

1. Permanent Staff
    a. Camp Dodge Joint Maneuver Training Center Installation OIC
    b. DPW maintenance workers
    c. Environmental Branch personnel
2. Part-time Staff
    a. Training Site Detachment Soldiers
    b. Summer interns
3. Troop Labor
    Annual or Weekend Drill Training provides benefits to the training site as well as to the troops themselves. Examples of projects executed using troop labor in the past are road leveling and grading, spreading of gravel, and hardened bivouac site construction.
4. Special contractors
    Some projects require use of various contractors. Potential contractors include: NRCS; Iowa Chapter of the Nature Conservancy; Iowa State University; Colorado State University; Utah State University; University of Iowa; IDNR.
5. Civic groups such as the Boy Scouts and Girl Scouts of America.

6.3 Outside Assistance and Personnel Training

Because it is most probable that Camp Dodge will not be able to hire the specialized expertise needed to achieve some of the projects within this INRMP, considerable expertise from universities, agencies, and contractors will be required to accomplish the tasks. Specific needs from other organizations external to Camp Dodge are indicated throughout this plan.

Training received by Camp Dodge personnel and others participating in the management of natural resources at the training site should address practical job-oriented information, legal compliance requirements, applicable DoD/DA regulations, pertinent State and local laws, and current scientific and professional standards as related to the conservation of natural resources.

The following annual workshops, professional conferences, and classes are excellent means of obtaining interdisciplinary training for natural resources managers:

- Sustainable Range Management Conference
- GIS training
- ARCVIEW training
- Iowa Department of Agriculture and Land Stewardship - Pesticide Application and Licensing
- National Military Fish and Wildlife Association
- U.S. Army Corps of Engineers Wetlands Delineation Courses
- Prescribed Fire Management Course
- Locally available training through the Cooperative Extension Service, universities, professional and trade organizations, state government, and commercial businesses

6.4 Implementation of INRMP Goals and Objectives

Implementation of the INRMP will be realized through the accomplishment of specific goals and objectives as measured by the completion of the projects identified in each section of this plan. It should be noted that project implementation dates are estimated and are subject to change depending upon funding and staffing availability.

6.4.1 Implementation Responsibilities

Levels of responsibility for implementation of goals and objectives have been identified and assigned to each project identified in the Implementation Section of each Chapter in this document.

6.4.2 Priorities and Scheduling

Integrated Training Area Management projects are generally classified by need and frequency or timing. Four basic groups or types of projects are identified on Camp Dodge, which govern the priority and scheduling of activities and projects. A description of each of these project types follows:

<u>Recurring Natural and Cultural Resources Conservation Management Requirements</u>
Includes projects and activities needed to cover the recurring administrative, personnel, and other costs that are necessary to meet applicable compliance requirements (Federal and State laws, regulations, Presidential Executive Orders, and DoD policies) or which are in direct support of the military mission. Examples of recurring costs include:

- Biological assessments, surveys, or habitat protection for a candidate species for listing as “endangered” or “threatened”
- Manpower, training, and supplies
- Hazardous waste disposal
- Operating recycling activities
- Permits and fees
- Testing, monitoring and/or sampling and analysis
- Reporting and record keeping
- Maintenance of environmental conservation equipment
- Compliance self-assessments

Current Compliance
Includes projects and activities needed because an installation is currently or will be out of compliance if projects or activities are not implemented in the current program year. Examples include:

- Environmental analyses, monitoring, and studies required to assess and mitigate potential effects of the military mission on conservation resources
- Planning documents
- Baseline inventories and surveys of natural and cultural resources (historical and archaeological sites)
- Biological assessments, surveys, or habitat protection for a specific listed species
- Mitigation to meet existing regulatory permit conditions or written agreements
- Wetlands delineation
- Efforts to achieve compliance with requirements that have deadlines that have already passed
- Initial documenting and cataloging of archaeological materials

Maintenance Requirements
Includes those projects and activities needed that are not currently out of compliance but shall be out of compliance if projects or activities are not implemented in time to meet an established deadline beyond the current program year. Examples include:

- Compliance with future requirements that have deadlines
- Conservation and Geographic Information System mapping to be in compliance
- Efforts undertaken in accordance with non-deadline specific compliance requirements of leadership initiatives
- Wetlands enhancement, in order to achieve the Executive Order for “no net loss” or to achieve enhancement of existing degraded wetlands
- Environmental awareness and education programs for troops and the public

Enhancement actions, beyond compliance
Includes those projects and activities that enhance conservation resources or the integrity of the installation mission, or are needed to address overall environmental goals and objectives, but are not specifically required under regulation or Executive Order and are not of an immediate nature. Examples include:

- Participation in “National Public Lands Day”, an annual event where volunteers unite to improve resources on public lands. Information can be found at www.npld.com
- Community outreach activities
- Educational and public awareness projects, such as interpretive displays, oral histories, “Watchable Wildlife” areas, nature trails, wildlife checklists, and conservation teaching materials
- Restoration or enhancement of cultural or natural resources when no specific compliance requirement dictates a course or timing of action
- Management and execution of volunteer and partnership programs

6.5 Funding Options

The following discussion of funding options is not a complete listing of funding sources. In fact, funding sources are continuously changing and the individual focuses, restrictions, and requirements of funding sources are volatile. Current funding matrices can be found in Appendix J.

6.5.1 IA ARNG Funding

Funding from the following sources will be required to implement the INRMP over the next five years:

- The Army National Guard – Organization and Training Division (ARNG-OD) provides funding of man-days to support troop projects at Camp Dodge.
- The Army National Guard – Army Training Division (ARNG - TRS) is the primary support of ITAM (LRAM, LCTA, TRI, EA) at Camp Dodge.
- The Army National Guard – Environmental Programs Division (ARNG-ILE) supports natural resource management and compliance-related projects at Camp Dodge. Special funding

coordinated through ARNG-ILE includes agricultural/grazing, Legacy and forestry funding. These funds are typically granted on a project-by-project basis.

- The Army National Guard – Installations Division (ARNG-ILI) provides funding for the personnel, equipment and supplies in support of the G-7 (Construction and Facilities Management) Office and the Camp Dodge Joint Maneuver Training Center. This involves pest control, vegetation management, and road/trail maintenance.
- The State of Iowa receives funding through the Iowa State legislature. An appropriation is provided to accomplish the mission of the IA ARNG including employee salaries, facilities management, and equipment.

6.5.2 Agricultural Use Income

Agricultural funds may be derived from agricultural outleases on state-owned military lands. The Construction and Facilities Management Officer and Camp Dodge Installation OIC outline procedures for collection and spending these funds. All money collected goes into a specific account where it can offset costs of maintaining the training site.

6.5.3 Fish and Wildlife Funds

The Federal Domestic Assistance Program 15.608 (Fish and Wildlife Management Assistance) provides technical information, advice, and assistance to Federal and State agencies, and Native Americans on the conservation and management of fish and wildlife resources. Projects for grant funding must be submitted to the Regional Director of the USFWS. Through the Sikes Act, the Service has established a Memorandum of Understanding with the DoD whereby fish and wildlife values are considered on military installations.

The Federal Domestic Assistance Program 15.615 (Cooperative Endangered Species Conservation Fund) provides Federal financial assistance to any State, through its appropriate State agency, which has entered into a cooperative agreement to assist in the development of programs for the conservation of endangered and threatened species.

The Federal Domestic Assistance Program 15.976 (Migratory Bird Banding and Data Analysis) provides a central repository for all migratory bird banding records in North America. Any agency or private individual engaged in or having a serious interest in research or management activities related to migratory birds can apply for permit to conduct bird banding.

The *Pulling Together Initiative: A Public/Private Partnership for Invasive and Noxious Plant Management* (PTI) is a grant program supporting projects that benefit multiple species, achieve a variety of resource management objectives, and/or lead to revised management practices that reduce the causes of habitat degradation. The DoD may obtain PTI funds provided the funds are used to support conservation projects that benefit the DoD's mission to protect, enhance, and restore the nation's natural resources. Projects must occur on or adjacent to DoD lands, be implemented in conjunction with DoD land managers, and directly benefit terrestrial and aquatic ecosystems and native fish, plant, and wildlife resources. For consideration of DoD funding, a proposal must address how efforts will benefit the military.

6.5.4 Sikes Act Funding

Cooperative agreements may be entered with States, local governments, nongovernmental organizations, and individuals for the improvement of natural resources or to benefit natural and historical research on federally-owned training sites. Because the federal government owns a portion of the land at Camp Dodge, funding through the Sikes Act is possible. Funding and services may be contributed on a matching basis to defray the cost of programs, projects, and activities under the agreement (16 U.S.C. 670a et seq.).

Additionally, the Federal Domestic Assistance Program 12.401 (National Guard Military Operations and Maintenance (O&M) Projects) is available to the IA ARNG in order to meet a variety of objectives that the ARNG may have

6.5.5 Water Conservation Funding

The Clean Water Act (CWA) provides funding through the Environmental Protection Agency's Office of Water for watershed-related projects. Various sections of the CWA direct how specific funds are utilized. Section 106 (Water Pollution Control) provides base support for overall water quality management programs (e.g., monitoring, permitting, and enforcement). Section 314 (Clean Lakes) has funds available to assess and mitigate lake water quality problems. Section 319 funds are directed toward implementing nonpoint source control measures and are administered through the Iowa Division of Water. Section 604(b) provides support for water quality management planning activities, such as determining the nature, extent, and causes of water quality problems. And Section 104(b)(3) provides funding for wetlands protection and compliance monitoring programs for specific priority watersheds. The Environmental Protection Agency Office of Water should be contacted to determine annual funding that is available.

The Federal Domestic Assistance Program 10.906 (Watershed Surveys and Planning), also known as Small Watershed Program, PL-566, provides planning assistance to Federal, State, and local agencies for the development of coordinated water and related land resources programs in watersheds and river basins. Contact the local Natural Resources Conservation Service office at:

210 Walnut Street, Suite 693
Federal Building
Des Moines, IA 50309-2180
(515) 284-6655

6.5.6 Resource Conservation Funding

The Federal Domestic Assistance Program 10.905 (Plant Materials for Conservation) assembles, evaluates, selects, releases, and introduces into commerce, and promotes the use of new and improved plant materials for soil, water, and related resource conservation and environmental improvement programs. To develop technology for land management and restoration with plant materials, contact the local Natural Resources Conservation Service office.

The objectives of Federal Domestic Assistance Program 10.902 (Soil and Water Conservation) are to plan and carry out a national natural resource conservation program, and to provide leadership in conservation, development, and productive use of the nation's soil, water, and related natural resources. Contact the local NRCS office.

The Federal Domestic Assistance Program 10.901 (Resource Conservation and Development) encourages and improves the capability of State and local units of government and local nonprofit organizations in rural areas to plan, develop, and carry out programs for resource conservation and development. Contact the local NRCS office.

The Legacy Resource Management Program provides financial assistance to DoD efforts to preserve natural and cultural heritage on Federal Lands. The program assists DoD in protecting and enhancing resources while supporting military readiness. A Legacy project may involve regional ecosystem management initiatives, habitat preservation efforts, archaeological investigations, invasive species control, and/or monitoring and predicting migratory patterns of birds and animals. More information, including procedures for applying for Legacy Funding and examples of past projects, is available at www.dodlegacy.org.

6.6 Plan Amendments and Revisions

This plan will be reviewed annually and revised as mission or environmental changes warrant. Every five years the document will be reviewed to determine whether an update or revision are merited. Major revisions of all sections will be accomplished at least every five years.

6.7 Plan Integration

This INRMP will be reviewed for integration with other IA ARNG plans to ensure that they complement each other and do not give conflicting information.

Component plans are those that are directly integrated into the INRMP either in the body of the text or in an appendix of the INRMP.

6.7.1 Soil Erosion and Sediment Control Component

Installations must consider the potential damage created by improper land management that may lead to soil erosion. Soil erosion and sediment control is addressed throughout the INRMP. (See Section 3.3.2 and Chapter 5.)

6.7.2 Endangered Species Management

Installations must identify endangered and at risk species on their lands. No federally endangered species require formal management plans at Camp Dodge. Endangered Species management components have been integrated into this INRMP. (See Section 3.6.2 and 5.12.)

6.7.3 Invasive Species Management

Installations are required to monitor and control invasive species. Invasive species issues and control procedures have been integrated into this document. (See Section 5.13.)

6.7.4 Integrated Wildland Fire Management Plan

Installations with unimproved grounds that present a wildfire hazard and those that utilize prescribed burns as a land management tool must develop and implement an Integrated Wildland Fire Management Plan (IWFMP) and designate an installation wildland fire program manager. The IWFMP must be integrated with the installation's Integrated Natural Resources Management Plan (INRMP), fire and emergency services program plans, and Integrated Cultural Resources Management Plan (ICRMP). Fire hazards are mitigated and vegetative growth controlled as needed to safeguard the installation, facilities, and natural and cultural resources.

The IA ARNG uses prescribed burns as a management tool. In addition, there is a limited risk of wildfire hazard at Camp Dodge. The installation currently coordinates with the post's fire and emergency services, and currently uses a plan developed in conjunction with Nature Conservancy fire management guidance and the IDNR. Additional information is found in section 5.9. The current IWFMP can be found in Appendix L.

6.7.5 Forest Management Plan

The Forest Management Plan is a 5-year technical plan that provides for the sustained yield of timber and related natural resources. A Forest Management Plan is a tool used by installations with large stands of timber used for sale and harvest. The plans also includes management guidelines on forest regeneration methods; determination of rotation ages; harvest unit sizes and types; sale layout design; tree protection practices for wildlife and seed trees; timber stand improvement (thinning) practices; site preparation practices, including use of prescribed fire; restocking methods, including inspection policies and success evaluations; and insect and disease management.

Camp Dodge does not conduct timber sales and does not require a Forest Management Plan. Prescribed fire management is covered by the Integrated Wildland Fire Management Plan and insect and disease management are included in the Integrated Pest Management Plan.

6.7.6 Fish and Wildlife Management Plan

The Fish and Wildlife Management Plan is a cooperative plan that provides for the development, implementation, and enforcement of fish and wildlife management programs. Emphasis will be placed on the maintenance and restoration of habitat favorable to the production of indigenous fish and wildlife, particularly federally listed species protected under the Endangered Species Act, as amended.

Lands and waters suitable for conservation of fish and wildlife resources will be managed to conserve wildlife resources. Nongame as well as game species will be considered when planning activities. The suitability and requirement of a military installation for fish and wildlife management will be determined by the installation and the National Guard Bureau after consulting with the USFWS and host State. Each installation will be classified as one of the following:

(1) Category I—Installations with adequate acreage of land and water resources suitable for fish and wildlife management. Each Category I installation will maintain an up to date fish and wildlife cooperative plan according to this regulation.
(2) Category II—Installations that lack adequate land and water resources for feasible fish and wildlife management. These installations may develop a limited management plan (non–consumptive, preservation, habitat protection, and so forth) based on installation resources and management objectives.

Camp Dodge has limited fish and wildlife management opportunities. A limited management plan has been incorporated into this INRMP in section 5.12 and outlines general guidelines for habitat protection and land management. Due to security concerns and limited acreage, hunting is limited to current and retired Guard personnel and Camp Dodge employees. Hunting licenses, seasons, and regulations are the same as those provided for by the IDNR.

6.7.7 Agricultural and Grazing Conservation Management Plan

Installations must identify how outlease activities directly support mission landscape requirements and environmental stewardship in the INRMP. Installations outleasing Army lands for agriculture and grazing are required to develop and execute a proactive conservation management plan. This plan clarifies short- and long-term conservation objectives, develops sound conservation principles, and qualifies the installation for conservation reimbursable agricultural and grazing outlease account funding. Any actions must be included in the agriculture/grazing conservation plan as an addendum to the INRMP and analyzed for environmental affects through the appropriate National Environmental Policy Act (NEPA) process and documentation

Agricultural and grazing conservation management plans strive to meet the following goals and objectives:

- Manage resources for long-term stewardship to meet the future needs of the mission, maintain productive ecosystems, and promote biodiversity.
- Institute appropriate conservation management techniques and/or best management practices to protect installation natural resources, including soil, water, fish and wildlife, natural vegetation, recreation, and aesthetic resources.
- Balance the ecological, social, and economic values of the outleased parcels.
- Adopt principles of sustainable agriculture, including the reduced use of nonrenewable resources such as pesticides, herbicides, fertilizers, fuel, and irrigation.
- Promote native plant communities, when feasible, or promote perennial plant communities that require little or no nonrenewable resources. Annual crop rotations with a high input of nonrenewable resources that do not achieve a specific environmental or mission goal, or that are not part of a phased approach to achieve sustainable agriculture objectives, are strongly discouraged.

Installations will consult with the Natural Resources Conservation Service (NRCS) on the development of the conservation management plan.

6.7.8 Integrated Pest Management Plan

Modern strategies of pest management avoid total reliance on chemical pesticides in favor of many techniques to eliminate or reduce damage by pests with minimum risks to the environment. This approach is commonly referred to as Integrated Pest Management (IPM). It requires full use of information about the pest's biology and environment, as well as the roles of engineering, culture, genetics, and other disciplines for overall control. The Army pest management policy is committed to IPM at its facilities and installations as the best approach to control pests, reduce pesticide resistance, and meet mandates for Federal agencies to reduce environmental risks from hazardous chemicals. The pest management programs at Army installations will promote IPM techniques to meet DOD program objectives in the DOD Instruction.

The IA ARNG has an Integrated Pest Management Plan in force. General guidelines for IPM applicability to the INRMP are listed previously in this document.

6.7.9 Integrated Cultural Resources Management Plan

An Integrated Cultural Resources Management Plan (ICRMP) is the primary tool used to implement an installation cultural resources management program. The ICRMP is a 5-year planning document that assists installations in meeting mission requirements by ensuring that installation activities address cultural resources management and legal compliance requirements. The ICRMP should be comprehensive and utilize the cultural landscape approach to integrate and identify linkages between all resource types.

The IA ARNG has developed an ICRMP which outlines areas requiring protection and/or preservation. The ICRMP has been evaluated with regard to natural resources protection as well. Installation projects are evaluated for both natural and cultural resources concerns.

6.8 Environmental Management System (EMS)

The IA ARNG has an Environmental Management System (EMS), as outlined in INGR 200-1 and ING Pam 200-1. That document sets forth roles and responsibilities for all units and activities. The INRMP uses the EMS to communicate responsibilities related to natural resources management to the units and activities that are affected.

6.9 State of Iowa Comprehensive Wildlife Conservation Plan

The IDNR's Wildlife Bureau was tasked with developing the federally mandated *Comprehensive Wildlife Conservation Plan*. This document, called the *Iowa Wildlife Action Plan* (IWAP), is a strategic 25-year plan. In developing the plan, it was noted that "nearly one third of all the species found in Iowa are considered to be in need of conservation to protect them from declining further into eventual Threatened or Endangered status." The final document, revised August 2012 and entitled *Securing a Future for Fish and Wildlife,* was reviewed in the revision of this INRMP.

The IWAP contains listings of habitats and species of concern, the stressors responsible for habitat decline, as well as priorities for conservation action. A comparison of Camp Dodge's Animal Species Inventory to the IWAP's listing of species of conservation need noted the following results. See Appendix E for further details.

- **Breeding birds of greatest conservation need**
  - seventeen are found on Camp Dodge
- **Mammals of greatest conservation need**
  - nine are found on Camp Dodge
- **Reptiles and amphibians of greatest conservation need**
  - three are found on Camp Dodge

References

Anderson, P.F. 1996. GIS research to digitize maps of Iowa 1832-1859 vegetation from General Land Office township plat maps. Final Report. Iowa Department of Natural Resources, Des Moines, Iowa.

Baldeagleinfo.com, 2000. American Bald eagle Information; http://www.Baldeagleinfo.com/index.html; accessed on November 30, 2000

Best, L.B., K.E. Freemark, J.J. Dinsmore, and M. Camp. 1995. A Review and Synthesis of Habitat Use by Breeding Birds in Agricultural Landscapes of Iowa. The American Midland Naturalist 134:1-29.

Boon, Bill. 1990 Nature's Heartland: Native Plant Communities of the Great Plains, Iowa State University Press, Ames, Iowa

Brodnicki, E.C. 1993. Cultural Resource Reconnaissance Study at Camp Dodge National Training Installation, Polk County, Iowa. U.S. Army Corps of Engineers, Omaha District.

Brown, N.L., 1997. Peregrine Falcon Profile; http://arnica.csustan.edu/ESRPP/pfweb1.htm, accessed on December 1, 2000

Cowardin, 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Fish and Wildlife Service Publication No. 79/31. Fish and Wildlife Service, U.S. Dept. of the Interior, Washington, D.C.

Crum, G.H. 1972. Flora of a Sand Prairie in Black hawk County, Iowa. Proceedings of the Iowa Academy of Science 78:81-87.

Curtis, J.T. 1959. The Vegetation of Wisconsin; An Ordination of Plant Communities. University of Wisconsin Press, Madison, Wisconsin.

Danielson, Brent. Personal Communication. Department of Animal Ecology, Iowa State University. Ames, Iowa

Department of the Army. 1985. Equipment Data Sheets for TACOM Combat and Tactical Equipment. Technical Manual No. 43-0001-31. Washington, D.C.

Dhillion, S.S. and R.C. Anderson. 1993. Seasonal Dynamics of Dominant Species of Arbuscular Mycorrhizae in Burned and Unburned Sand Prairies. Canadian Journal of Botany 71:1625-1630.

Dinsmore, J.J. and K. VanRees-Siewert. 1995. Summer Birds of Restored and Natural Wetlands in Central Iowa. A report for Camp Dodge, Iowa.

Dunne, T. and L.B. Leopold. 1978. Water in Environmental Planning. W.H. Freeman and Co., New York.

Ecological Society of America. 1996. The Report of the Ecological Society of America Committee on the Scientific Basis for Ecosystem Management.

Eilers, L.J. and D.M. Roosa. 1994. The Vascular Plants of Iowa. An annotated checklist and natural history. University of Iowa Press, Iowa USA.

Ernst, C.H. and R.W. Barbour. 1989. Snakes of Eastern North America. George Mason University Press, Fairfax, Virginia, USA.

Farrar, E., L. Gucciardo, and J. Hey. 1995. An Inventory of Amphibians and Reptiles Associated with Two Wetland Areas in Camp Dodge. Final Report.

Federal Interagency Committee on Wetland Delineation. 1989. Federal Manual for Identifying and Delineating Jurisdictional Wetlands. U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, and U.S. Department of Agriculture, Soil Conservation Service, Cooperative Technical Publication, Washington, D.C.

Fishel, R.L. and L.D. Rogers. 1995. Phase I Archaeological Survey for a Proposed Iowa National Guard Engineer Dig Site, Camp Dodge, Section 22, T80N-R25W, Polk County, Iowa

Frawley, B.J. and L.B. Best. 1991. Effects of Mowing on Breeding Bird Abundance and Species Composition in Alfalfa Fields. Wildlife Society Bulletin 19:135-142.

Fuchs, G.A. 1998. Report on the Wetland Restoration, Wetland Inventory, and Wetland Plant Inventory of Camp Dodge. Unpublished report.

Fung, Jessemine L. and Brent J. Danielson. The Spatial and Temporal Dynamics of Small Mammals in Three Different Grassland Habitats, a paper to be submitted to Proceedings of the Iowa Academy of Sciences, 1999.

General Services Administration. 2000. Catalog of Federal Domestic Assistance Programs. Washington, D.C.

Haney, A. and S.I. Apfelbaum. 1990. Structure and Dynamics of Midwest Oak Savannas. *In*, Management of Dynamic Ecosystems. Edited by J.M. Sweeney. North Central Society, Wildlands Society. West Lafayette, Indiana.

Hays, Thomas M. and Nancy J. An Inventory of the Reptiles and Amphibians of Camp Dodge, Iowa, Accipiter Biological Consultants, August 2000. On file at Camp Dodge

Hays, Thomas M. and Nancy J. Surveys for Eastern Spotted Skunk and Plains Pocket Mouse at Camp Dodge, Iowa. July 2005. On file at Camp Dodge.

Howell, Daryl. Personal Communication. Wallace State Office Building, Iowa Department of Natural Resources. Des Moines, Iowa.

Iowa Department of Environmental Quality, 1976. Water Quality Management Plan: Des Moines River Basin. Des Moines, Iowa.

Iowa Department of Natural Resources, 1997. Water Quality in Iowa During 1996 and 1997. http://www.state.ia.us/epd/wtrq/305b_00/305b.htm, access on December 7, 2000

Iowa National Guard (ING). 2010. Range regulation

Iowa State University, 1997. Pedestrian Survey of Camp Dodge. Ames, Iowa.

Leach M.K. and L. Ross, editors. 1995. Midwest Oak Ecosystems Recovery Plan: A Call to Action. Midwest Oak Savanna and Woodland Ecosystems Conference, Springfield, Missouri.

Lowrance, R., L.S. Altier, J.D. Newbold, R.R. Schnabel, P.M. Groffman, J.M. Denver, D.L. Correll, J.W. Gilliam, J.L. Robinson, R.B. Brinsfield, K.W. Staver, W. Lucas, A.H. Todd. 1995. Water-quality Functions of Riparian Forest Buffer Systems in the Chesapeake Bay Watershed. EPA 903-R-95-004. USEPA, Annapolis, Maryland.

Mabry-McMullen, Catherine and Jones, Mary. 2006. Iowa Army National Guard Third Annual Wetland Mitigation Report. Iowa Army National Guard. Johnston, Iowa.

Madsen, C.L. and M.L. Jones. 1994. Final Environmental Assessment for the Stationing and Training of One Additional Cavalry Troop and One-half of a Headquarters Troop at Camp Dodge, Johnston, Iowa. Iowa Army National Guard, Johnston, Iowa.

Marco Island Community Connection, 1998. The Bald eagle Sanctuary Marco Island; http://www.marcoisland.org/bioeagl.htm, accessed on December 1, 2000

National Guard Bureau. 1996a. Memorandum of Understanding Between Director Environmental Programs (NGB-ARE), Director Engineering (NGB-AEN), and Operations, Training and Readiness Directorate (NGB-ARO) to implement the Integrated Training Area Management (ITAM) Program.

National Guard Bureau. 1996b. Integrated Training Area Management (ITAM) Policy and Implementation Guidance.

National Oceanic and Atmospheric Administration. 1951-1996. Climatological Data. Iowa. Ashville, North Carolina.

National Research Council. 1996. Nutrient Requirements of Beef Cattle. 7th rev. ed. Subcommittee on Beef Cattle Nutrition. National Academy Press, Washington, D.C.

Nuzzo, V.A. 1986. Extent and Status of Midwest Oak Savanna: Presettlement and 1985. Natural Areas Journal 6:6-36.

Oldfield, B. and J.J. Moriarty. 1994. Amphibians & Reptiles Native to Minnesota. University of Minnesota Press, Minneapolis, Minnesota, USA.

Olson, J. 1990. Field Notes from Statewide Stream Survey. Department of Natural Resources, Des Moines, Iowa.

O'Rouke, C. and W. Techau. 1995. The Environmental Assessment and Management (TEAM) Guide: Iowa supplement. U.S. Army Corps of Engineers, Department of Defense, USACERL Special Report 96.04.

Page, L.M. and B.M. Burr. 1991. A Field Guide to Freshwater Fishes: North America North of Mexico. Houghton Mifflin Co., Boston.

Paragamian, V.L. 1990. Fish Populations of Iowa Rivers and Streams. Tech. Bull. No. 3. Iowa Department of Natural Resources, Des Moines, Iowa.

Payne, N.E. and F.C. Bryant. 1994. Techniques for Wildlife Habitat Management of Uplands. McGraw-Hill, Inc., New York.

Pearson, John. Department of Natural Resources, personal communication.

Prior, J.C. 1991. Landforms of Iowa. University of Iowa Press, Iowa City, Iowa.

Rook, Earl, 1999. Equisetum Fluviatile, http://www.rook.org/earl/bwca/nature/ferns/equisetumflu.html, accessed on November 30, 2000

Schermer, Shirley, et.al. 1995. A Brief Culture History of Iowa; http://www.uiowa.edu/~osa/learn/prehistoric/overview.htm, accessed November 21, 2000

Schiavone, Michael V. Avian Habitat-use Profiles at Cropland Edges in Iowa, a thesis submitted to the graduate faculty in partial fulfillment of the requirements for the degree of master of Science, Iowa State University, Ames, Iowa, 2001

Schiavone, Michael V. Progress Report for: Avian Species Catalogue for Camp Dodge National Guard Facility, 1998-99, on file at Camp Dodge.

Solecki, M.K. 1997. Controlling Invasive Plants. *In*, The Tallgrass Restoration Handbook for Prairie, Savannas, and Woodlands. Edited by S. Packard and C.F. Mutel. Island Press, Washington, D.C.

State Archeologist of Iowa, Date Unknown. A Brief Culture History of Iowa; http://www.uiowa.edu/~osa/learn/ancient/cult.htm; accessed on November 21, 2000

Tazik, D.J., V.E. Diersing, J.A. Courson, S.D. Warren, R.B. Shaw, and E.W. Novak. 1990. A Climatic Basis for Planning Military Training Operations and Land Maintenance Activities. US Army Corps of Engineers, Construction Engineering Research Laboratory. Technical Report N-90/13.

Tennessee Army National Guard, 1998. Tullahoma Training Site Draft Integrated Natural Resources Management Plan. Unpublished report.

Tester, J. R. 1989. Effects of Fire Frequency on Oak Savanna in East-Central Minnesota. Bulletin of the Torrey Botanical Club 116:134-144.

Texas Parks and Wildlife, 1994. Miriam's Pocket Mouse; http://www.nsrl.ttu.edu/tmot1/peromerr.htm, accessed on November 30, 2000

Thompson, Carol A., Iowa Geological Survey. Date unknown. "Ground Water Resources: Polk County" Open File Report 82-77 WRD

Tiffany, Joseph A., principal investigator. Revised Final by Tina Nepstad-Thornberry, Curtis P. Nepstad-Thornberry and Charles K. Benton. Phase I Archaeological Investigations at the Camp Dodge Military Reservation, City of Johnston, Polk County, Iowa, Iowa State University Archaeological Laboratory Project Report 13, Department of Anthropology, Iowa State University, Ames, Iowa, 1998

Twenter, F.R. and R.W. Coble, 1965. Iowa Geological Survey Water Atlas Number 1: The Water Story in Central Iowa, State of Iowa.

United States Army Corps of Engineers. 1996. Saylorville lake, Iowa N.W. 86th Street phase III. Design memorandum with environmental assessment. Volumes I and II. Rock Island, Illinois.

United States Department of Agriculture, Soil Conservation Service. 1953. Soil survey of Polk County, Iowa, U.S. Government Printing Office, Washington, D.C.

United States Department of Agriculture, Soil Conservation Service. (In preparation). Soil survey of Polk County, Iowa, U.S. Government Printing Office, Washington, D.C.

U.S. Fish & Wildlife Service, 2000. Piping Plover Fact Sheet; http://www.fws.gov/r3pao/eco_serv/endangrd/birds/Pipingpl.html, accessed on November 11, 2000

U.S. Fish & Wildlife Service, 1991. Indiana bat, http://endangered.fws.gov/i/a/saa08.html; accessed on November 30, 2000

Wangpakapattanawong, P. 1996. Extent of Historical Wetlands of the Prairie Pothole Region, North Central Iowa. Master's Thesis, Iowa State University.

Zohrer, James J. 2005. Securing a Future for Fish and Wildlife. Iowa Department of Natural Resources. Revised August 2012.

Glossary

Best-Management Practices

Resource management decisions that are based on the latest professional and technical standards for the protection, enhancement, and rehabilitation of natural and cultural resources (acronym BMP).

Biodiversity

The variety and variability of living organisms and the environment in which they occur. Biodiversity includes the number and variety of living organisms, the genetic differences among them, the communities and ecosystems in which they occur, and the ecological and evolutionary processes that keep them functioning, yet ever changing and adapting. The desired end state is not to maximize the number of species in a given area but to have the species that are native to the area. The highest degree of representation by indigenous flora and fauna are desired and a return of the ecosystems to their presettlement conditions.

Camp Dodge

Camp Dodge Joint Maneuver Training Center.

Cantonment Area

The area in Camp Dodge where the office buildings, streets, and service training facilities are located. The area also provides temporary accommodations for the troops.

Carrying Capacity

The number of individuals of a species that can be supported by the environment. Carrying capacity constantly changes and is a function of both the natural environment (predominantly rainfall and soil erosion rates) and the cultural management of the site (predominantly maintenance of vegetative cover).

Forb

A grouping/category of herbaceous plants that is not included in the grass, shrub, or tree groupings/categories; generally smaller flowering plants.

Goals

General statements of long-term direction that is usually not directly measurable.

Hydrologic Soil Group

A hydrologic soil group reflects the permeability of the soil based on texture, clay mineralogy, impervious layers, water tables, and depth. Because infiltration rate generally is inversely related to runoff and erosion, the hydrologic soil group is an indirect index to site erodibility. Groups A and B have high to moderate infiltration rates when thoroughly wetted. Group C has slow infiltration rates when thoroughly wetted, and Group D has very slow infiltration rates when thoroughly wetted. As a general rule, soils in Group C are considered borderline while soils in Group D should be avoided.

Intermittently Exposed

Surface water is present throughout the year except in years of extreme drought.

Intermittently Flooded

The substrate is usually exposed, but surface water is present for variable periods without detectable seasonal periodicity. Weeks, months, or even years may intervene between periods of inundation. The dominant plant communities under this regime may change as soil moisture conditions change.

K-factor

Equals Erosion Factor K. Indicates the susceptibility of a soil to sheet and rill erosion by water. Values of K range from 0.02 to 0.69. The higher the value, the more susceptible the soil is to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation to predict the average annual rate of soil loss by sheet and rill erosion. Losses are expressed in tons per acre per year.

Land Use Capability Class

This system predicts the suitability of soils for cultivation based on erodibility, droughtiness excessive wetness, or salinity. The land use capability classification rating system can be found in the soil survey for Camp Dodge.

Objectives

Specific ways to achieve the stated goals. Objectives are incremental and quantifiable.

ORV

Off-road vehicle. A vehicle designed for travel on natural terrain. The term excludes a registered motorboat confined to use on open water and a military, emergency, or law enforcement vehicles during use by an employee or agent of the Government or one of its contractors in the course of employment or agency representation.

Permanently Flooded

Water covers the land surface throughout the year in all years. Vegetation is composed of obligate hydrophytes.

Projects

One or more discrete actions performed to achieve a management objective. Many projects are one-time accomplishments that should be completed by a specified date; however, these dates are subject to change according to priorities for funding and manpower.

Riparian Zone

The vegetation that occurs along the moisture gradient on soils adjacent to watercourses, water bodies and seeps. The closer the vegetation is to the water, the more flood-tolerant it must be.

Saturated

The substrate is saturated to the surface for extended periods during the growing season, but surface water is seldom present.

Seasonally Flooded

Surface water is present for extended periods of time especially early in the growing season, but is absent by the end of the season in most years. When surface water is absent, the water table is near the land surface.

Semipermanently Flooded

Surface water persists throughout the growing season in most years. When surface water is absent, the water table is usually at or very near the land surface.

Stewardship

The management of resources entrusted to one's care in a way that preserves and enhances the resources and their benefits for present and future generations.

Temporarily Flooded

Surface water is present for brief periods during the growing season, but the water table usually lies well below the soil surface for most of the season. Plants that grow in uplands and wetlands are characteristic of the temporarily flooded regime.

T-factor

Equals Erosion Factor T. Is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur over a sustained period without causing permanent damage to the ability of the soil to produce an adequate cover of vegetation. The rate is expressed in tons per acre per year. Values range from 1 to 5. The higher the value, the longer the site can produce adequate cover.

Abbreviations and Acronyms

AR	Army Regulation
ARNG-ILE	Army National Guard, Environmental Programs Division
ARNG-ILI	Army National Guard, Installations Division
ARNG-DO	Army National Guard, Operations Division
ARNG-TRS	Army National Guard, Training Division
CFMO	Construction and Facilities Management Office(r) (G7 office)
CRM	Cultural Resources Manager
DCSOPS	Deputy Chief of Staff for Operations (G3 office)
DoD	Department of Defense
EA	Environmental Assessment; Environmental Awareness
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FARP	Forward Area Refueling Point
FONSI	Finding of No Significant Impact
GIS	Geographic Information System
HEL	Highly Erodible Land
IA ARNG	Iowa Army National Guard
IDNR	Iowa Department of Natural Resources
INRMP	Integrated Natural Resources Management Plan
IPM	Integrated Pest Management
ITAM	Integrated Training Area Management
LCTA	Land Condition Trend Analysis
LRAM	Land Rehabilitation and Maintenance
MSDS	Material Safety Data Sheet
NEPA	National Environmental Policy Act
NMTC	National Maintenance Training Center
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
O&M	Operations and Maintenance
ORV	Off Road Vehicle
PAO	Public Affairs Officer
PLS	Planning Level Survey
POL	Petroleum, Oil, and Lubricants
RFMSS	Range Facilities Management Support System
SDZ	Surface Danger Zone
SHPO	State Historic Preservation Officer
SHSI	State Historical Society of Iowa
SITE	Training Site Operations Staff
SJA	Staff Judge Advocate
SOP	Standard Operating Procedure
TA	Training Area
TAG	The Adjutant General (IA ARNG)
TOW	Tube-launched Optically Wire-Guided (TOW)
TRI	Training Requirements Integration
TSS	Total Suspended Solids
USA-CERL	United States Army Corps of Engineers Research Laboratory
USFWS	United States Fish and Wildlife Service

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APPENDIX A
REQUIRED AND RELEVANT ENVIRONMENTAL REGULATIONS

Federal Laws, Regulations, and Executive Orders

- Animal Damage Control Act.....7 U.S.C. 426 et seq.
- Animal Damage Control on Federal Lands..... Executive Order 11870
- Archaeological and Historical Preservation Act of 1974.....16 U.S.C. 469 et seq.
- Archaeological Resources Protection Act of 1979..... (16 U.S.C. 470 et seq.) 32 CFR 22 and 229
- Bald and Golden Eagle Protection Act .....16 U.S.C. 668 et seq.
- Clean Air Act, as amended .....42 U.S.C. 7401 et seq.
- Consultation and Coordination With Indian Tribal Governments..... Executive Order 13175
- Endangered and Threatened Wildlife and Plants .....50 CFR 17
- Endangered Species Act of 1973, as amended .....16 U.S.C. 1531 et seq.
- Entering Military, Naval, or Coast Guard Property..... 18 U.S.C. 1382
- "Environmentally and Economically Beneficial Practices on Federal Landscaped Grounds", ... William Clinton, Presidential Memorandum, April 26, 1994
- Exotic Organisms..... Executive Order 11987
- Floodplain Management ..... Executive Order 11988
- Farmland Protection Act .....(7 U.S.C. 4201 et seq.); (10 U.S.C. 2667 et seq.) 7 CFR 658
- Federal Compliance with Pollution Control Standards ..... 42 USC 4321
- Federal Insecticide, Fungicide, and Rodenticide Act, as amended.....7 U.S.C. 136 et seq.
- Federal Land Policy and Management Act.....43 U.S.C. 1701 et seq.
- Federal Noxious Weed Act .....7 U.S.C. 2801 et seq.
- Federal Water Pollution Control Act (Clean Water Act).....33 U.S.C. 1251 et seq.
- Fish and Wildlife Conservation Act .....16 U.S.C. 2901 et seq.
- Fish and Wildlife Coordination Act .....16 U.S.C. 661 et seq.
- Hunting and Fishing on Federal Lands.....10 U.S.C. 2671 et seq.
- Invasive Species ..... Executive Order 13112
- Interagency Agreement between the U.S. Army and the U.S. Fish and Wildlife Service on wildlife, waterfowl, and wetlands assistance
- Land and Water Conservation Act of 1965.....16 U.S.C. 4601 et seq.
- Legacy Resource Protection Program Act..... P.L. 101-511
- Migratory Bird Conservation Act .....16 U.S.C. 715 et seq.
- Migratory Bird Treaty Act ..... 16 U.S.C. 703-711
- Mineral Exploration and Leasing.....43 U.S.C. 155 et seq.
- National Environmental Policy Act of 1969, as amended.....42 U.S.C. 4321 et seq.
- National Historic Preservation Act of 1966 .....16 U.S.C. 470 et seq.
- National Register of Historic Places, current edition.....36 CFR 60 Parts 78,79,800, and 1228
- National Trails System Act.....16 U.S.C. 1241 et seq.
- Off Road Vehicles Use on Public Lands..... Executive Order 11989
- Oil Pollution Liability and Compensation .....33 U.S.C. 2701 et seq.
- Outleasing for Grazing and Agriculture on Military Lands ..... 10 U.S.C. 2667
- Protection and Enhancement of the Cultural Environment..... Executive Order 11593
- Protection and Enhancement of Environmental Quality ..... Executive Order 11514
- Protection of Wetlands..... Executive Order 11990
- Sales of Forest Products on Federal Lands .....10 U.S.C. 2665 et seq.
- Sikes Act "Conservation Programs on Military Reservations" .....16 U.S.C. 670a et seq.
- Soil and Water Conservation Act.....16 U.S.C. 2001 et seq.
- Water Pollution Prevention and Control.....33 U.S.C. 1251 et seq.

Federal Guidelines

- Cooperative Agreement between the U.S. Department of Defense (DoD) and The Nature Conservancy (TNC) for assistance in natural resources inventory

- Memorandum Of Agreement (MOA) for Professional And Technical Assistance Conducting Biological Surveys, Research And Related Activities between The Department Of Defense and The National Biological Service of The Department Of The Interior
- Memorandum of Understanding (MOU) between the U.S. Environmental Protection Agency and the DoD with respect to Integrated Pest Management
- Memorandum of Agreement (MOA) for Federal Neotropical Migratory Bird Conservation Program and addendum ("Partners in Flight-Aves De Las Americas") among DoD, through each of the Military Services, and over 110 other Federal and State agencies and nongovernmental organizations
- Memorandum of Understanding (MOU) for Watchable Wildlife Programs
- Memorandum of Understanding between the U.S. Army Environmental Center and the Soil Conservation Service for Watershed and Environmental Enhancement of U.S. Army Installations

Department of Defense Regulations and Guidance

- Environmental Conservation Program ..... DoD Instruction 4715.3
- Environmental Analysis of Army Actions ..... 32 CFR 651
- Environmental Protection and Enhancement ..... AR 200-1
- Fish and Wildlife Management ..... TM 5-633
- Forest Management ..... TM 5-631
- Granting Use of Real Estate ..... AR 405-80
- Historic Preservation ..... AR 420-40
- Integrated Training Area Management (ITAM) ..... AR 350-4
- Integrated Training Area Management Procedural Manual ..... DA Pam 350-4
- Land Management ..... TM 5-630
- Natural Resources - Land, Forest, and Wildlife Management ..... DA Pam 420-7
- Pest Management ..... AR 420-76
- Training Land ..... TC 25-1
- Use of Off-Road Vehicles on Army Lands ..... AR 200-3

Supporting State Regulations

The preparation of an INRMP is not specifically considered in the Iowa Administrative Code (IAC), but the State of Iowa has regulations that consider many of the issues in an INRMP (O'Rourke and Techau, 1995). Related regulations and state agency guidelines are listed below.

- Land Management-Floodplain ..... (IAC 567-70 et seq.)
- Wildlife -State endangered and threatened species ..... (IAC 571-77.4)
- Water Quality Management-Water treatment ..... (IAC 567.81 et seq.)
- Cultural Resources Management (Survey Procedures and Guidelines Manual of the State Historical Society of the Iowa Historical Preservation Bureau) ..... (IAC 685-11.1)

APPENDIX B
SOILS AND THEIR PROPERTIES

Several soil properties are given for each soil found within the Camp Dodge boundaries (Table B-1.1). These properties indicate their potential usefulness in planning, conservation, and training activities. Explanations of each property are given below (Iowa State University, 1990).

Map Label

The Soil Map Unit (SMU) symbol identifies the soil type, the slope class, and the erosion phase.
SMU numbers 001-2999 are standard SMU numbers.
SMU numbers 4000-4999 are urban SMUs.
SMU numbers 8000-8999 are soils mapped west of the state soil division line.
Standard slope classes used in the SMU symbol are listed below.

A = 0-2%, level and nearly level
B = 2-5%, gently sloping
C = 5-9%, moderately sloping
D = 9-14%, strongly sloping
E = 14-18%, moderately steep
F = 18-25%, steep
G = 25-40%, very steep

Slope Range (low/high)

The incline of the surface of the soil, expressed as a percent (number of feet the soil surface rises per 100 feet of horizontal distance).

Highly Erodible Land

Land classified by the Soil Conservation Service that, if used for agriculture, would have an excessive annual rate of erosion. This is determined by the universal soil loss equation and the wind erosion equation.

1 = Yes, this map unit is highly erodible
2 = This map unit is potential erodible
3 = No, this map unit is not highly erodible

Hydric Soil Code

A hydric soil is a soil that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part. These soils will support the growth and regeneration of hydrophytic vegetation.

1 = Yes, this map unit is hydric
2 = This map unit is potentially hydric or has hydric inclusions
3 = No, this map unit is not hydric

Flooding Frequency Code

This refers to the temporary covering of soil with water from overflowing streams and runoff from adjacent slopes.

None	Flooding not probable
Common	Flooding is likely under normal conditions
Frequent	Flooding occurs on an average of more than 50 times in 100 years
Ponded	Standing water (for short duration) on soils in closed depressions

Available Water Capacity (low/high)

This is the capacity of soils to hold water available for use by most plants. It is defined as the difference between the amount of soil water at field capacity and the amount of water at the wilting point. Expressed in inches in a 60 inch profile or to a limiting layer (in/5 ft).

0-3” = very low
3-6” = low
6-9” = moderate
9-12” = high
>12” = very high

Depth to High Water Table (low/high)

Refers to the highest level (in feet) of a saturated zone in the soil for 30 or more days in most years.

Permeability Code

Indicates the quality of the soil that enables water to move through the profile. It is measured as the number of inches per hour that water moves downward through the saturated soil. A slash indicates that two materials with different permeabilities occur; i.e. MR/S means moderately rapid <u>over</u> slow.

VR	very rapid
MR/R	moderately rapid/rapid
M/VR	moderate/very rapid
MR	moderately rapid [2.0-6.0 in/hr]
MR/M	moderately rapid/moderate
M	moderate [0.6-2.0 in/hr]
MS	moderately slow [0.2-0.6 in/hr]
S	slow [0.06-0.20 in/hr]
VS	very slow [<0.06 in/hr]

Organic Matter Midpoint

Organic Matter Midpoint is the plant and animal residue in the soil in various stages of decomposition. The organic matter (%) is estimated for tilled surface horizons, 1-7 in, and cultivated for more than 20 years.

Surface Horizon pH (low/high)
This is the measure of acidity or alkalinity of the soil, expressed as pH units.

<4.5	= extremely acid	6.1-6.5	= slightly acid
4.5-5.0	= very strongly acid	6.6-7.3	= neutral
5.1-5.5	= strongly acid	7.4-7.8	= mildly alkaline
5.6-6.0	= medium acid	7.9-8.4	= moderately alkaline

K Factor (Erosion Factors/K)
Indicates the susceptibility of a soil to sheet and rill erosion by water. The estimates are based primarily on percentage of silt, sand, and organic matter (up to 4%) and on soil structure and permeability. Values of K in Iowa range from 0.05 to 0.43. The higher the value, the more susceptible the soil is to sheet and rill erosion.

Native Vegetation

P = Prairie
F = Forest
T = Transistion

Clarion (Map Label 138_), Nicollet (Map Label 55), and Webster (Map Label 107) Association are characterized by an undulating ground moraine of swales and rises that differ from 5 to 10 feet in elevation. This soil association is found in the upland portions of generally flat terrain--convex side slopes, low ridges, and in the upper part of drainage ways. Surface drainage is not well developed, and runoff water commonly accumulates in scattered depressions (usually Webster soils). Slopes are in the range of 0 to 9%.

All of these soils formed in glacial till, the unsorted mixture of clay, silt, sand, and cobbles deposited directly by the glacier. Clarion soils are moderately drained, have slopes that range from 2 to 9%, and occur on the higher, more sloping areas. Nicollet (1 to 3% slopes) are somewhat more poorly drained and occur near the base of Clarion slopes. Webster soils (0 to 2% slopes) were formed from the sorting and deposition of glacial sediments by meltwater streams and occur in low, poorly drained areas. Minor soils in this association include poorly drained Okoboji (Map Label 6) and Palms (Map Label 221) soils imbedded within Webster soil. Clarion (2 to 5%), Webster, Okoboji, and Palms are hydric soils (Figure 4). This soil association is found predominately in the northern portions of the training maneuver area, Training areas A-1, B-3–B-7, C-2–C4, and in the northern portion of the Surface Danger Zone (SDZ) North.

Clarion (Map Label 138_) and Lester (Map Label 236_) Association are characterized as gently sloping to moderately steep. These soils are well drained and formed from calcareous glacial till under prairie grasses. Slopes range from 2 to 14%. Lester soils are gently to strongly sloping and are on convex ridge tops and side slopes adjacent to the Beaver Creek drainage way. Clarion soils are found further down the slope toward the drainage way. Minor soils in this association include Terril (Map Label 27B), which is also found at the foot slopes of Lester soils. None of these soils are hydric, but Clarion and the steeply sloped Lester soils are highly erodible. This association is found along the ridge on the eastern border of Camp Dodge (Training Areas B-1-B-3 and the northern portion of F).

Dickinson (Map Label 175_) and Farrar (Map Label 253) Association are not formed from glacial till, but from sand deposited by the wind, with a biotic community of prairie grasses and forest. These soils are excessively drained and are formed on convex ridge tops and side slopes on upland adjacent to larger valleys. Slopes range from 5 to 9% for Farrar soils, and 0 to 14% for Dickinson soils. Minor soils include Storden (Map Label 62_), formed in glacial till, and Biscay (Map Label 259). Storden soils form moderate to steep slopes and Biscay form drainage areas within Dickinson soils. These soils are found both east and west of Beaver Creek in Training Areas C-7, D-4, and D-5. Dickinson, Farrar, and Storden soils are not hydric.

Because Dickinson soils were formed in ancient meltwater streams, they are also found in south central Camp Dodge on the edges of current stream channels in level, low-lying areas. These areas include the SDZ North, west of Beaver Creek, Training Areas A-5, E-2 west to Beaver Creek, and the eastern portion of the Cantonment area.

Table B-1.1 List of Soils found at Camp Dodge and some of their physical properties.

Map Label	Soil Name	Slope Range	Highly Erodible Land	Hydric Soil Code	Flooding Frequency	Available Water Capacity (Low) (inches/5 feet)	Available Water Capacity (High) (inches/5 feet)	Native Vegetation
107	Webster	0 – 2	3	1	None	10.36	11.56	P
108	Wadena 24-32” to S&G	0 – 2	3	3	None	4.86	6.39	P
108B	Wadena 24-32” to S&G	2 – 5	3	3	None	4.86	6.39	P
138B	Clarion	2 – 5	1	3	None	10.74	11.94	P
138C2	Clarion	5 – 9	1	3	None	10.74	11.94	P
1585	Spillville	0 – 2	3	1	Frequent	10.60	12.42	P
175	Dickinson	0 – 2	3	3	None	4.56	6.06	P
175B	Dickinson	2 – 5	3	3	None	4.56	6.06	P
175C	Dickinson	5 – 9	2	3	None	4.56	6.06	P
175D	Dickinson	9 – 14	1	3	None	4.56	6.06	P
203	Cylinder	0 – 2	3	3	None	7.02	9.30	P
221	Palms	0 – 1	3	1	Ponded	15.75	21.25	P
236B	Lester	2 – 5	3	3	None	9.21	11.67	T
236C2	Lester	5 – 9	1	3	None	9.21	11.67	T
236D2	Lester	9 – 14	1	3	None	9.21	11.67	T
253B	Farrar	2 – 5	3	3	None	9.90	11.10	P
253C2	Farrar	5 – 9		3	None	9.90	11.10	P
259	Biscay 32-40” to S&G	0 – 2	3	1	None	6.72	8.24	P
27B	Terril	2 – 5	3	3	None	10.84	12.04	P
308	Wadena 32-40” to S&G	0 – 2	3	3	None	6.39	7.40	P
308B	Wadena 32-40” to S&G	2 – 5	3	3	None	6.39	7.40	P
4000	Urban Land	0	0	3		0.00	0.00	
485	Spillville	0 – 2	3	3	Common	11.16	12.42	P
5040	Orthents Loamy	0 – 2	3	3	-	0.00	0.00	-
507	Canisteo	0 – 2	3	1	None	9.15	10.85	P
55	Nicolet	1 – 3	3	3	None	9.10	11.91	P
6	Okoboji	0 – 1	3	1	Ponded	11.10	12.30	P
62C2	Storden	5 – 9	1	3	None	10.44	11.64	P
62D2	Storden	9 – 14	1	3	None	10.44	11.64	P
62E2	Storden	14 – 18	1	3	None	10.44	11.64	P
62F	Storden	18 – 25	1	3	None	10.44	11.64	P
638C2	Clarion-Storden Complex	5 – 9	1	3	None	10.44	11.94	P
828B	Zenor	2 – 5	3	3	None	3.36	4.56	P
828C2	Zenor	5 – 9	2	3	None	3.36	4.56	P

Map Label	Soil Name	Slope Range	Highly Erodible Land	Hydric Soil Code	Flooding Frequency	Available Water Capacity (Low) (inches/5 feet)	Available Water Capacity (High) (inches/5 feet)	Native Vegetation
829D2	Zenor-Storden Complex	9 – 14	1	3	None	3.36	11.64	P
829E2	Zenor-Storden Complex	14 – 25	1	3	None	3.36	11.64	P
W	Water	0	3	3	-	0.00	0.00	-

Table B-1.1 List of Soils found at Camp Dodge and some of their physical properties, continued.

Map Label	Soil Name	Depth to High Water Table (Low) (ft)	Depth to High Water Table (High) (ft)	Permeability	Organic Matter Midpoint (%)	Surface Horizon pH Low	Surface Horizon pH High	K Factor
107	Webster	**2.0**	1.0	M	6.5	6.6	7.3	0.28
108	Wadena 24-32” to S&G	6.0	6.0	M/VR	4.0	6.1	7.3	0.24
108B	Wadena 24-32” to S&G	6.0	6.0	M/VR	3.5	6.1	7.3	0.24
138B	Clarion	6.0	6.0	M	3.5	5.6	7.3	0.24
138C2	Clarion	6.0	6.0	M	2.7	5.6	7.3	0.24
1585	Spillville	5.0	1.0	M	5.5	5.6	7.3	0.28
175	Dickinson	6.0	6.0	MR/R	2.5	5.6	7.3	0.20
175B	Dickinson	6.0	6.0	MR/R	2.0	5.6	7.3	0.20
175C	Dickinson	6.0	6.0	MR/R	2.0	5.6	7.3	0.20
175D	Dickinson	6.0	6.0	MR/R	2.0	5.6	7.3	0.20
203	Cylinder	4.0	2.0	M/VR	4.5	5.6	7.3	0.24
221	Palms	1.0	-	MR/M	0.0	5.1	7.4	0.00
236B	Lester	6.0	6.0	M	3.0	5.6	7.3	0.28
236C2	Lester	6.0	6.0	M	2.5	5.6	7.3	0.28
236D2	Lester	6.0	6.0	M	2.5	5.6	7.3	0.28
253B	Farrar	6.0	6.0	MR/M	2.0	5.6	7.3	0.20
253C2	Farrar	6.0	6.0	MR/M	1.5	5.6	7.3	0.20
259	Biscay 32-40” to S&G	3.0	1.0	M/VR	6.0	6.1	7.4	0.28
27B	Terril	6.0	6.0	M	3.5	6.1	7.3	0.24
308	Wadena 32-40” to S&G	6.0	6.0	M/VR	4.0	6.1	7.3	0.24
308B	Wadena 32-40” to S&G	6.0	6.0	M/VR	3.5	6.1	7.3	0.24
4000	Urban Land	0.0	0.0	-	0.0	0.0	0.0	0.00
485	Spillville	5.0	3.0	M	4.5	5.6	7.3	0.24
5040	Orthents Loamy	0.0	0.0	-	0.0	0.0	0.0	0.00
507	Canisteo	3.0	1.0	M	6.5	7.4	8.4	0.28
55	Nicolet	5.0	2.5	M	5.5	6.1	7.3	0.24
6	Okoboji	1.0	-	MS	10.5	6.6	7.8	0.28
62C2	Storden	6.0	6.0	M	2.2	7.4	8.4	0.28
62D2	Storden	6.0	6.0	M	2.2	7.4	8.4	0.28
62E2	Storden	6.0	6.0	M	2.2	7.4	8.4	0.28
62F	Storden	6.0	6.0	M	3.0	7.4	8.4	0.28
638C2	Clarion-Storden Complex	6.0	6.0	M	2.5	5.6	8.4	0.28

Map Label	Soil Name	Depth to High Water Table (Low) (ft)	Depth to High Water Table (High) (ft)	Permeability	Organic Matter Midpoint (%)	Surface Horizon pH Low	Surface Horizon pH High	K Factor
828B	Zenor	6.0	6.0	MR/VR	2.0	5.6	7.3	0.20
828C2	Zenor	6.0	6.0	MR/VR	1.5	5.6	7.3	0.20
829D2	Zenor-Storden Complex	6.0	6.0	MR/VR	1.8	5.6	8.4	0.32
829E2	Zenor-Storden Complex	6.0	6.0	MR/VR	1.8	5.6	8.4	0.32
W	Water	0.0	0.0	-	0.0	0.0	0.0	0.00

APPENDIX C
WETLAND INVENTORY

The following table is a list of the wetlands that were identified in a survey done by Iowa State University. These do not necessarily coincide with the National Wetlands Inventory Map, so care should be taken when evaluating projects involving potential wetlands.

- Locations refer to the approximate center of the wetland. The starting point in each case is one of the corners of the training area the wetland is located in.
- Sizes of the wetlands are estimations based on aerial photos, soil maps, wetland maps, and/or paced measurements at the site.
- Wetland type classification follows the guidelines established by Cowardin et al. (1979).
- Wetlands that area located in two training areas are listed for both areas, but the size indicated refers only to the part of the wetland in that particular training area.
- Definitions of terms used below are in the Glossary and Cowardin et al. (1979).

Wetland #	Training Area	Location	Size (acre)	Type
1	A-1	NW corner; 300' south, 120' east	0.3	Seasonally flooded palustrine wetland with emergent vegetation
2	A-1	NW corner; 880' south, 160' east	0.4	Seasonally flooded palustrine wetland with emergent vegetation
3	A-1	NW corner; 840' south, 340' east	0.2	Seasonally flooded palustrine wetland with emergent vegetation
4	A-1	NW corner; 520' south, 340' east	0.4	Seasonally flooded palustrine wetland with emergent vegetation
5	A-1	NE corner; 680' south, 1120' west	0.8	Temporarily flooded palustrine wetland with emergent vegetation
6	A-3	SE corner; 320' north, 75' west	0.9	Seasonally flooded wetland with part being forested and part with emergent vegetation
7	A-4	NW corner; 750' south, 75' west	2.5	Temporarily flooded palustrine wetland forest with broadleaf trees
8	B-1	SW corner; 220' east, 40' north	/0.1	Temporarily flooded palustrine wetland with emergent vegetation
9	B-1	SW corner, 1080' north, 400' east	0.2	Seasonally flooded palustrine wetland with emergent vegetation
10	B-1	Runs parallel 200' east of the west border of area; roughly follows the 930' elevation contour	~ 30' wide	Saturated palustrine wetland with emergent and/or broad leaf vegetation; This is a seep area where groundwater exits the hillside
11	B-2	NW corner; 640' east, 50' south	0.2	Temporarily flooded palustrine wetland with emergent vegetation
12	B-3	SW corner; 520' east, 40' north	0.4	Saturated palustrine wetland with broadleaf forest vegetation
13	B-3	SW corner; 340' north, 60' east	0.6	Part temporarily flooded palustrine wetland forest with broadleaf trees and part seasonally flooded palustrine wetland with emergent vegetation
14	B-3	SW corner; 880' east, 780' north	1	Temporarily flooded palustrine wetland with emergent vegetation

Wetland #	Training Area	Location	Size (acre)	Type
15	B-3	SW corner; 1240' north	0.6	Temporarily flooded palustrine wetland with broadleaf forest vegetation
16	B-3	NW corner; 400' east, 400' south	7.8	Temporarily flooded well-drained palustrine wetland with emergent vegetation
17	B-4	NE corner; 900' south, 200' west	0.3	Saturated palustrine wetland with emergent vegetation
18	B-4	Runs from 700' west of NE corner to 600' south of NW corner where it joins another drainage at 375' south of NE corner	2.6	Temporarily flooded palustrine with emergent vegetation; This is a surface drainage way that is ~ 50' wide
19*	B-6	Runs from 1240' north of SW corner to 880' east of SW corner	11	Seasonally flooded palustrine wetland with emergent vegetation; This is the result of excavation to allow surface drainage of areas C-2, C-3, C-4, and upland areas; another excavation drains water from areas B-4 and B-5
20	B-7	NW corner; 750' east, 60' south	5	Temporarily flooded palustrine wetland with emergent vegetation
21	B-7	Along west edge and from the NW corner 1200' east	7	Temporarily flooded palustrine wetland with broadleaf forest vegetation
22	B-7	NW corner; 570' east, 520' south	1	Temporarily flooded palustrine wetland with broadleaf forest vegetation
23	B-7	NW corner; 1680' east, 160' south	1.4	Temporarily flooded palustrine wetland with broadleaf forest vegetation
24	B-7	SE corner; 1120' north, 120' west	0.6	Temporarily flooded palustrine wetland with broadleaf forest vegetation
25	B-7	SE corner; 840' north, 120' west	<0.1	Seasonally flooded palustrine with broadleaf forest vegetation
26	B-7	SE corner; 640' west, 400' north	0.6	Seasonally flooded palustrine with emergent vegetation that is surrounded by a narrow band of trees
27	B-7	SE corner; 720' west, 840' north	0.6	Seasonally flooded palustrine with broadleaf forest vegetation
28	B-7	SE corner; 1000' west, 920' north	0.7	Seasonally flooded palustrine with broadleaf forest vegetation with a center section that is not forested
29	C-2	NE corner; 920' south	0.6	Saturated palustrine wetland with emergent vegetation that has been excavated
30	C-3	NE corner; 600' south	0.4	Saturated palustrine wetland with emergent vegetation that has been excavated

Wetland #	Training Area	Location	Size (acre)	Type
31	C-3	SE corner; 800' north, 40' west	0.2	Temporarily flooded palustrine wetland with broadleaf shrub/scrub vegetation
32	C-3	SE corner; 920' north, 200' west	0.1	Temporarily flooded palustrine wetland with emergent vegetation
33	C-5	SE corner; 200' north, 180' west	0.1	Temporarily flooded palustrine wetland with emergent vegetation
34	C-5	SW corner; 200' north, 800' east	0.5	Temporarily flooded palustrine wetland with emergent vegetation
35	C-5	SW corner; 360' east, 600' north	0.1	Temporarily flooded palustrine wetland with emergent vegetation
36	C-5	SW corner; 800' north, 800' east	0.1	Temporarily flooded palustrine wetland with emergent vegetation
37	C-7	NW corner; 1080' south, 125' east	4.2	Temporarily flooded palustrine wetland with emergent vegetation
38	C-7	NW corner; 840' south, 640' east	0.3	Temporarily flooded palustrine wetland with emergent vegetation*
39	D-1	NW corner; 400' south, 520' east	0.8	Temporarily flooded palustrine wetland with emergent vegetation
40	D-1	NW corner; 310' south, 125' east	1.4	Temporarily flooded palustrine wetland with emergent vegetation
41	D-1	NW corner; 310' south, 625' east	0.7	Temporarily flooded palustrine wetland with broadleaf forest vegetation
42	D-2	NW corner; 160' south, 140' east	0.3	Temporarily flooded palustrine wetland with emergent vegetation that is drained by subsurface tile
43	D-2	NW corner; 640' south, 960' east	0.4	Temporarily flooded palustrine wetland with emergent vegetation that is drained by subsurface tile
44	D-2	NW corner; 800' south, 1200' east	0.4	Temporarily flooded palustrine wetland with emergent vegetation that is drained by subsurface tile
45	D-2	NW corner; 600' south, 1440' east	<0.1	Temporarily flooded palustrine wetland with emergent vegetation that is drained by subsurface tile
46	D-2	SW corner; 130' east, 80' north	0.3	Temporarily flooded palustrine wetland with emergent vegetation
47	D-2	SW corner; 60' east, 30' north	0.1	Temporarily flooded palustrine wetland with emergent vegetation
48	D-2	SE corner; 760' north, 40' west	2.5	Part semipermanently flooded palustrine wetland with emergent and aquatic bed, with rooted vegetation, depending on rainfall; part seasonally flooded palustrine with emergent vegetation; part temporarily flooded palustrine with emergent vegetation
49	D-2	NE corner; 740' west, 80' south	<0.1	Temporarily flooded palustrine wetland with emergent vegetation
50	D-3	SW corner; 1360' north, 200' east	1	Semipermanently flooded palustrine wetland with emergent

Wetland #	Training Area	Location	Size (acre)	Type
				and aquatic bed, with rooted vegetation, depending on seasonal rainfall
51	D-4	SE corner; 280’ north, 130’ west	<0.1	Semipermanently flooded palustrine wetland with emergent and aquatic bed that has rooted vegetation and is surrounded by a rim of emergent vegetation
52	D-5	NW corner; 1680’ south, 300’ east	<0.1	Temporarily flooded palustrine wetland with emergent vegetation
53	D-5	NW corner; 1200’ south, 1280’ east	0.1	Temporarily flooded palustrine wetland with emergent vegetation
54	D-6	SW corner; 2000’ east, 1000’ north	0.5	Saturated palustrine wetland with emergent vegetation
55	D-6	SW corner; 2375’ east, 520’ north	1.6	Seasonally flooded palustrine wetland with emergent vegetation
56	D-6	SW corner; 780’ east, 500’ north	0.6	Seasonally flooded palustrine wetland with emergent vegetation
57	D-6	SW corner; 2040’ east, 680’ north	0.6	Semipermanently flooded palustrine wetland with an algal aquatic bed
58	D-6	SW corner; 190’ east, 900’ north	0.3	Seasonally flooded palustrine wetland with emergent vegetation
59	D-6	SE corner; 440’ north, 100’ west	0.4	Semipermanently flooded palustrine wetland with emergent vegetation that also contains a spring
60	E-1	SW corner	1	Temporarily flooded palustrine with broadleaf forest vegetation
61	E-1	NW corner	1.4	Semipermanently flooded palustrine wetland with unconsolidated bottom
62	E-1	SE corner; 600’ west, 400’ north	0.1	Semipermanently flooded palustrine wetland with unconsolidated bottom
63	E-2	NW corner; 400’ south, 120’ east	0.3	Temporarily flooded wetland with emergent vegetation*
64	E-2	Along entire east edge	37	Complex of several wetland types including temporarily, saturated, seasonally, and semipermanently flooded palustrine wetlands with emergent vegetation

*Wetland has been modified or filled. All permits are in place.

Appendix D
Plant Herbarium List

Alphabetized by Scientific Name (Bullington et al., 1998; Mabry McMullen, 2006)

Scientific Name	Common Name	Habitat	Frequency
PTERIDOPHYTES			
ADIANTACEAE			
Adiantum pedatum L.	Northern maidenhair fern	Upland woodland	Common
ASPLENIACEAE			
Athyrium filix-femina (L.) Roth var. angustum (Willd.) Moore	Northern lady fern	Upland woodland	Frequent to common
Cystopteris protrusa (Weath.) Blasdell	Creeping fragile fern	Sloped woodland along river	Common
Cystopteris tenuis (Michx.) Desv.	Fragile fern	Upland woodland	Infrequent
Onoclea sensibilis L.	Sensitive fern	Upland woodland	Infrequent
EQUISETACEAE			
Equisetum arvense L.	Common horsetail, field horsetail	Area B-7	Common
Equisetum x ferressii Clute	Ferriss' hybrid scouring-rush	Carex swale	Infrequent to frequent
Equisetum fluviatile L.	Swamp horsetail		Rare
Equisetum hyemale L. Link ex var. affine (Engelm.) A.A. Eaton	Common scouring rush	Roadside	Frequent to common
Equisetum laevigatum A. Br.	Smooth scouring-rush	Roadside	Common
OPHIOGLOSSACEAE			
Botrychium dissectum f. obliquum (Muhl.) Fern.	Oblique grape fern	Bottomland floodplain woodland	Rare
Botrychium virginianum (L.) Sw.	Rattlesnake fern	Upland woodland	Frequent to common
GYMNOSPERMS			
CUPRESSACEAE			
Juniperus viginiana L.	Eastern red cedar	Roadside	Frequent to common
* Thuja occidentalis L.	Arborvitae, northern white cedar	Old homestead	Planted
PINACEAE			
* Larix decidua Mill.	European larch	Woodland nursery	Planted
* Picea glauca (Moench) Voss.	White spruce	Roadside	Planted
* Pinus banksiana Lamb.	Jack pine	Roadside	Planted
* Pinus nigra Arnold	Austrian pine	Old homestead	Planted
* Pinus resinosa Aiton	Red pine	Old homestead	Planted

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Scientific Name	Common Name	Habitat	Frequency
Pinus strobus L.	Eastern white pine	Old homestead	Planted
* Pinus sylvestris L.	Scots pine	Old town	Planted
ANGIOSPERMS: DICOTYLEDONS			
ACANTHACEAE			
Ruellia humilis Nutt.	Wild petunia, hairy ruellia	Bottomland terrace savannah/old pasture	Frequent to common
Ruellia strepens L.	Smooth ruellia	Bottomland floodplain woodland	Rare to infrequent
ACERACEAE			
* Acer ginnala Mixim.	Amur maple	Upland woodland	Infrequent escape from cultivation
Acer negundo L.	Boxelder	Bottomland floodplain woodland	Common
Acer nigrum Michx. f	Black maple	Upland woodland	Common
Acer saccharinum L.	Silver maple	Bottomland floodplain woodland	Common
AIZOACEAE			
* Mollugo verticillata L.	Carpetweed	Sand bar	Frequent to common
AMARANTHACEAE			
Amaranthus rudis Sauer	Pigweed, amaranth, water hemp	River bottomland terrace/old pasture	Infrequent to frequent
ANACARDIACEAE			
Rhus glabra L.	Smooth sumac	Upland woodland	Common
Toxicodendron radicans (L.) Kuntze ssp. negundo (Greene) Gillis	Poison ivy	(Not collected)	Common
APIACEAE			
Chaerophyllum procumbens (L.) Crantz	Chervil		NW edge of natl. range; rare
Cicuta maculata L.	Water hemlock	Prairie remnant	Frequent to common
Cryptotaenia canadensis (L.) DC.	Honewort, wild chervil	Upland woodland	Common
! * Daucus carota L.	Wild carrot, Queen Anne's lace	Roadsides, Successional Field	Frequent to common
Osmorhiza claytonii (Michx.) Clarke	Sweet cicely	Bottomland floodplain woodland	Infrequent
Osmorhiza longistylis (Torrey) DC.	Anise root	Bottomland terrace woodland	Infrequent
Oxypolis rigidior(L.) Raf.	Cowbane	Prairie remnant	Infrequent
* Pastinaca sativa L.	Wild parsnip	Old sandy field - prairie	Common
Sanicula canadensis L.	Elderberry, common elder	Upland woodland	Frequent to common
Sanicula gregaria Bickn.	Common snakeroot, clustered snakeroot	Upland woodland	Common

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Scientific Name	Common Name	Habitat	Frequency
APOCYNACEAE			
Apocynum cannabinum L.	Indian hemp	Carex swale	Frequent to common
ARISTOLOCHIACEAE			
Asarum canadense L.	Wild ginger		Common
ASCLEPIADACEAE			
Asclepias incarnata L.	Swamp milkweed	Prairie remnant	Frequent to common
Asclepias syriaca L.	Common milkweed	Prairie remnant	Common
Asclepias verticillata L.	Whorled milkweed	Old sandy field - prairie	Common
ASTERACEAE			
Achillea millefolium L. ssp. lanulosa (Nutt.) Piper	Western yarrow	Upland scrub woodland/wet prairie	Common
Ambrosia artemisiifolia L.	Common ragweed	Upland scrub woodland/prairie	Common
Ambrosia trifida L.	Giant ragweed	Old sandy field - prairie	Common
Antennaria neglecta Greene	Pussytoes	Old sandy field - prairie	Common
* Anthemis arvensis L.	Field chamomile	Upland crop field	Rare
* Anthemis cotula L.	Dog fennel	Upland crop field	Frequent to common
Artemesia drancunculus L.	False tarragon	Woodland nursery	Rare to infrequent
Artemisia ludoviciana Nutt.	White sage, prairie sage	Savannah ridge	Frequent to common
Aster drummondii Lindley	Drummond's aster	Bottomland floodplain woodland	W edge of natl. range; rare-infrequent
Aster ericoides L.	Heath aster, frost weed	Prairie remnant	Frequent to common
Aster lanceolatus Willd. ssp. simplex (Willd.) A.G. Jones	Panicled aster	Prairie remnant	Rare to infrequent
Aster lateriflorus (L.) Britton	Side-flowered aster	Upland woodland	W edge of natl. range; frequent
Aster novea-angliae L.	New England aster	Wetland	Frequent to common
Aster ontarionis Wieg.	Ontario aster	Bottomland terrace woodland edge	Frequent to common
Aster pilosus Willd.	Hairy aster, pilose aster	Old field/bottomland scrub woodland	Common
Aster praealtus Poiret	Willow aster	Upland woodland	W edge of natl. range; infrequent
Aster sagittifolius Willd.	Arrow-leaved aster	Bottomland floodplain woodland	Common
Bidens cernua L.	Nodding bur marigold	Prairie pothole	Frequent to common
Bidens connata Muhl. ex Willd.	Stick-tight	Bottomland floodplain woodland	Rare to frequent
Bidens frondosa L.	Beggar ticks	Upland scrub woodland/prairie	Rare to infrequent
Bidens tripartita L.	Stick-tight	Old sandy field - prairie	Rare to infrequent
Bidens vulgata Green	Tall beggar-ticks	Prairie remnant	Frequent to common

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Scientific Name	Common Name	Habitat	Frequency
Brickellia eupatoiroides (L.) Shinners	False boneset	Upland scrub woodland/prairie	Frequent to common
Cacalia plantaginea (Raf.) Shinners	Prairie Indian plantain	Prairie remnant	Infrequent
! * Carduus nutans L.	Nodding thistle, musk thistle	Successional Field, Restored prairie	Frequent to common
* Cichorium intybus L.	Chicory	Old wet field	Common
! * Cirsium arvense (L.) Scop.	Canada thistle	Successional field, Upland crop field	Frequent to common
Cirsium discolor (Muhl ex. Willd.) Spreng.	Field thistle	Upland woodland edge	Frequent to common
! * Cirsium vulgare (Savi) Tenore	Bull thistle	Successional field, Upland crop field	Frequent to common
Conyza canadensis (L.) Cronq.	Horseweed, muletail	Old sandy field - prairie	Common
Eclipta alba (L.) Hassk.	Yerbo-de-Tajo	Floodplains, muddy shores	Frequent
Erechitites hieracifolia (L.) Raf. ex DC.	Fireweed	Upland scrub woodland/wet prairie	Frequent to common
Erigeron annuus (L.) Pers.	Annual fleabane, daisy fleabane	Bottomland terrace savannah/old pasture	Common
Erigeron philadelphicus L.	Fleabane	Prairie pothole	Frequent
Erigeron pulchellus Michx.	Robin's plantain	Sloped woodland along river	Rare
Eupatorium altissimum L.	Tall thoroughwort	Old pasture	W edge of natl. range; infrequent
Eupatorium perfoliatum L.	Boneset	Old pasture	Frequent
Eupatorium rugosum Houtt.	White snakeroot	Bottomland terrace savannah/old pasture	Common
Gnaphalium obtusifolium L.	Everlasting, catfoot	Woodland nursery	W edge of natl. range; infrequent
Helenium autumnale L.	Sneezeweed	Old pasture	Frequent to common
! Helianthus annuus L.	Common sunflower	Prairie remnant	Common
Helianthus grosseserratus Martens	Saw-tooth sunflower	Prairie remnant	Frequent to common
Helianthus rigidus (Cass.) Desf.	Prairie sunflower, stiff sunflower	Upland oak woodland edge	Common
Helianthus tuberosus L.	Jerusalem artichoke	Upland scrub woodland/prairie	Infrequent to frequent
Heliopsis helianthoides (L.) Sweet	Oxeye	Carex swale	Frequent to common
Hieracium longipilum Torrey	Hawkweed	Roadside	W edge of national range; rare
Lactuca canadensis L.	Wild lettuce	Old sandy field - prairie	Common
Lactuca floridana (L.) Gaertner	Blue lettuce	Carex swale	Frequent to common
* Lactuca serriola L.	Prickly lettuce	Roadside	Frequent to common
* Leucanthemum vulgare Lam.	Ox-eye daisy	Wet wooded railroad ravine	Scattered distribution; infrequent
Parthenium integrifolium L.	Wild quinine, feverfew	Woodland roadside	W edge of natl. range; rare
Ratibida pinnata (Vent.) Barnh.	Gray-headed coneflower	Prairie remnant	Common

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Scientific Name	Common Name	Habitat	Frequency
Rudbeckia hirta L.	Black-eyed Susan	Prairie remnant	Common
Rudbeckia laciniata L.	Green-headed coneflower	Bottomland floodplain woodland	Infrequent to frequent
Rudbeckia subtomentosa Pursh	Fragrant coneflower	Old pasture	Rare to infrequent
Senecio aureus	Golden ragwort	Restoration wetland	Uncommon
Senecio pauperculus Michx.	Prairie ragwort	Roadside	Rare to infrequent
Silphium laciniatum L.	Compass plant	Prairie remnant	Common
Silphium perfoliatum L.	Cup plant	Upland woodland roadside	Frequent to common
Solidago canadensis L.	Tall goldenrod, Canada goldenrod	Old sandy field - prairie	Frequent to common
Solidago flexicaulis L.	Zig-zag goldenrod	Sloped woodland along river	Frequent to common
Solidago gigantea Aiton	Smooth goldenrod, late goldenrod	Upland scrub woodland/prairie	Frequent to common
Solidago missouriensis Nutt.	Missouri goldenrod	Prairie, fields	Common
Solidago ulmifolia Muhl. ex Willd.	Elm-leaved goldenrod	Upland woodland	Common
! * Sonchus sp.	Sow thistle	Successional field	Infrequent to common
* Taraxacum officinale Weber	Common dandelion	Roadside	Common
* Tragopogon dubius Scop.	Goat's-beard	Roadside	Common
Vernonia baldwinii Torrey	Baldwin's ironweed	Old sandy field - prairie	Frequent to common
Vernonia fasciculata Michx.	Ironweed	Wetland	Frequent to common
! * Xanthium strumarium L.	Cocklebur	Successional field, Cropland perimeters	Frequent to common
BALSAMINACEAE			
Impatiens capensis Meerb.	Spotted touch-me-not	Wet bottomland woodland	Frequent to common
BERBERIDACEAE			
Podophyllum peltatum L.	Mayapple	Upland woodland	Common
BETULACEAE			
Ostrya virginiana (Mill.) K. Koch	Ironwood, hop hornbeam	Upland woodland	Frequent to common
BIGNONIACEAE			
Catalpa speciosa Walter	Northern catalpa, cigar tree	Old homestead	Infrequent
BORAGINACEAE			
Hackelia virginiana (L.) I.M. Johnston	Virginia stickseed, beggar's lice	Bottomland woodland	Infrequent to frequent
Lithospermum incisum Lehm.	Fringed puccoon	Roadside	Rare
Lithospermum canescens	Hoary puccoon	Prairie remnant	Sparse
Mertensia virginica (L.) Pers. ex Link	Bluebells	Old homestead	Rare
BRASSICACEAE			
* Alliaria Petiolata	Garlic Mustard	Woodland	Invasive

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Scientific Name	Common Name	Habitat	Frequency
Arabis glabra (L.) Bernh.	Tower mustard	Bottomland woodland	Southern part of national range; rare
Arabis hirsuta (L.) Scop.	Motherwort	Bottomland terrace savannah/old pasture	Rare to infrequent
Arabis shortii (Fern.) Gl.	Rock cress	Bottomland floodplain woodland	Rare to infrequent
* Armoracia rusticana (Lam.) Gaertner, Meyer & Schreber	Horseradish	Old homestead	Rare escape from cultivation
* Barbarea vulgaris R. Br.	Yellow rocket, winter cress	Roadside	Common
* Brassica nigra (L.) W.D.J. Koch	Black mustard	Old homestead	Frequent to common
* Capsella bursa-pastoris (L.) Medic.	Shepherd's purse	Bottomland floodplain woodland	Common
Cardamine bulbosa (Schreber) BSP.	Spring cress	Marshes, prairie potholes	Infrequent
Cardimine pensylvanica Muhl. ex Willd.	Bitter cress	Bottomland floodplain woodland	Infrequent to frequent
Dentaria laciniata Muhl ex Willd.	Toothwort	Woodlands	Frequent to common
Descurainia pinnata (Walt.) Britt. var. brachycarpa (Richardson) Fern.	Tansy mustard	Woodland roadside	Frequent to common
* Erysimum cheiranthoides L.	Wormseed mustard	Sloped woodland along river	Rare to infrequent
* Hesperis matronalis L.	Dame's rocket	Restored prairie	Rare to infrequent
Iodanthus pinnatifidus (Michx.) Steudel	Purple rocket	Carex swale	Rare to infrequent
* Lepidium campestre (L.) R.Br.	Field peppergrass	Old sandy field - prairie	Infrequent to frequent
Lepidium densiflorum Schrader	Peppergrass	Old sandy field - prairie	Frequent to common
Rorippa palustris (L.) Besser	Marsh cress	Carex swale	Infrequent to common
Rorippa sessiliflora (Nutt.) A.S. Hitchc.	Yellow cress	Prairie pothole	Infrequent to frequent
Rorippa sinuata (Nutt.) A.S. Hitchc.		Sandy shores	Rare
* Sisymbrium atltissimum L.	Tumble mustard	Wet wooded railroad ravine	Infrequent to frequent
* Sisybrium officianale (L.) Scop.	Tumble mustard	Roadside	Frequent to common
* Thlaspi arvense L.	Pennycress, field pennycress	Woodland roadside	Frequent to common
CAMPANULACEAE			
Campanula americana L.	Tall bellflower	Woodland edge	Common
Campanula aparinoides Pursh	Bedstraw bellflower, marsh bellflower	Wetland	Absent to rare
Lobelia cardinalis L.	Cardinal flower	Bottomland floodplain woodland	W edge of natl. range; rare-infrequent
Lobelia inflata L.	Indian tobacco	Upland woodland	Frequent to common
Lobelia siphilitica L.	Great lobelia	Upland scrub woodland/wet prairie	Frequent to common
Lobelia spicata Lam.	Pale-spike lobelia, spiked lobelia	Old sandy field - prairie	Infrequent to frequent
Triodanis perfoliata (L.) Nieuw.	Venus' looking-glass	Woodland edge	Rare to infrequent

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Scientific Name	Common Name	Habitat	Frequency
CAPRIFOLIACEAE			
* Lonicera maackii Maxim.	Amur honeysuckle	Roadside	
* Lonicera tatarica L.	Tartarian honeysuckle	Old homestead	Frequent escape from cultivation
Sambucus canadensis L.	Elderberry, common elder	Roadside	Common
Symphoricarpos orbiculatus Moench	Common buckthorn, coralberry, buckbrush	Old sandy field - prairie	W edge of natl. range; rare-infrequent
Triosteum perfoliatum L.	Horse gentian, feverwort	Old sandy field - prairie	Frequent to common
Viburnum prunifolium L. [on State of Iowa special concern list]	**Black haw**	**Wet bottomland woodland**	**Rare**
CARYOPHYLLACEAE			
* Cerastium vulgatum L.	Mouse-ear chickweed	Bottomland terrace savannah/old pasture	W edge of natl. range; rare-infrequent
* Dianthus armeria L.	Deptford pink	Old sandy field - prairie	Rare to infrequent
* Saponaria officinalis L.	Bouncing bet, soapwort	Old sandy field - prairie	Frequent to common
Silene antirrhina L.	Sleepy catchfly	Old sandy field - prairie	Infrequent
* Silene noctiflora L.	Bladder campion, night-flowering catchfly	Bottomland woodland roadside	Common escape from cultivation
* Silene pratensis Rafn.) Gren. & Godron	White campion	Old town	Frequent to common
Silene stellata (L.) Aiton f.	Starry campion	Sloped woodland along river	Frequent to common
* Stellaria media (L.) Vill.	Common chickweed	Open woods, disturbed ground	Common
CELASTRACEAE			
Celastrus scandens L.	Bittersweet	Sloped woodland along river	Common
Euonymous atropurpureus Jacq.	Wahoo, burning bush	Sloped woodland along river	Frequent
CERATOPHYLLACEAE			
Ceratophyllum demersum L.	Coontail, hornwort	Prairie pothole	Widespread; rare-infrequent
CHENOPODIACEAE			
* Chenopodium album L.	Pigweed, lamb's quarters	Roadside	Common
Chenopodium standleyanum Aellen	Woodland goosefoot	Bottomland woodland	Infrequent to frequent
CONVOLVULACEAE			
Calystegia sepium (L.) R.Br.	Hedge bindweed	Prairie remnant	Common
* Convolvolus arvensis L.	Field bindweed, creeping Jenny, European bindweed	Roadside	Frequent to common
* Ipomoea hederacea (L.) Jacq.	Annual morning glory	Wetland	Rare to infrequent
* Ipomoea purpurea (L.) Roth	Common morning glory, annual morning glory	Old sandy field - prairie	Rare to infrequent
CORNACEAE			

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Scientific Name	Common Name	Habitat	Frequency
Cornus alternifolia L. f.	Alternate-leaved dogwood, Pagoda dogwood	Sloped woodland along river	Frequent to common
Cornus amomum P. Miller ssp. obliqua (Raf.) J.S. Wilson	Silky dogwood	Old pasture	Infrequent
Cornus drummondii C.A. Meyer	Rough leaved dogwood	Woodland nursery	
CUCURBITACEAE			
Echinocystis lobata (Michx.) T. & G.	Wild cucumber	Upland ridge woodland	Rare to infrequent
ERICACEAE			
Monotropa uniflora L.	Indian pipe	Upland woodland	Rare to infrequent
EUPHORBIACEAE			
Acalypha rhomboidea Raf.	Three-seeded mercury	Prairie remnant	Infrequent
Acalypha viginica L.		Prairie remnant	N edge of natl. range; rare-infrequent
Euphorbia corollata L.	Flowering spurge	Old sandy field - prairie	Common
Euphorbia cyathophora Murray	Wild poinsettia	Upland scrub woodland/wet prairie	Infrequent to frequent
* Euphorbia cyparissias L.	Cypress spurge	Roadside	Infrequent to frequent
Euphorbia dentata Michx.	Toothed spurge	Old field succeeding to swale	Frequent to common
Euphorbia maculata L.	Carpet spurge	Roadside	Common
Euphorbia nutans Lag.	Nodding spurge	Waste places	Frequent to common
FABACEAE			
Amorpha fruticosa L.	False wild indigo	Old field	Frequent to common
Amphicarpaea bracteata (L.) Fern.	Hog peanut	Upland woodland	Common
Apios americana Medicus	Ground-nut	Old sandy field - prairie	Frequent to common
Baptisia lactea (Raf.) Theiret	White wild indigo	Old sandy field - prairie	Infrequent to frequent
Cassia marilandica L.	Wild senna	Wetland	Infrequent
Chamaecrista fascidulata (Michx.) Greene	Partridge pea, locust weed	Old sandy field - prairie	Frequent to common
* Coronilla varia L.	Crown vetch	Bottomland woodland roadside	Common
Crotalaria sagittalis L.	Rattlebox	Old sandy field - prairie	Rare
Dalea purpurea Vent.	Purple prairie clover	Sand prairie roadside	Frequent to common
Desmanthus illinoensis (Michx.) MacM. ex B.L. Robinson & Fern.	Prairie mimosa, Illinois bundle flower	Prairie remnant roadside	Rare to Infrequent
Desmodium canadense (L.) DC.	Showy tick-trefoil	Roadside	Infrequent to frequent
Desmodium canescens (L.) DC.	Hoary tick-trefoil	Old sandy field - prairie	Rare to infrequent
Desmodium glutinosum (Muhl. ex Willd.) Wood	Pointed-leaved tick trefoil, pointed tick trefoil	Upland woodland	Frequent to common

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Scientific Name	Common Name	Habitat	Frequency
Desmodium paniculatum (L.) DC.	Panicled tick-trefoil	Small wet area between fields	NW edge of natl. range; rare-infreq.
Gleditsia triacanthos L.	Honey locust	Roadside	Common
Gymnocladus dioica (L.) K. Koch	Kentucky coffee tree	Bottomland terrace woodland	Infrequent to frequent
* Kummerowia stipulacea (Maxim.) Makino	Korean clover	Old sandy field - prairie	NW edge of natl. range; rare-infreq.
Lathyrus palustris L.	Marsh vetchling	Prairie remnant	Rare to infrequent
Lespedeza capitata MIchx.	Round-headed bush-clover	Prairie remnant	Common
Lespedeza violacea (L.) Pers.	Violet bush clover	Upland woodland	Infrequent
* Lotus corniculatus L.	Bird's-foot trefoil	Upland woodland	Rare to infrequent
* Medicago lupulina L.	Black medic	Upland scrub woodland/wet prairie	Frequent to common
* Medicago sativa L.	Alfalfa	Old sandy field - prairie	Common escape from cultivation
* Melilotus alba Medicus	White sweet clover	Roadsides, fields, disturbed areas	Common
* Melilotus officinalis (L.) Pallas	Yellow sweet clover	Upland scrub woodland/wet prairie	Common
Strophostyles leiosperma	Wid bean	Restoration site	Common
Strophostyles helvula (L.) Ell.	Bush clover, wild bean	Old sandy field - prairie	Infrequent to frequent
* Trifolium hybridum L.	Alsike clover	Old sandy field - prairie	Frequent to common
* Trifolium pratense L.	Purple clover, red clover	Roadside	Common
* Trifolium repens L.	White clover	Roadside	Common
Vicia americana	American vetch	Prairie remnant	Common
* Vicia sativa	Common vetch	Prairie remnant	Common
FAGACEAE			
Quercus alba L.	White oak	Upland woodland	Common
Quercus borealis Michx. f. var. maxima (Marsh.) Ashe	Northern red oak	Upland oak woodland	Frequent to common
Quercus macrocarpa Michx.	Bur oak	Bottomland terrace woodland	Frequent to common
Quercus velutina Lam.	Northern red oak	Upland oak woodland	Frequent
GENTIANACEAE			
Gentiana alba Muhl.	Pale gentian, yellow gentian	Upland woodland	Rare to infrequent
Gentiana andrewsii Griseb.	Bottle gentian, closed gentian	Prairie remnant	Frequent
GERANIACEAE			
Geranium carolinianum L.	Cranesbill, wild geranium	Old sandy field - prairie	Rare to infrequent
HYDROPHYLLACEAE			
Ellisia nyctelea L.	Waterpod, wild tomato	Roadside	Frequent to common

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Scientific Name	Common Name	Habitat	Frequency
Hydrophyllum virginianum L.	Virginia waterleaf	Bottomland terrace woodland	Frequent
HYPERACACEAE			
Hypericum denticulatum			
* Hypericum perforatum L.	Common St. John's wort	Upland scrub woodland/wet prairie	Rare to infrequent
Hypericum pyramidatum Aiton	Giant St. John's wort	Upland scrub woodland/wet prairie	Rare to infrequent
Hypericum sphaerocarpum Michx.	Round-fruited St. John's wort	Bottomland terrace savanna/	Northwestern edge of natl. range; rare
JUGLANDACEAE			
Carya cordifomis (Wangenh.) K. Koch	Bitternut hickory	Upland woodland	Common
Carya ovata (Mill.) K. Koch	Shagbark hickory	Upland woodland	Common
Juglans nigra L.	Black walnut	Bottomland terrace woodland	Common
LAMIACEAE			
Agastache nepetoides (L.) Kuntze	Yellow giant-hyssop	Old sandy field - prairie	Rare to infrequent
Dracocephalum parviflorum Nutt.	Dragonhead	Crop field	Southern part of national range; rare
* Glechoma hederacea L.	Ground ivy, creeping Charlie	Old town	Frequent to common
Hedeoma hispidum Pursh.	Rough pennyroyal	Dry roadside	Frequent to common
* Leonurus cardiaca L.	Motherwort	Bottomland /old pasture	Frequent to common
Lycopus americanus Muhl. ex Barton	Water horehound, American bugleweed	River bottomland/old pasture	Rare to infrequent
Lycopus asper Greene		Margins of lakes, marshes	Rare to infrequent
Lycopus virginicus L.		Stream margins, wet ground	Rare to infrequent
Mentha arvensis L.	Wild mint	Wetland	Frequent to common
Monarda fistulosa L.	Wild bergamot, horsemint	Old sandy field - prairie	Common
* Nepeta cataria L.	Catnip	Upland crop field	Frequent to common
Physostegia parviflora Nutt. ex Gray	Obedient plant, small-flowered false dragonhead	Carex swale	E edge of natl. range; infrequent-freq.
Physostegia virginiana (L.) Bentham	Obedient plant, false dragonhead	Upland crop field	Infrequent
* Prunella vulgaris L.	Self heal, heal-all	Prairie remnant	Occasional
Pycnanthemum virginianum (L.) Durand & Jackson	Virginia mountain mint	Prairie remnant	Common
Scutellaria galericulata L.	Marsh skullcap	Prairie remnant	Rare to infrequent
Scutellaria laterflora L.	Mad-dog skullcap	Old pasture	Common
Scutellaria leonardii Epling	Skullcap	Bottomland floodplain woodland	Infrequent to Frequent
Stachys palustris L.	Woundwort	Upland crop field	Frequent to common

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Stachys tenuifolia Willd.	Mad-dog skullcap	Bottomland floodplain woodland	Rare to infrequent
Teucrium canadense L. var. boreale (Bickn.) Shinners	American germander, wood sage	Old sandy field - prairie	Frequent to common
LYTHRACEAE			
Ammannia coccinea Rottb.	Toothcup	Wetland	Rare to infrequent
* Ammania robusta Heer & Regel		Moist, sandy habitats	Rare
Lythrum alatum Pursh	Common loosestrife	Old field	Rare to infrequent
MALVACEAE			
! * Abutilon theophrasti Medicus	Velvet leaf	Successional field, Agricultural land	Common
Hibiscus laevis All.	Halberd-leaved rose mallow	Carex swale	Rare to infrequent
* Hibiscus tionum L.	Flower-of-an-hour	Roadside	Frequent to common
MENISPERMACEAE			
Menispermum canadense L.	Canada moonseed	Bottomland floodplain woodland	Frequent to common
MORACEAE			
* Cannabis sativa L.	Hemp	Old sandy field - prairie	Common
Humulus lupulus L.	Common hops	Old field/bottomland scrub woodland	Infrequent to frequent
Maclura pomerifera (Raf. ex Sarg.) Schneider	Osage orange, hedgeapple	Old field	Common escape from cultivation
* Morus alba L.	White mulberry, Chinese mulberry	Carex swale	Common
Morus rubra L.	Red mulberry	Bottomland woodland	Infrequent to frequent
NYCTAGINACEAE			
Mirabilis nyctaginea (Michx.) MacM.	Wild four-o'clock	Old sandy field - prairie	Common
OLEACEAE			
Fraxinus americana L.	American ash, white ash	Upland woodland	Common
Fraxinus pennsylvanica Marsh.	Black ash, red ash, green ash	Bottomland floodplain woodland	Rare
* Syringa vulgaris L.	Lilac	Old town	Frequent
ONAGRACEAE			
Circaea lutetiana (L.) Ascherson & Magnus ssp. canadensis (L.) Ascherson & Magnus	Enchanter's nightshade	Upland woodland	Frequent to common
Epilobium ciliatum Raf.	Willow herb	Upland scrub woodland/wet prairie	Rare to infrequent
Epilobium coloratum Biehler	Cinnamon willowherb	Prairie pothole	Frequent to common
Gaura biennis L.	None	Wetland	Frequent to common
Gaura parviflora Dougl.	None	Old sandy field - prairie	Rare
Ludwigia palustris	Water purslane	Restoration wetland	Uncommon
Ludwigia polycarpa Short & Peter	False loosestrife	Old wet field	Infrequent to frequent

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Oenothera biennis L. ssp. centralis Munz	Evening primrose	Old sandy field - prairie	Frequent
Oenothera kacubuata			
Oenothra laciniata Hill ssp. canadensis	Ragged evening primrose	Upland woodland edge	W edge of natl. range; rare-infrequent
OXALIDACEAE			
Oxalis dillenii Jacq.	Yellow wood sorrel	Old sandy field - prairie	Rare to infrequent
Oxalis stricta L.	Yellow wood sorrel, lady's sorrel	Upland woodland	Frequent
PAPAVERACEAE			
Corydalis micrantha (Englm.) Gray	Slender fumewort	Roadside	W edge of natl. range; rare-infrequent
Dicentra cucullaria (L.) Bernh.	Dutchman's breeches	Rocky bottomland terrace woodland	Common
PHRYMACEAE			
Phryma leptodstachya L.	Lopseed	Woodland edge	Frequent to common
PLANTAGINACEAE			
Plantago aristata Michx.	Bracted plantain	Old sandy field - prairie	Common
! * Plantago lanceolata L.	English plantain, buckthorn plantain	Successional field, Agricultural fields	Frequent to common
* Plantago major L.		Pastures, waste places	Rare to infrequent
Plantago rugelii Decne.	Pale plantain, Rugel's plantain	Stream	Common
Plantago virginica L.	Common plantain	Old sandy field - prairie	W edge of natl. range; infrequent
PLATANACEAE			
Platanus occidentalis L.	Sycamore	Roadside	Frequent to common
POLEMONIACEAE			
Phlox divarticata L.	Sweet william, blue phlox	Upland woodland	Frequent to common
* Phlox paniculata L.	Garden phlox	Roadside	Escape from cultivation
Phlox pilosa L.	Prairie phlox, downy phlox	Prairie remnant	Frequent to common
Phlox subulata L.	Moss–pink	Sandy/gravelly soil	Rare, escape from cultivation
POLYGALACEAE			
Polygala verticillata L.	Whorled milkweed	Old sandy field - prairie	Infrequent
POLYGANACEAE	Water smartweed (landform)	Prairie pothole	Common
Polygonum amphibium L.			
Polygonum amphibium L. var. stipulaceum (Colem.)Fern.	Black bindweed	Bottomland woodland roadside	Frequent to common
* Polygonum convolvulus L.			
Polygonum hydropiper L.	Wild water pepper	Carex swale	Rare

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Polygonum hydopiperoides (Michx.)	Smartweed	Prairie pothole	Common
Polygonum lapathifolium L.	Smartweed	Prairie pothole	Frequent to common
Polygonum pensylvanicum L. var laevigatum Fern.	Pennsylvania smartweed	Old sandy field - prairie	Common
* Polygonum persicaria L.	Lady's thumb	Old field succeeding to swale	Frequent to common
Polygonum puntatum Ell.	Water smartweed	Bottomland woodland	Frequent to common
Polygonum ramosissimum Michx.	Bushy knotweed	Prairie remnant	Frequent
Polygonum scandens L.	Climbing false buckwheat	Prairie remnant roadside	NW edge of natl. range; frequent
Polygonum virginianum L.	Jumpseed	Bottomland floodplain woodland	Frequent
* Rheum sp.	Rhubarb	Roadside	Escape from cultivation
! Rumex acetosella L.	Red sorrel	Successional field	Frequent to common
! Rumex altissimus Wood	Dock	Old sandy field - prairie	Frequent to common
! * Rumex crispus L.	Curly dock	Prairie pothole	Frequent to common
Rumex verticillatus L.		Lake margins, marshes, low moist ground	Frequent
PORTULACACEAE			
Claytonia virginica L.	Spring beauty	Upland woodland	Frequent to common
PRIMULACEAE			
Lysimachia ciliata L.	Fringed loosestrife	Prairie remnant	Infrequent to common
Lysimachia quadriflora Sims	Whorled loosestrife	Prairie remnant	W edge of natl. range; infrequent
Lysimachia terrestris (L.) BSP.	Swamp loosestrife	Marshes, low prairie	Infrequent to rare
RANUNCULACEAE			
Anemone canadensis L.	Canada anemone	Upland crop field	Common
Anemone cylindrica Gray	Thimbleweed, windflower	Prairie remnant	Rare to infrequent
Anemone virgiana L.	Wandering jew, dayflower	Bottomland woodland roadside	Common
Aquilegia canadensis L.	Columbine	Upland woodland	Common
Caltha palustris	Marsh marigold	Restoration wetland	Uncommon
Clematis pitcheri T. & G.	Leather flower	River floodplain savannah	Rare to infrequent
Delphinium virescens Nutt.	Prairie larkspur	Bottomland terrace savannah/old pasture	Frequent to common
Hepatica nobilis P. Miller var. acuta (Pursh) Steyerm.	Liverleaf, ivy flower, mouse ear	Sloped woodland along river	Frequent to common
Ranunculus abortivus L.	Kidneyleaf buttercup	Moist woods, moist open places	Common
Ranunculus flabellaris Raf.	Yellow water crowfoot	Wetland	Infrequent
Ranunculus longirostris Godron	White water crowfoot	Wetland edge	Infrequent

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Ranunculus sceleratus L.	Cursed crowfoot	Prairie pothole	Rare to infrequent
Ranunculus septentrionalsi Poitet	Swamp buttercup	Low, moist woods	Frequent to common
Thalictrum dasycarpum Fischer & Ave-Lall.	Purple meadow rue	Prairie remnant	Common
RHAMNACEAE			
* Rhamnus frangula L.	Glossy buckthorn	Wet bottomland woodland	Rare escape from cultivation
ROSACEAE			
Agrimonia pubescens Wallr.	Soft agrimony	Bottomland woodland	Frequent to common
Amelanchier arborea (Michx.) Fern.	Downy serviceberry	Sloped woodland along river	Frequent
Crataegus mollis (T. & G.) Scheele	Hawthorn	Bottomland woodland	Frequent to Common
Frageria virginiana Duchesne.	Wild strawberry	Prairie remnants, open woods	Common
Geum canadense Jacq.	White avens	Bottomland woodland roadside	Common
Geum laciniatum Murray	Rough avens	Old field succeeding to swale	W edge of natl. range; infreq.-frequent
Malus ioensis (Wood) Britton	Wild crab apple, prairie crab	Prairie remnant	Frequent to common
* Malus sylvestris (L.) P. Miller	Apple	Old town	Rare escape from cultivation
Physocarpus opulifolius (L.) Maxim.	Ninebark	Woodland nursery	Rare to infrequent
Potentilla norvegica L.	Rough cinquefoil, Norwegian cinquefoil, strawberry weed	Old sandy field - prairie	Common
* Potentilla recta L.	Rough-fruited cinquefoil, sulfur cinquefoil	Upland scrub woodland/wet prairie	Infrequent to frequent
Potentilla simplex Michx.	Common cinquefoil	Old sandy field - prairie	Common
Prunus serotina Ehrh.	Wild black cherry	Bottomland floodplain woodland	Frequent to common
Prunus virginiana L.	Choke cherry	Bottomland woodland edge	Common
* Pyrus communis L.	Pear	Old town	Rare
Rosa blanda Aiton	Meadow rose	Roadside	Infrequent to Frequent
Rosa carolina L.	Pasture rose	Old sandy field - prairie	Rare to infrequent
! * Rosa multiflora Thunb. ex Murray	Multiflora rose	Successional field, Scrub woodland/prairie	Frequent to common
Rosa setigera Michx.	Prairie rose	Upland woodland edge	Rare
Rubus ablatus Bailey	Blackberry	Upland scrub woodland/prairie	
Rubus allegheniensis Porter ex Bailey	Blackberry	Upland scrub woodland	Common
Rubus frondosa Bigelow	Blackberry	Upland scrub woodland	W edge of natl. range; frequent
Rubus occidentalis L.	Black raspberry	Upland woodland	Common
Rubus roribaccus (Bailey) Rydb.	Blackberry	Roadside	NW edge of natl. range; frequent

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Rubus sect. alleghanienses	Blackberry	Upland woodland	-
RUBIACEAE			
Cephalanthus occidentalis L.	Buttonbush	Wetland edge	Common
Galium aparine L.	Catchweed, cleavers	Bottomland floodplain woodland	Common
Galium circaezans Michx.	Wild licorice, woods bedstraw	Upland woodland	Frequent to common
Galium concinnum T. & G.	Shining bedstraw	Upland woodland	Common
Galium obtusum Bigelow	Wild madder	Moist prairie remnants	Frequent to infrequent
Galium triflorum Michx.	Fragrant bedstraw, sweet-scented bedstraw	Upland woodland	Common
RUTACEAE			
Zanthoxylum americanum Mill.	Prickly ash	Upland woodland	Common
SALICACEAE			
* Populus alba L.	White poplar, silver poplar	Upland woodland edge	Infrequent escape from cultivation
Populus deltoides Bartr. ex Marsh.	Eastern cottonwood	Upland woodland	Common
* Populus nigra Muenchh. var. italica Muenchh.	Lombardy poplar	Old town	Occasional
Salix amygdaloides Andersson	Peachleaf willow	Roadside	Common
Salix exigua Nutt. ssp interior (Rowlee)Cronq.	Sandbar willow	Old field/bottomland scrub woodland	Common
Salix fragilis L.	Crack willow	Prairie pothole	Escape from cultivation
Salix nigra Marsh.	Black willow	Roadside	Common
Salix rigida Muhl.	Willow	Streambanks, ditches	Frequent to common
Salix x sepulcralis Smonkai	Sandbar willow	Moist roadside	
SANTALACEAE			
Commandra umbellate.	Bastard toadflax	Prairie remnant	Common
SAXIFRAGACEAE			
Penthorum sedoides L.	Ditch stonecrop	Wetland	Common
Ribes americanum P. Miller	Wild black currant	Sloped woodland along river	Rare
Ribes missouriense Nutt. ex T. & G.	Wild gooseberry	Sloped woodland along river	Common
SCROPHULARIACEAE			
Agalinis tenuifolia (Vahl.) Raf.	Attenuate-leaved agalinis	Woodland nursery	Common
Lindernia dubia (L.) Pennell	False pimpernel	Wetland	Common
Mimulus ringens L.	Monkey flower	Waste places	Common
Pedicularis lanceolata Michx.	Swamp lousewort	Marshes, prairie swales	Common
Penstemon digitalis Nutt.	Rough-fruited cinquefoil, sulfur	Upland woodland	W edge of natl. range; rare

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	cinquefoil		
Penstemon tubiflorus [on State of Iowa special concern list]	**Western beardtongue**	**Prairie remnant**	**Sparse**
Scrophularia marilandica L.	Carpenter's square, Maryland figwort	Prairie remnant	Frequent to common
* Verbascum thapsus L.	Common mullein	Old sandy field - prairie	Common
* Veronica arvensis L.	Corn speedwell	Upland scrub woodland/wet prairie	Rare to infrequent
Veronica peregrina L.	Purslane speedwell	Old sandy field - swale	Frequent to common
* Veronica serphyllifolia L.	Speedwell	Bottomland terrace savannah/old pasture	Rare
Veronicastrum virginicum (L.) Farw.	Culver's root	Prairie remnant	Common
SOLANACEAE			
Physalis heterophylla Nees	Ground cherry	Savannah ridge	Frequent to common
Physalis viginiana P. Miller	Clammy ground cherry, wild tomato	Restored prairie	Frequent to common
Solanum americanum P. Miller	Common nightshade	Bottomland floodplain woodland	Common
! Solanum carolinense L.	Horse nettle, common nightshade	Successional field, Cropland, Prairie remnant	Common
SPARGANIACEAE			
Sparganium eurycarpum Engelm.	Giant bur-reed	Wetland edge	Infrequent to frequent
STAPHYLEACEAE			
Staphylea trifolia L.	Bladdernut	Sloped woodland along river	Frequent to common
TAXACEAE			
* Taxus cuspidata Sieb. & Zucc.	Japanese yew	Old homestead	Planted
TILIACEAE			
Tilia americana L.	Basswood, American linden	Upland woodland	Common
ULMACEAE			
Celtis occidentalis L.	Hackberry	Upland woodland	Common
Ulmus americana L.	American elm	Upland woodland	Common
* Ulmus pumila L.	Siberian elm	Wetland	Frequent escape from cultivation
Ulmus rubra Muhl.	Slippery elm, red elm	Upland woodland	Frequent to common
URTICACEAE			
Boehmeria cylindrica (L.) Sw.	Bog hemp	Small wet area between fields	Rare to infrequent
Laportea canadensis (L.) Wedd.	Wood nettle	Carex swale	Common
Parietaria pensylvanica Muhl. ex Willd.	Pellitory	Wooded bluffs and ledges	Frequent to common
Pilea pumila (L.) Gray	Clearweed	Bottomland terrace savannah/old pasture	Frequent to common

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Urtica dioica L.	Stinging nettle	Bottomland woodland	Common
VERBENACEAE			
Phyla lanceolata (Michx.) Greene	Fogfruit	Carex swale	Frequent to common
Verbena bracteata Lag & Rodr.	Creeping vervain	Old sandy field - prairie	Frequent to common
Verbena canadensis (L.) Britton	Vervain	Old sandy field - prairie	NW edge of natl. range; rare
Verbena hastata L.	Blue vervain	Wet bottomland scrub woodland	Common
Verbena stricta Vent.	Hoary vervain	Old sandy field - prairie	Common
Verbena urticifolia L.	White vervain	Wet bottomland scrub woodland	Frequent to common
VIOLACEAE			
Viola missouriensis Greene	Violet	Roadside	W edge of natl. range; rare
Viola praticola Greene	Common blue violet	Roadside	Frequent to common
Viola pubescens Aiton	Downy yellow violet	Moist, wooded slopes	W part of natl. range; rare-infrequent
Viola sororia Willd.	Hairy blue violet	Roadside	Common
Viola striata Aiton	Pale violet	Old homestead	W edge of natl. range; rare
VITACEAE			
Parthenocissus quinquefolia (L.) Planchon	Virginia creeper	Old homestead	Common
Vitis riparia Michx.	Riverbank grape	Upland woodland	Common
ANGIOSPERMS: MONOCOTYLEDONS			
ALISMATACEAE			
Alisma plantago-aquatica L.	Water plantain	Prairie pothole	Common
Echinodorus cordifolius (L.) Griseb.	Burhead	Wetland	NW edge of nat. range; rare-infrequent
Sagittaria calycina Engelm.	Arrowhead	Prairie pothole	Infrequent
Sagittaria cuneata Sheldon	Arrowhead	Wetland	Southern edge of natl. range; rare
Sagittaria latifolia Willd.	Broad-leaved arrowhead	Prairie pothole	Rare to infrequent
ARACEAE			
Arisaema dracontium (L.) Schott	Green dragon	wet bottomland scrub woodland	W edge of natl. range; frequent
Arisaema triphyllum (L.) Schott	Jack-in-the-pulpit	Upland woodland	Common
COMMELINACEAE			
Commelina communis L.	Wandering jew, dayflower	Bottomland woodland roadside	Infrequent to frequent
Tradescantia bracteata Small	Spiderwort	Prairie remnant	Common

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CYPERACEAE			
Carex amphibola Stendel var. turgida Fern.	Narrowleaf sedge	Upland woodland	Infrequent to frequent
Carex annectens (Bickn.) Bickn. var. xanthocarpa (Bickn.) Wieg.	Yellowfruit sedge	Old field succeeding to swale	Rare to infrequent
Carex bicknelii	Bicknell's sedge	Prairie Remnant	Uncommon
Carex aqualitis Wahl.	Sedge	Wetland	Rare
Carex atherodes Sprengel	Slough sedge	Old pasture	Frequent to common
Carex blanda Dew.	Woodland sedge	Bottomland floodplain woodland	Common
Carex brevior (Dewey) Mack ex Lunell	Sedge	Wetland	Frequent
Carex cephalophora Muhl.	Sedge	Upland woodland	Frequent to common
Carex convoluta Maack.	Sedge	Upland woodland	Infrequent
Carex cristatella Britt.	Sedge	Wet bottomland scrub woodland	Infrequent to frequent
Carex davisii Schein. & Torrey	Sedge	Carex swale	Frequent
Carex frankii Michx.	Sedge	Old field succeeding to swale	NW edge of natl. range; rare
Carex granularis Muhl. ex Willd.	Sedge	Old field succeeding to swale	Western edge of national range; rare
Carex gravida Bailey	Heavy sedge	Bottomland floodplain woodland	Frequent to common
Carex haydenii Dewey	Hayden's sedge	Bottomland terrace savannah/old pasture	Rare
Carex hirtifolia Mackenzie	Sedge	Upland woodland	Rare to infrequent
Carex hystricina Muhl. ex Willd.	Bottlebrush sedge	Wetland	Infrequent to frequent
Carex jamesii Schw.	Sedge	Upland woodland	Rare to infrequent
Carex lacustris Willd.	Sedge	Marshes, sedge swales	Frequent
Carex laeviconica Dewey	Sedge	wet bottomland scrub woodland	Rare
Carex lanuginosa Michx.	Woolly sedge	Carex swale	Infrequent to frequent
Carex lasiocarpa var. americana	Slender sedge	Sallow water, prairie swales	Rare
Carex leavenworthii Dewey	Sedge	Old sandy field - prairie	NW edge of natl. range; rare
Carex lupulina Muhl. ex Willd.	Sedge	Carex swale	W edge of natl. range; rare-infrequent
Carex molesta Mackenzie	Sedge	Wet wooded railroad ravine	Rare to infrequent
Carex muskingumensis Schwein	Sedge	Carex swale	Rare to infrequent
Carex normalis Mack.	Sedge	Upland woodland	Rare to infrequent
Carex pensylvanica Lam.	Sedge	Upland woodland	Common
Carex rosea Schukuhr ex Willd.	Sedge	Sloped woodland along river	Frequent to common
Carex rostrata Stokes ex Willd. var. utriculata (Boott)	Sedge	Old field succeeding to swale	Rare

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Bailey			
Carex sartwellii Dewey	Sartwell's sedge	Wetland edge	Infrequent
Carex scoparia	Pointed broom sedge	Wetland restoration site	Common
Carex shortiana	Short's sedge	Sand prairie	Common
Carex stricta Lam.	Upright sedge	Wetland edge	Infrequent to frequent
Carex suberecta (Olney) Britton	Sedge	Mudflats, prairie swales	Infrequent
Carex suberecta	Prairie straw sedge	Wetland restoration	Uncommon
Carex tenera	Narrow leaved oval sedge	Prairie Remnant	Uncommon
Carex tribuloides Wahl.	Broom sedge	Old field succeeding to swale	Infrequent to frequent
Carex vesicaria L.	Sedge	Carex swale	Infrequent
Carex vulpinoidea Michx.	Fox sedge	Carex swale	Common
Cyperus artistatus Rottb.	Nut rush	Sand bar	Infrequent
Cyperus esculentus L.	Yellow nut grass	Sand bar	Infrequent
Cyperus odoratus L. var. squarrosus (Britton)Gilly	Umbrella sedge	Prairie remnant	Infrequent
Cyperus rivularis Kunth		Moist, open sand, pond margins	Frequent to Infrequent
Cyperus strigosus L.	Nut rush	Old sandy field - prairie	Frequent to common
Eleocharis acicularis (L.) R. & S.	Needle spikerush	Prairie pothole	Infrequent to frequent
Eleocharis compressa	Flat stemmed spike rush	Restoration site	Common
Eleocharis erythropoda Steudel	Redfruit spikerush	Wetland edge	Frequent to common
Eleocharis macrostachys Britton	Spike rush	Shallow water	Frequent to common
Eleocharis obtusa (Willd.) Schultes	Spike-rush	Old sandy field - prairie	Infrequent to frequent
Hemicarpha micrantha (Vahl) Pax	None	Sand bar	N part of natl. range; rare
Scirpus acutus Muhl. ex Bigelow	Hardstem bulrush	Moist roadside	Frequent to common
Scirpus americanus Pers.	Prairie bulrush	Wetland	Rare to infrequent
Scirpus atrovirens Willd.	Dark green bulrush	Old sandy field - prairie	Common
Scirpus fluviatilis (Torrey) Gray	Bulrush	Wetland edge	Infrequent to frequent
Scirpus heterochaetus Chase	Bulrush	Wetland	Rare to infrequent
Scirpus pendulus Muhl.	Bulrush	Carex swale	Infrequent to frequent
Scirpus validus Vahl. var. creber Fern.	Softstem bulrush	Prairie pothole	Frequent to common
DISCOREACEAE			
Dioscorea villosa L.	Wild yamroot	Upland woodland	Rare to infrequent
IRIDACEAE			
* Belamcanda chinensis (L.) DC.	Blackberry lily	Roadside	Rare escape from cultivation

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* Iris x germanica L.	Bearded Iris (white & purple)	Old town	Rare
Iris shrevei Small	Wild iris, blue flag iris	Wet wooded railroad ravine	Frequent to common
Sisyrinchium campestre Bickn.	Prairie blue-eyed grass	Old sandy field - prairie	Common
JUNCACEAE			
Juncus canadensis J. Gay ex Laharpe	Canada rush	Wet bottomland scrub woodland	Southern edge of range; rare
Juncus dudleyi Wieg.	Dudley's rush	Upland woodland	Infrequent
Juncus interior Wieg.	Rush	Moist, open, sandy soil	Infrequent
Juncus torreyi		Marshes, muddy shores	Infrequent to rare
LEMNACEAE			
Lemna minor L.	Duckweed	Stagnant water	Common
Lemna minuta		Stagnant water	
Lemna trisulca L.	Star duckweed	Stagnant water	Infrequent to rare
Spirodela polyrhiza (L.) Schleiden	Greater duckweed	Stagnant water	Frequent to common
LILIACEAE			
Allium canadense L.	Wild onion, meadow garlic	Prairie remnant	Frequent to common
* Allium schoenoprasum L.	Chives	Old town	Rare escape from cultivation
* Asparagus officinalis L.	Garden asparagus	Upland woodland	Escape from cultivation
Erythronium albidum Nutt.	Dogtooth violet, trout lily	Woodlands	Frequent
Hemerocallis fulva (L.) L. *	Day lily [single]	Roadside	Common escape from cultivation
Lilium michaganense Farw.	Michigan lily	Bottomland floodplain woodland	Infrequent to frequent
* Ornithogalum umbellatum L.	Star of Bethlehem	Old homestead	Rare escape from cultivation
Polygonatum biflorum (Walter) Ell.	Solomon's seal	Bottomland woodland roadside	Common
Smilacina racemosa (L.) Desf.	False solomon's seal	Rocky bottomland terrace woodland	Common
Smilax ecirrhirta (Engelm. ex Kunth) S. Watson	Carrion flower	Upland woodland	Frequent to common
Smilax herbacea L.	Carrion flower	Bottomland floodplain woodland	Frequent to common
Smilax hispida Muhl.	Greenbrier, catbrier	Upland woodland	Common
Uvularia grandiflora Small	Bellwort	Upland woodland	Common
NAJADACEAE			
Najas flexilis (Willd.) Rostk. & Schmidt	Naiad	Prairie pothole	Rare
Najas guadalupensis (Sprengel) Magnus	Naiad	Prairie pothole	Frequent to infrequent
ORCHIDACEAE			
Coeloglossum viride (L.) Hartman var. virescens (Muhl ex Willd.) Luer	Bracted orchid	Upland woodland	Infrequent

* Designates species non-native to Iowa or U.S. ! Designates species on noxious weed list

Scientific Name	Common Name	Habitat	Frequency
Corallorhiza odontorhiza (Willd.) Nutt.	Fall coral-root orchid	Upland woodland	Rare & local throughout
Galearis spectabilis (L.) Raf.	Showy orchis	Upland oak woodland	Infrequent
Spiranthes cernua (L.) L.C. Rich	Nodding ladies' tresses	Old sandy field - prairie	Infrequent
POACEAE			
! * Agropyron repens (L.) Beauv.	Quack grass	Wet wooded railroad ravine	Common
* Agrostis gigantea Roth	Redtop	Old sandy field - prairie	Common
Agrostis hyemalis (Walt.) BSP. var. hyemalis	Ticklegrass	Old sandy field - prairie	Frequent
Agrostis hyemalis (Walt.) BSP. var. tenuis (Tuckerman) Gl.	Hairgrass	Old sandy field - prairie	Frequent
Agrostis perennans (walt.) Tuckerman	Upland bent	Bottomland floodplain woodland	W edge of natl. range; frequent
Alopecurus carolinianus Walter	Common foxtail	Muddy shores, shallow water	Rare
* Alopecurus pratensis L.	Meadow foxtail	Prairie pothole	Rare
Andropogon gerardii Vitman	Big bluestem	Prairie remnant	Common
Aristida oligantha Michx.	Prairie three-awn	Old sandy field - prairie	Common
Avena sativa L. *	Cultivated oats	Old field	Infrequent escape from cultivation
Bouteloua curtipendula (Michx.) Torrey	Side-oats grama	Savannah ridge	Frequent to common
* Bromus inermis Leyss.	Smooth brome	Stream	Common
* Bromus japonicus Thunb.	Japanese chess	Scrub woodland/prairie	Frequent to common
Bromus pubescens Muhl ex Willd.	Canada brome	Upland woodland	Infrequent to frequent
Bromus tectorum L. *	Downy chess	Bottomland terrace savannah/old pasture	Frequent to common
Calamagrostis canadensis (Michx.) Beauv.	Bluejoint	Wetland	Frequent to common
Cenchrus longispinus (Hackel) Fern.	Sandbur	Roadside	Frequent to Common
Cinna atrundinacea L.	Wood reed	Bottomland floodplain woodland	Infrequent to frequent
Dactylis glomerata L. *	Orchard grass	Old sandy field - prairie	Common escape from cultivation
Dichanthelium acuminatum	Panic grass	Upland scrub woodland/prairie	Frequent to common
Dichanthelium acuminatum (Sw.) Gould & Clark var. implicatum (Scrib.) Gould & Clark	Panic grass	Upland scrub woodland/prairie	Frequent to common
Dichanthelium latifolium (L.) Gould & Clark	Broad-leaved panic grass	Upland woodland	Infrequent to frequent
Dichanthelium oligosanthes (Schultes) Gould var. scribnerianum (Nash)Gould	Scribner's panicum	Old sandy field - prairie	Frequent to common
Digataria ischaemum (Schreber ex Schweigger) * Schreber ex Muhl.	Smooth crab grass	Waste places	Frequent to common

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! Designates species on noxious weed list

Scientific Name	Common Name	Habitat	Frequency
* Echinocloa crusgalli (L.) Beauv.	Barnyard grass	Roadside	Common
Echinocloa muricata (Beauv.) Fern.	Barnyard grass	Waste places	Frequent to common
Elymus villosus Muhl. ex Willd.	Slender wild rye	Upland woodland	Frequent to common
Elymus virginicus L.	Virginia wild rye	Old sandy field - prairie	Frequent to Common
* Eragrostis cilianensis (All.) Link ex E. Mosher	Stinkgrass	Roadside	Common
Eragrostis hypnoides (Lam.) BSP.	Pony grass	Sand bar	Frequent to common
Eragrostis pectinacea (Michx.) Nees	Carolina lovegrass	Waste places	Frequent to common
Eragrostis spectabilis (Pursh) Steud.	Purple lovegrass	Bottomland floodplain woodland	Infrequent
* Festuca arundinacea Schreb.	Reed fescue, alta fescue	Scrub woodland/prairie	Rare
Festuca obtusa Biehler	Nodding fescue	Upland woodland	Frequent to common
Glyceria grandis S. Watson	American manna grass	Prairie pothole	S edge of natl. range; rare to infreq.
Glyceria striata (Lam.) Hitchc.	Fowl manna grass	Bottomland terrace savannah/old pasture	Frequent to common
Hordeum jubatum L.	Foxtail barley, squirrel-tail barley	Old field	Common
Hordeum pusillum Nutt.	Little barley	Old sandy field - prairie	Occurs throughout nation; infrequent
Hystrix patula Moench	Bottlebrush grass	Upland oak woodland edge	Common
Leersia oryzoides (L.) Sw.	Rice cut-grass	Prairie pothole	Frequent to common
Leersia virginica Willd.	White grass	Bottomland floodplain woodland	Infrequent to frequent
* Lolium perenne L.	Perennial ryegrass	Upland woodland	Rare to infrequent
Muhlenbergia bushii Pohl		Bottomland floodplain woodland	N part of national range; rare
Muhlenbergia frondosa (Poir.) Fern.	Wirestem muhly	Prairie remnant	Frequent to common
Muhlenbergia mexicana (L.) Trin.		Bottomland scrub woodland/prairie	Rare to infrequent
Muhlenbergia racemosa (Michx.) BSP.	Marsh muhly	Old sandy field - prairie	Frequent to common
Muhlenbergia schreberi J.F. Gmelin	Nimblewill	Bottomland terrace woodland edge	Frequent
Panicum capillare L.	Witchgrass	Prairie remnant	Common
Panicum dichtomiflorum Michx.	Knee grass	Old field/bottomland scrub woodland	Frequent to Common
Panicum virgatum L.	Switch grass	Bottomland floodplain woodland	Common
Paspalum setaceum Michx. var. ciliatifolium (Michx.) Vasey	Bead grass	Old pasture	Infrequent
Phalaris arundinacea L.	Reed canary grass	Bottomland terrace savannah/old pasture	Common
* Phleum pratense L.	Timothy grass	Scrub woodland/prairie	Common
* Poa compressa L.	Canadian bluegrass	Old sandy field - prairie	Common

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! Designates species on noxious weed list

Scientific Name	Common Name	Habitat	Frequency
Schizachyrium scoparium (Michx.) Nash	Little bluestem	Prairie remnant	Common
Secale cereale L.	Cultivated rye	Upland woodland	Infrequent escape from cultivation
*			
* Setaria faberi Herrm.	Giant foxtail	Old field succeeding to swale	Common
* Setaria glauca (L.) Beauv.	Yellow foxtail	Woodland nursery edge	Common
* Setaria verticillata (L.) Beauv.	Bristly foxtail	Woodland nursery edge	Infrequent to frequent
* Setaria viridis (L.) Beauv.	Green foxtail	Woodland nursery edge	Common
Sorghastrum nutans (L.) Nash	Indian grass	Prairie remnant	Common
* Sorghum bicolor (L.) Moench	Sorghum	Waste places	Rare escape from cultivation
Spartina pectinata Link	Slough grass, prairie cord grass	Restored prairie	Frequent to common
Sphenophlis obtusata (Michx.) Schribn.	Prairie wedgegrass	Scrub woodland/prairie	Rare to infrequent
Sporobolus asper (Michx.) Kunth.	Dropseed	Old sandy field - prairie	Frequent to common
Sporobolus cryptandrus	Sand dropseed	Old sandy field	Abundant
Tridens flavus (L.) A.S. Hitchc.	Purpletop	Old sandy field - prairie	Northern edge of national range; rare
PONTEDERIACEAE			
Heteranthera dubia	Water star grass	Wetland restoration	Uncommon
POTOMOGETONACEAE			
Potamogeton foliosus Raf.	Pondweed	Prairie pothole	Common
Potamogeton nodosus Poiret		Shallow water, marsh edges	Infrequent
Potamogeton pusillus L.		Shallow water, marsh	Infrequent to rare
TYPHACEAE			
Typha angustifolia L.	Narrow-leaved cattail	Prairie pothole	Frequent
Typha latifolia L.	Broad-leaved cattail	Prairie pothole	Infrequent to frequent
Typha x glauca Godron	Hybrid cattail	Roadside	Frequent to common
ZANNICHELLIACEAE			
Zannichellia palustris L.	Horned pondweed	Shallow marshes	Infrequent

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Appendix E
Animal Species at Camp Dodge

Invertebrate Species List for Camp Dodge (1995-97)(2001-2006)

Common Name	Scientific Name	Habitat	Frequency
DAMSELFLIES–Zygoptera			
	Argia apicalis	Streambanks, creeks	Common
	Argia fumipennis violacea	Streambanks, creeks	Infrequent
	Argia moesta	Streambanks, creeks	Infrequent
	Argia plana	Streambanks, creeks	Infrequent
	Argia tibialis	Streambanks, creeks	Infrequent
	Calopteryx maculata	Streambanks, creeks	Abundant
	Enallagma antenatum	Streambanks, creeks, wetlands	Common
Azure bluet	*Enallagma aspersum*	Wetlands	Rare
Familiar bluet	*Enallagma civile*	Streambanks, creeks, wetlands	Sparse
	Enallagma exsulans	Streambanks, creeks	Infrequent
Skimming bluet	*Enallagma geminatum*	Wetlands	Rare
Hagen's bluet	*Enallagma hageni*	Wetlands	Common
	Heterina americana	Streambanks, creeks	Common
Citrine forktail	*Ischnura hastate*	Wetlands	Rare
Eastern forktail	*Ischnura verticalis*	Streambanks, creeks, wetlands	Common
Common spreadwing	*Lestes disjunctus*	Wetlands	Rare
	Lestes rectangularis	Wetlands	Common
Lyre-tipped spreadwing	*Lestes unguiculatus*	Wetlands	Common
DRAGONFLIES–Anisoptera			
	Aeshna constrica	Wetlands	Common
Common green darner	*Anax junius*	Wetlands	Common
	Boyeria vinosa	Streambanks, creeks	Common
Calico pennant	*Celithemis elisa*	Wetlands	Rare
Halloween pennant	*Celithemis eponina*	Wetlands	Common
Common basket tail	*Epitheca cynosura*	Wetlands	Rare

SPECIES OF CONCERN AND LISTED IN THE IDNR *SECURING A FUTURE FOR FISH AND WILDLIFE, A CONSERVATION LEGACY FOR IOWANS* ARE HIGHLIGHTED IN YELLOW.

Common Name	Scientific Name	Habitat	Frequency
Eastern pondhawk	*Erythemis simpliciollis*	Wetlands	Sparse
	Gomphus externus	Streambanks, creeks	Infrequent
	Leucorrhinia intacta	Wetlands	Common
Widow skimmer	*Libellula luctuosa*	Wetlands	Abundant
Common white tail	*Libellula lydia*	Wetlands	Common
Twelve-spotted skimmer	*Libellula pulchella*	Wetlands	Abundant
Blue dasher	*Pachydiplax longipennis*	Wetlands	Sparse
	Pantala flavescens	Streambanks, creeks, wetlands	Infrequent
	Progomphus obscurus	Streambanks, creeks	Infrequent
	Stylurus plagiatus	Streambanks, creeks	Infrequent
	Stylurus notatus	Streambanks, creeks	Infrequent
Variegated meadowhawk	*Sympetrum corruptum*	Wetlands	Sparse
Saffron-winged meadowhawk	*Sympetrum costiferum*	Wetlands	Rare
	Sympetrum internum	Wetlands	Common
White-faced meadowhawk	*Sympetrum obtrusum*	Wetlands	Rare
Ruby meadowhawk	*Sympetrum rubicundulum*	Wetlands	Sparse
	Sympetrum vicinum	Wetlands	Rare
Red saddlebags	*Tramea onusta*	Wetlands	Common
Black saddlebags	*Tramea lacerata*	Wetlands	Abundant

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BUTTERFLY species recorded at the Camp Dodge wetland mitigation site, 2004-2006.

Scientific Name	Common Name	Abundance 2004	Abundance 2005	Abundance 2006
Swallowtails				
Papilio glaucus	Eastern tiger swallowtail	NA	rare	Rare
Papilio polyxenes	Back swallowtail	rare	NA	NA
Whites and sulphurs				
Colias eurytheme	Orange sulphur	abundant	abundant	abundant
Colias philodice	Clouded sulphur	common	sparse	abundant
Eurema lisa	Little yellow	common	common	abundant
Nathalis iole	Dainty sulphur	rare	NA	NA
Phoebis sennae	Cloudless sulphur	NA	NA	rare
Pieris rapae	Cabbage white	common	abundant	common
Pontia protodice	Checkered white	common	rare	rare
Harvester, coppers, hairstreaks and blues				
Celastrina ladon	Spring azure	rare	sparse	rare
Everes comyntas	Eastern tailed blue	abundant	abundant	abundant
Hemiargus isola	Reakirt's blue	rare	NA	NA
Lycaena hyllus	Bronze copper	rare	sparse	NA
Strymon melinus	Gray hairstreak	rare	rare	rare
Brushfoots				
Cercyonispegala	Common wood nymph	NA	NA	rare
Chlosyne gorgone	Gorgone checkerspot	rare	NA	NA
Danaus plexippus	Monarch	sparse	common	common
Junonia coenia	Common buckeye	rare	sparse	rare
Libytheana carinenta	American snout	rare	NA	NA
Limenitis archippus	Viceroy	sparse	sparse	rare
Limenitis arthemis	Red spotted admiral	rare	NA	NA
Nymphalis antiopa	Mourning cloak	rare	NA	NA
Phyciodes tharos	Pearl crescent	common	abundant	common
Polygonia interrogationis	question mark	rare	NA	rare
Speyeria cybele	great spangled fritillary	rare	NA	NA
Vanessa atalanta	red admiral	rare	sparse	NA
Vanesssa cardui	painted lady	rare	sparse	NA

SPECIES OF CONCERN AND LISTED IN THE IDNR *SECURING A FUTURE FOR FISH AND WILDLIFE, A CONSERVATION LEGACY FOR IOWANS* ARE HIGHLIGHTED IN YELLOW.

Skippers

Anatrytone logan	Delaware skipper	NA	NA	rare
Ancyloxypha numitor	Least skipper	sparse	common	sparse
Atalopedes campestris	Schem	NA	rare	NA
Epargyrens clarns	Silver-spotted skiller	NA	NA	rare
Erynnis baptisiae	Wild indigo duskywing	NA	sparse	rare
Pholisora catullus	Common sootywing	rare	NA	rare
Polites peckius	Pecks skipper	rare	NA	NA
Polites themistocles	Tawny edged skipper	rare	rare	NA
Pyrgus communis	Common checkered skipper	rare	rare	rare

SPECIES OF CONCERN AND LISTED IN THE IDNR *SECURING A FUTURE FOR FISH AND WILDLIFE, A CONSERVATION LEGACY FOR IOWANS* ARE HIGHLIGHTED IN YELLOW.

AMPHIBIAN AND REPTILE SPECIES LIST FOR CAMP DODGE

Common Name	Scientific Name	Habitat	Frequency
AMPHIBIANS			
Salamanders–Caudata			
Eastern Tiger Salamander	*Ambystoma tigrinum*	Wetlands	Common
Frogs and Toads–Salientia			
American Bullfrog	*Rana catesbeiana*	Wetlands (introduced)	Sparse
American Toad	*Bufo americanus*	Woodlands, fields, fencerows	Abundant
Cope's Gray Treefrog	*Hyla chrysoscelis*	Wetlands, bottomland forest	Common
Cricket Frog	*Acris crepitans*	Wetlands	Abundant
Eastern Gray Treefrog	*Hyla versicolor*	Wetlands, bottomland forest	Sparse
Northern Leopard Frog	*Rana pipiens*	Wetlands, fields, prairie	Sparse
Western Chorus Frog	*Pseudacris triseriata*	Wetlands	Abundant
REPTILES			
Turtles–Testudines			
Blandings Turtle	*Emydoidea blandingii*	Wetlands	Infrequent
Snapping Turtle	*Chelydra serpentina*	Wetlands, ponds	Frequent
Western Painted Turtle	*Chrysemys picta belli*	Wetlands, riverbanks	Common
Snakes–Squamata			
Fox Snake (introduced)	*Elaphe vulpina*	Grasslands, water edges	Infrequent
Northern Brown Snake	*Storeria dekayi texana*	Grasslands, roadsides	Common
Red-sided Garter Snake	*Thamnophis sirtalis parietalis*	Grasslands, roadsides	Common
Northern Water Snake	*Natrix s. sipedon*	Riverbanks, ponds	Common
Bullsnake	*Pituophis catenifer*	Grasslands, roadsides	Frequent
Eastern Yellowbelly Racer	*Coluber constrictor flaviventris*	Grasslands, roadsides	Frequent
Prairie Ringneck Snake	*Diadophis punctatus arnyi*	Grasslands, roadsides	Common
Potential species at Camp Dodge, but not actually seen[1].			
Graham's Crayfish Snake	*Regina grahamii*	Wetlands, streams, sloughs	Frequent
Prairie Kingsnake	*Lampropeltis c. calligaster*	Grasslands, roadsides	–
Smooth Green Snake	*Opheodrys vernalis*	Woodland openings, forest edges	Frequent

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Common Name	Scientific Name	Habitat	Frequency
Speckled Kingsnake	*Lampropeltis getula holbrooki*	Woodlands	Frequent
Western Earth Snake	*Virginia valeriae elegans*	Woodland, grassland	Infrequent

[1] Frequency of snakes estimated from Oldfield and Moriarty (1994) and Ernst and Barbour (1989).

SPECIES OF CONCERN AND LISTED IN THE IDNR *SECURING A FUTURE FOR FISH AND WILDLIFE, A CONSERVATION LEGACY FOR IOWANS* ARE HIGHLIGHTED IN YELLOW.

FISH SPECIES LIST FOR CAMP DODGE (1990) (OLSON, 1990)

*survey was not Camp Dodge specific – survey of Beaver Creek

Common Name	Scientific Name	Habitat	Frequency[2]
Minnows–Cyprinidae			
Central Stoneroller	*Campostoma anomalum*	Beaver Creek	Common
Common Carp	*Cyprinus carpio*	Beaver Creek	Common
Spotfin Shiner	*Cyprinella spilopterus*	Beaver Creek	Common
Brassy Minnow	*Hybognathus hankinsoni*	Beaver Creek	Common
Common Shiner	*Luxilix cornutus*	Beaver Creek	Abundant
Emerald Shiner	*Notropis atherinoides*	Beaver Creek	Abundant
Big Mouth Shiner	*Notropis dorsalis*	Beaver Creek	Frequent
Sand Shiner	*Notropis stramineus*	Beaver Creek	–
Suckermouth Minnow	*Phenacobius mirabilis*	Beaver Creek	Common
Bluntnosed Minnow	*Pimephales notatus*	Beaver Creek	Common
Fathead Minnow	*Pimephales promelas*	Beaver Creek	Abundant
Blacknose Dace	*Rhinichthys atratulus*	Beaver Creek	Frequent
Creek Chub	*Semotilus atromaculatus*	Beaver Creek	Common
Suckers–Catostomidae			
White Sucker	*Catostomus commersoni*	Beaver Creek	Common
Northern Hogsucker	*Hypentelium nigricans*	Beaver Creek	Frequent
Golden Redhorse	*Moxostoma erthrurum*	Beaver Creek	Common
Shorthead Redorse	*Moxostoma macrolepidotum*	Beaver Creek	Common
Sunfish–Centrarchidae			
Green Sunfish	*Lepomis cyanellus*	Beaver Creek	Common
Bluegill	*Lepomis macrochirus*	Beaver Creek	Common
Smallmouth Bass	*Micropterus dolomieu*	Beaver Creek	Frequent
Ictaluridae			
Yellow Bullhead	*Ameicrus natalis*	Beaver Creek	Frequent
Tadpole Madtom	*Noturus gyrinus*	Beaver Creek	Frequent

SPECIES OF CONCERN AND LISTED IN THE IDNR *SECURING A FUTURE FOR FISH AND WILDLIFE, A CONSERVATION LEGACY FOR IOWANS* ARE HIGHLIGHTED IN YELLOW.

Common Name	Scientific Name	Habitat	Frequency[2]
Perches–Percide			
Johnny Darter	*Etheostoma nigrum*	Beaver Creek	Common
Slenderhead Darter	*Percina phoxocephla*	Beaver Creek	Frequent
Walleye	*Stizostedion vitreum*	Beaver Creek	Infrequent

[2] Frequency of fishes estimated from Page and Burr (1991) and Paragamian (1990).

SPECIES OF CONCERN AND LISTED IN THE IDNR *SECURING A FUTURE FOR FISH AND WILDLIFE, A CONSERVATION LEGACY FOR IOWANS* ARE HIGHLIGHTED IN YELLOW.

BIRD SPECIES LIST FOR CAMP DODGE (DINSMORE AND VANREES-SIEWERT, 1995) (MABRY-MCMULLEN 2000-2005)

Common Name	*Scientific Name*	Habitat	Frequency
Cranes and Allies–Gruiformes			
American Coot	*Fulica americana*	Wetlands, ponds	Common to abundant
Sora	*Porzana carolina*	Wetlands, grain fields	Common
Virginia Rail	*Rallus limicola*	Wetlands	Common, but secretive
Grebes–Podicipediformes			
Pied-billed Grebe	*Podilymbus podiceps*	Wetlands	Common
Hawks, Kites, Eagles, Harriers, Falconiformes/Accipitridae, Caracaras and Falcons			
American Kestrel	*Falco sparverius*	dry basin, upland	
Bald Eagle	*Haliaeetus leucocephalus*		
Northern Harrier	*Circus cyaneus*	Wetland	
Red-tailed Hawk	*Buteo jamaicensis*		
Herons and Allies–Ciconiiformes, New World Vultures			
American Bittern	*Botaurus lentiginosus*	Dense wetlands	Frequent
Great Blue Heron	*Ardea herodias*	Shallow water–wetlands, backwaters	Common
Great Egret	*Ardea alba*		
Green-backed Heron	*Butorides striatus*		
Least Bittern	*Ixobrychus exilis*	Dense wetlands	Frequent
Turkey Vulture	*Cathates aurar*		
Kingfishers - Coraciiformes			
Belted Kingfisher	*Ceryle alcyon*	Wetland edge, dry basin	
Owls - Strigiformes			
Barred Owl	*Strix varia*	Upland	
Pigeons and Doves - Columbiformes			
Mourning Dove	*Zenaida macroura*	Upland	
Rock Dove	*Columba livia*	Wetland, mudflat	
Shore Birds–Charadriiformes			
Common Snipe	*Gallinago gallinago*	Wetland	

SPECIES OF CONCERN AND LISTED IN THE IDNR *SECURING A FUTURE FOR FISH AND WILDLIFE, A CONSERVATION LEGACY FOR IOWANS* ARE HIGHLIGHTED IN YELLOW.

Common Name	*Scientific Name*	Habitat	Frequency
Killdeer	*Charadrius vociferus*	Meadows, fields, lawns, riverbanks	Common
Least Sandpiper	*Calidris minutilla*	Wetlands	Common to abundant
Semi-palmated Plover	*Charadrius semipalmatus*	Mudflat	
Wilson's Phalarope	*Phalaropus tricolor*	Wetlands, shallow ponds, lakes	Frequent
Songbirds–Passeriformes			
American Crow	*Corvus brachyrhynchos*	Ubiquitous	Abundant
American Goldfinch	*Spinus tristis*	Old fields, roadsides, prairie	Common
American Redstart	*Setophaga ruticilla*		
American Robin	*Turdus migratorius*		
American Tree Sparrow	*Spizella arborea*		
Barn Swallow	*Hirundo rustica*	Inside farm buildings, under bridges	Common
Bell's Vireo	*Vireo bellii*		
Black-capped Chickadee	*Parus atricapillus*		
Blue Jay	*Cyanocitta cristata*		
Bobolink	*Dolichonyx oryzivorus*		
Brown-headed Cowbird	*Molothrus ater*		
Brown Thrasher	*Toxostoma rufum*	Upland	
Cedar Waxwing	*Bombycilla cedrorum*	Upland, wetland	
Chipping Sparrow	*Spizella passerine*	Wetland edge	
Cliff Swallow	*Hirundo pyrrhonota*		
Common Grackle	*Quiscalus quiscula*	Open fields, woodlands, shrubland	Common
Common Yellowthroat	*Geothlypis trichas*	Wetlands, fields, shrubs	Abundant
Dickcissel	*Spiza americana*	Prairies, grainfields, open fields	Abundant
Eastern Kingbird	*Tyrannus tyrannus*	Woodland clearings, fields	Common
Eastern Meadowlark	*Sturnella magna*	Fields, prairie, roadsides	Common
Eastern Wood Peewee	*Contopus virens*	Upland	
Field Sparrow	*Spizella pusilla*	Dry basin, upland	
Goldfinch	*Carduelis tristis*	Dry basin, wetland edge, upland	
Grasshopper Sparrow	*Ammodramus savannarum*	Grasslands, old fields	Frequent

SPECIES OF CONCERN AND LISTED IN THE IDNR *SECURING A FUTURE FOR FISH AND WILDLIFE, A CONSERVATION LEGACY FOR IOWANS* ARE HIGHLIGHTED IN YELLOW.

Common Name	*Scientific Name*	Habitat	Frequency
Gray Catbird	*Dumetella carolinensis*		
Great Crested Flycatcher	*Myiarchus crinitus*		
Great-tailed Grackle	*Quiscalus mexicanus*	Open fields w/ trees, wetlands	Common
House Sparrow	*Passer domesticus*		
House Wren	*Troglodytes aedon*	Upland	
Indigo Bunting	*Passerina cyanea*	Woodland clearings and borders, fields	Common
Lark Sparrow	*Chondestes grammacus*	Upland	
Marsh Wren	*Telmatodytes palustris*	Wetlands	Frequent
Mockingbird	*Mimus polyglottos*	Upland	
Northern/Baltimore Oriole	*Icterus galbula*	Open woodlands, river groves	Common
Northern Cardinal	*Cardinalis cardinalis*		
Northern Rough-winged swallow	*Stelgidopteryz serripennis*	Wetland edge, wetland	
Orchard Oriole	*Icterus spurius*		
Palm Warbler	*Dendroica palmerum*	Wetland edge	
Purple Martin	*Progne subis*	Open woodlands, dead trees	Frequent
Red-winged Blackbird	*Agelaius phoeniceus*	Wetlands, fields, woodlands	Abundant
Rose-breasted Grosbeak	*Pheucitus Iudovicianus*	Upland	
Scarlet Tanager	*Piranga olivacea*	Upland	
Sedge Wren	*Cistothorus platensis*	Sedge meadows	Infrequent
Savannah Sparrow	*Passserculus sandwichensis*	Wetlands, grasslands	Common
Snow Bunting	*Plectrophenax nivalis*	Dry basin	
Song Sparrow	*Melospize melodai*	Dry basin, wetland edge	
Spotted Sandpiper	*Actitis macularia*	Mudflat	
Swamp Sparrow	*Melospiza georgiana*	Wetlands, stream edges	Frequent
Tree Swallow	*Iridoprocene bicolor*	Wooded habitat near water, dead trees	Common
Vesper Sparrow	*Pooecetes gramineus*		
Warbling Vireo	*Vireo gilvus*	Upland	
Western Kingbird	*Tyrannus verticalis*	Upland	
Western Meadowlark	*Sturnella neglecta*	Old fields, prairie	Common
White-breasted Nuthatch	*Sitta carolinensis*		

SPECIES OF CONCERN AND LISTED IN THE IDNR *SECURING A FUTURE FOR FISH AND WILDLIFE, A CONSERVATION LEGACY FOR IOWANS* ARE HIGHLIGHTED IN YELLOW.

Common Name	*Scientific Name*	Habitat	Frequency
White-eyed Vireo	*Vireo griseus*		
Yellow-billed Cuckoo	*Coccyzus americanus*		
Yellow-headed Blackbird	*Xanthocephalus xanthoscephalus*	Wetlands, fields	Infrequent
Yellow-rumped Warbler	*Dendroica coronata*		
Upland Gamebirds–Galliformes			
Northern Bobwhite	*Colinus virginianus*	Brushlands, open woodlands (introduced)	Common
Ring-necked Pheasant	*Phasianus colchicus*	Grain and old fields, prairie, roadsides	Common
Wild Turkey	*Meleagris gallopavo*	Open woodland	Common, but secretive
Waterfowl–Anseriformes			
Blue-winged Teal	*Anas discors*	Wetlands, river backwaters, ponds	Common
Bufflehead	*Bucephala albeola*	Wetland	
Canada Goose	*Branta canadensis*	Wetlands, river backwaters, ponds	Abundant
Canvasback	*Aythya valisineria*	Wetlands, river backwaters, ponds	Frequent
Lesser Scaup	*Aythya affinis*	Wetlands, river backwaters, ponds	Common
Mallard	*Anas platyrhynchos*	Wetlands, river backwaters, ponds	Abundant
Northern Shoveler	*Anas clypeata*	Wetlands, river backwaters, ponds	Common
Ring-necked Duck	*Aythya collaris*	Wetland	
Wood Duck	*Aix sponsa*	Open woodland near rivers, wetlands	Common
Woodpeckers–Piciformes			
Downy Woodpecker	*Picoides pubescens*		
Red-bellied Woodpaecker	*Melanerpes carolinus*	Upland	
Red-headed Woodpecker	*Melanerpes formicivorus*	Upland	
Yellow-shafted Flicker	*Colaptes auratus*		
Yellow-bellied Sapsucker	*Sphyrapicus varius*	Deciduous forest	Common

SPECIES OF CONCERN AND LISTED IN THE IDNR *SECURING A FUTURE FOR FISH AND WILDLIFE, A CONSERVATION LEGACY FOR IOWANS* ARE HIGHLIGHTED IN YELLOW.

EXPECTED AND OBSERVED MAMMAL SPECIES LIST FOR CAMP DODGE

Common Name	Scientific Name	Habitat	Frequency
Big Brown Bat	*Eptesicus fuscus*	Crevices, hollow trees, buildings, wooded areas	Common
Eastern Pipistrelle	*Pipistrellus subflavus*		Uncommon
Hoary Bat	*Lasiurus cinereus*	Wooded areas	Uncommon
Northern Myotis	*Myotis septentrionalis*	Crevices, hollow trees, buildings, wooded areas	Uncommon
Little Brown Myotis	*Myotis lucifugus*	Crevices, hollow trees, buildings	Common
Eastern Red Bat	*Lasiurus borealis*	Wooded areas	Uncommon
Meadow Jumping Mouse	*Zapus hudsonius*	Low fields	Common
Plains Pocket Mouse	*Perognathus flavescens*	Open areas w/ sparse vegetation, sandy soil	Rare
Individuals captured 1999, 2003, 2004. The Plains Pocket Mouse is designated as a State of Iowa endangered species.			
House Mouse	*Mus musculus*	Buildings, fields	Abundant
Deer Mouse	*Peromyscus maniculatus*	Dry land forests and fields	Abundant
Meadow Vole	*Microtus pennsylvanicus*	Moist soils; near wetlands, streams, fields	Common
Muskrat	*Ondatra zibethica*	Wetlands	Common
Pine Vole	*Pitymys pintorum*	Deciduous forest w/ thick duff	Frequent
Prairie Vole	*Microtus ochrogastr*	Prairie, fence rows	Common
Western Harvest Mouse	*Reithrodontomys megalotis*	Dense grassland	Common
White-footed Mouse	*Peromyscus leucopus*	Wooded and brushland areas	Common
Least Shrew	*Cryptotis parva*	Open fields, wetland shorelines	Common
Masked Shrew	*Sorex cinereus*	Moist soils; woodlands, brushlands, fields	Common
Shorttail Shrew	*Blarina brevicauda*	Moist soils; woodlands, brushlands, fields	Abundant
Eastern Mole	*Scalopus aquaticus*	Moist sandy loam; lawns, fields	Common
Eastern Chipmunk	*Tamias striatus*	Woodlands	Common
Eastern Fox Squirrel	*Sciurus niger*	Hardwood forests	Common
Eastern Gray Squirrel	*Sciurus carolinensis*	Hardwood forests w/ nut trees, riverbottoms	Common
Franklin's Ground Squirrel	*Citellus franklini*	Prairies, open woods, edge of wetlands	Frequent
Red Squirrel	*Tamiasciurus hudsonicus*	Pine and spruce or mixed hardwood forests	Frequent
Thirteen-lined Ground Squirrel	*Spermophilius tridecemlineatus*	Short grasslands	Common
Woodchuck	*Marmota monax*	Open woods, brushlands	Common

SPECIES OF CONCERN AND LISTED IN THE IDNR *SECURING A FUTURE FOR FISH AND WILDLIFE, A CONSERVATION LEGACY FOR IOWANS* ARE HIGHLIGHTED IN YELLOW.

Common Name	Scientific Name	Habitat	Frequency
Badger	*Taxidea fuscus*	Open grasslands	Frequent
Least Weasel	*Mustela nivalis*	Fields, brushlands, woodlands	Rare
Longtail Weasel	*Mustela frenata*	All habitats near water	Common
Mink	*Mustela vison*	Along streams	Common
River Otter	*Lutra canadensis*	Along streams	Common
Spotted Skunk	*Spilogale putorius*	Mixed woodlands, brushland, prairie	Rare
Striped Skunk	*Mephitis mephitis*	Mixed woodlands, brushland, prairie	Common
Plains Pocket Gopher	*Perognathus flavescens*	Grassland, alfalfa fields, roadsides	Common
Opposum	*Didelphis virginianus*	Forests	Common
Eastern Cottontail	*Sylvilagus floridanus*	Woodlands, fields, prairie	Abundant
Whitetail Jackrabbit	*Lepus townsendii*	Open grasslands	Frequent
Raccoon	*Procyon lotor*	Woodlands, suburban areas	Abundant
Beaver	*Castor canadensis*	Streams with wooded banks	Common
Coyote	*Canis latrans*	Prairies, open woodlands, brushlands	Common
Gray Fox	*Urocyon cinereoargenteus*	Open woodlands, brushlands	Frequent
Red Fox	*Vulpes vulpes*	Prairies, open woodlands, brushlands	Common
White-tailed Deer	*Odocoileus virginianus*	Forests, brushlands, grainfields, wetlands	Abundant

SPECIES OF CONCERN AND LISTED IN THE IDNR *SECURING A FUTURE FOR FISH AND WILDLIFE, A CONSERVATION LEGACY FOR IOWANS* ARE HIGHLIGHTED IN YELLOW.

APPENDIX F
NATIVE AMERICAN TRIBES WITH POTENTIAL INTEREST IN THE INRMP

Note: All correspondence and contact lists relating to the original INRMP and subsequent updates are filed with the corresponding documents.

1. Iowa Tribe of Kansas and Nebraska

Mr. Tim Rhodd, Chairman
Iowa Tribe of Kansas & Nebraska
3345 Thrasher Rd.
White Cloud, KS 66094
785-595-3258
785-595-6610 FAX

2. Iowa Tribe of Oklahoma

Janice Rowe-Kurak, Chairperson,
Business Committee
Iowa Tribe of Oklahoma
http://www.iowanation.org/
Rt. 1, Box 721
Perkins, OK 74059
405-547-2402
405-547-5294 FAX
rowe-kurak@iowanation.org

3. Sac & Fox Tribe of the Mississippi in Iowa

Frank Blackcloud, Chair
www.meskwaki.org
Sac and Fox Tribe of the Mississippi in Iowa
349 Meskwaki Rd.
Tama, IA 52339-9629

Mr. Johnathan Buffalo
Historic Preservation Director
jbuffalo@iavalley.cc.ia.us
349 Meskwaki Road
NAGPRA Contact
Tama, IA 52339-9629
641-484-3185
641-484-4321

4. Sac & Fox Nation of Missouri in Kansas and Nebraska

Use Sac and Fox Tribe of the Mississippi in Iowa. (Letter, 2001, ICRMP)

5. 4. Sac & Fox Nation, Oklahoma

Use Sac and Fox Tribe of the Mississippi in Iowa. (Letter, 2001, ICRMP)

6. Sac & Fox Tribe of Indians of Oklahoma

Use Sac & Fox Nation, Oklahoma (Federally Recognized Indian Tribe)

7. Sac & Fox Tribe of Missouri

Use Sac & Fox Nation of Missouri in Kansas and Nebraska (Federally Recognized Indian Tribe)

8. Spirit Lake Tribe, North Dakota

Robert Yankton, Sr., Chair
www.spiritlakenation.com
P.O. Box 359
Fort Totten, ND 58335
701-766-4221
701-766-4126 FAX

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APPENDIX G
CORRESPONDENCE
AGENCIES AND ORGANIZATIONS CONTACTED

Note: All correspondence relating to the original INRMP and subsequent updates are filed with the corresponding documents.

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HEADQUARTERS IOWA NATIONAL GUARD
Office of the Adjutant General
Camp Dodge Joint Maneuver Training Center
7105 NW 70th Avenue
Johnston, Iowa 50131-1824

Terry Branstad
Governor

Kim Reynolds
Lieutenant Governor

June 5, 2013

Directorate of Installation Management
Environmental Branch

Mr. Tom Melius
Regional Director
U.S. Fish and Wildlife Service
5600 American Blvd. West, Suite 990
Bloomington, MN 55437-1458

Mr. Chuck Gipp
Director
Iowa Department of Natural Resources
Wallace State Office Building
502 E. 9th Street
Des Moines, IA 50319-0034

Mr. Richard Nelson
Field Office Supervisor
U.S. Fish and Wildlife Service
Rock Island Illinois Field Office
1511 47th Avenue
Moline, Illinois 61265

The Iowa Army National Guard is conducting a Review of Operation and Effect (ROE) as part of the 5-year review of our Integrated Natural Resources Management Plan (INRMP). The development of the original document (and its update for plan years 2008-2012), was coordinated with various agencies, including the Iowa Department of Natural Resources and the US Fish and Wildlife Service, so that management goals complemented other natural resources management plans and met all legal requirements.

At this time we would request any input and advice from your office as we begin the review and update process. I have included a summary of the current INRMP status and the proposed updates we are considering. I have also included an electronic copy of the draft copy of the five-year update.

The biggest change in the plan is the application of survey data in instituting a new grassland mowing plan. The post has become a popular nesting area for a number of "at risk" bird species. Mowing and haying plans are being adjusted to provide increased protection during the nesting season. The survey data and updated mowing plan can be found in Appendix K of the enclosed CD.

I may be contacted by mail at the above address or by phone at 515-252-4648. If you would prefer to correspond by e-mail, please contact me at mary.l.jones389.nfg@mail.mil .

Sincerely,

Mary L Jones

Mary L. Jones
Senior Environmental Specialist
Iowa Army National Guard

MEMORANDUM FOR RECORD

As of 19 August 2013 no reply or comment has been received from the Iowa Department of Natural Resources or the regional office of the United States Fish and Wildlife Service.

On 7 August 2013 Heidi Weber of the Rock Island USFWS Field Office contacted this office, discussed the plan and indicated that the plan is sufficient. We are to contact her if there are further questions of issues.

On 8 August 2013 Drew Becker, the bald eagle specialist with USFWS also contacted this office to ensure that all questions had been answered as to the management of bald eagles at Camp Dodge, should the bald eagle begin nesting or nesting behaviors on the post.

Mary L. Jones

Proposed
Integrated Natural Resources Management Plan Update
Iowa Army National Guard
2013

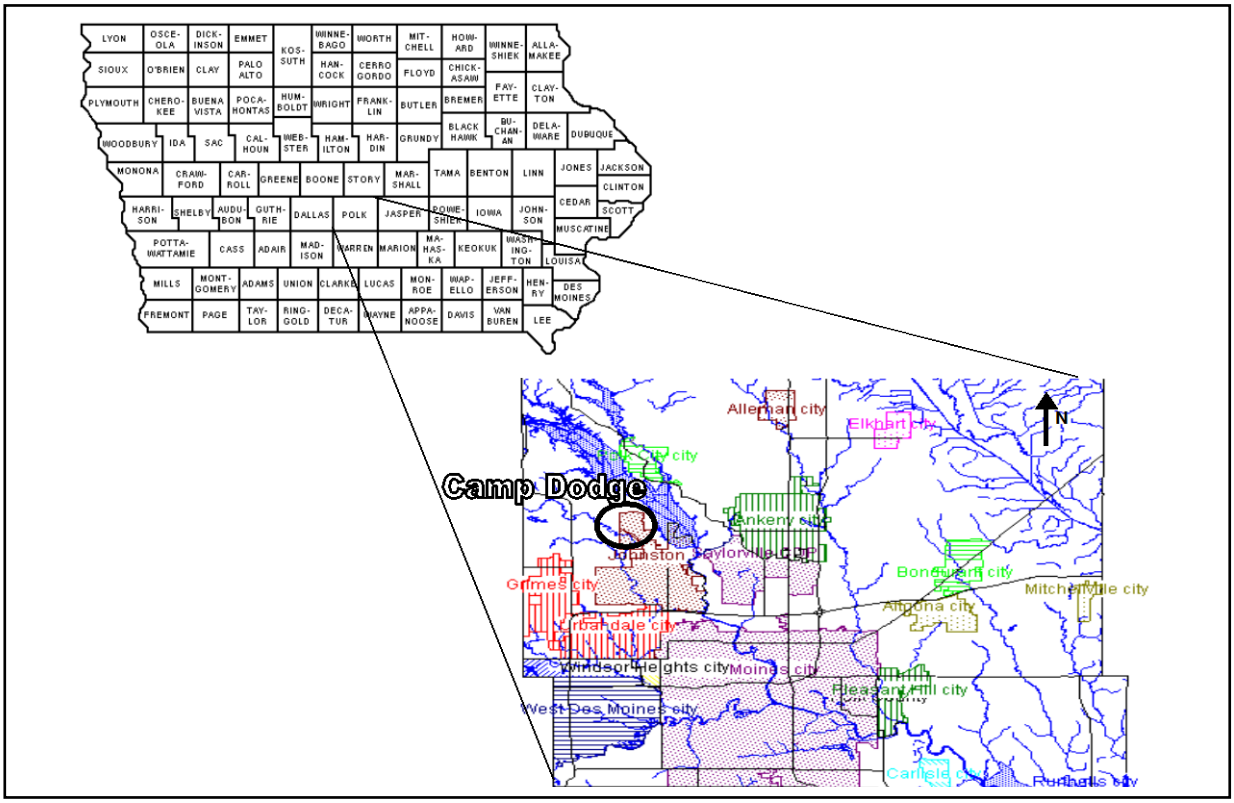
A. Purpose

The purpose of the Iowa Army National Guard (IA ARNG) Integrated Natural Resources Management Plan (INRMP) is to establish a five year plan for managing natural resources at the Iowa Guard's major training area, Camp Dodge Joint Maneuver Training Center. This will be done in a way that also ensures military preparedness. The original update was developed for the years 2002-2007 and was then updated for the plan years 2008-2012. This updated plan for 2013-2018 will build on concepts and projects outlined in the original INRMP.

B. Site location

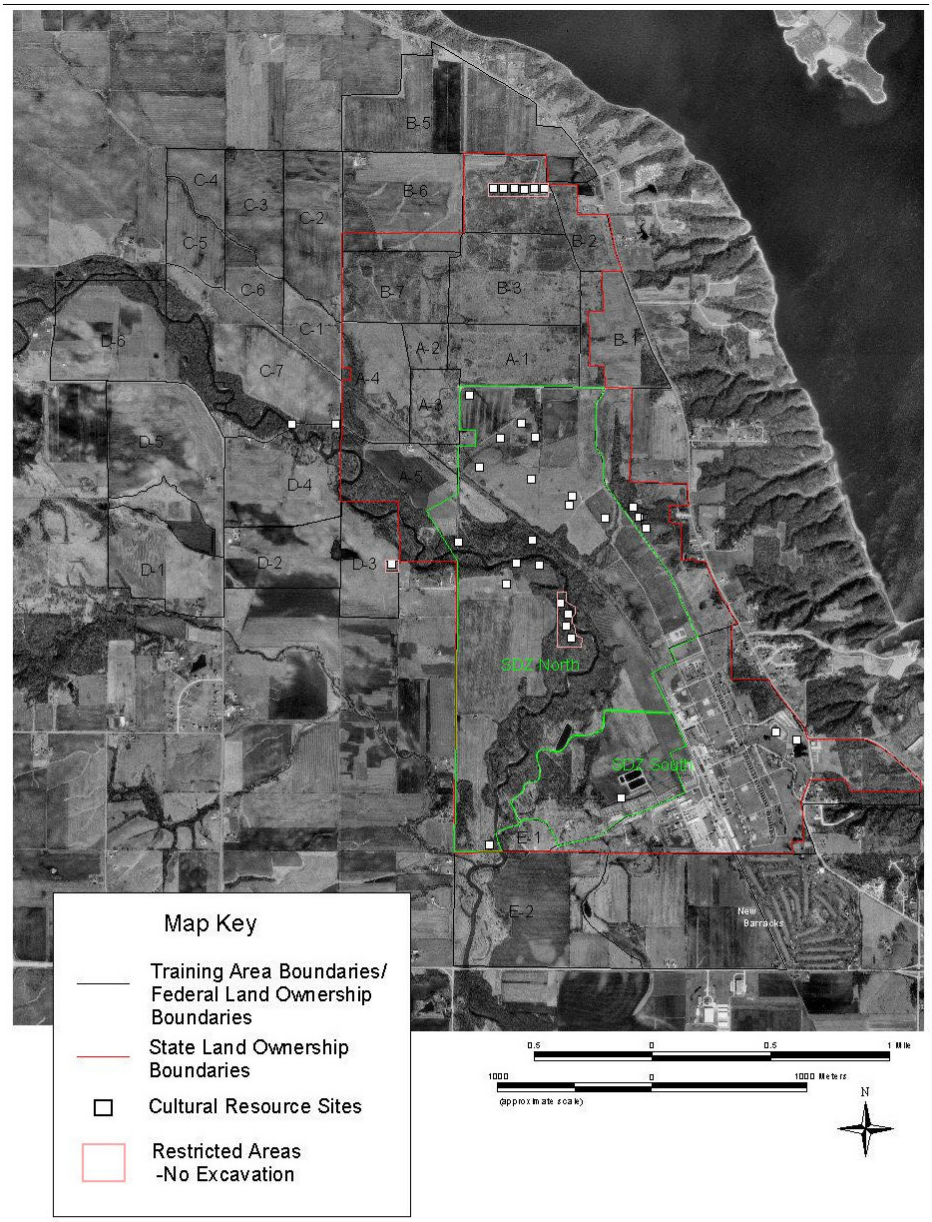
The Camp Dodge Joint Maneuver Training Center is located in Polk County in central Iowa (Figure 1), partially within the city limits of Johnston, Iowa. It occupies parts of Sections 14 to 16, 21 to 23, 25 to 28, and 35 to 36 in Township 80N, Range 25W. Camp Dodge has a total area of approximately 4,400 acres and has the capacity to train 2,400 Soldiers at one time. The INRMP focuses on the management of natural resources in the training maneuver area (land outside the cantonment area), which is approximately 3,300 acres.

Location of Camp Dodge



Camp Dodge serves many missions. The IA ARNG provides combat ready units and equipment in support of the federal military strategy. On a state level, the IA ARNG provides units and equipment to protect life and property, preserve peace and order, and ensure the public safety of Iowa's citizens as ordered by the Governor of Iowa. The post serves as a training area for Army National Guard, Air National Guard, Army Reserve, Marine Corps Reserve, Reserve Officer's Training Corps, as well as state law enforcement agencies.

Local communities are also encouraged to make use of IA ARNG facilities. Camp Dodge is used by state agencies, youth organizations, veteran's groups, and environmental groups. Camp Dodge training areas are also used for hunting and fishing.



Camp Dodge Integrated Natural Resource Management Plan

Figure 2.

Federal and State Land Ownership Boundaries at Camp Dodge. Potential and Known Cultural Resource Locations

2

C. Existing Conditions

Major Vegetation Communities (including cantonment area and buildings)

Vegetation Community	Total Area (acres)	Percent of Total
Agriculture - Row crop – State Lease	417	10
Hay Fields / Training Area	1155.3	26
Forest - Upland	92.8	2
Prairie	308.7	7
Sand Prairie	7.3	0.2
Savanna	19.5	0.4
Successional Field	1216.7	28
Wetland - Bottomland Forest	587.2	13
- Emergent, seasonal	93	2
- Low Prairie, temporary	33.5	0.8
- Scrub/Shrub	39.2	0.9
Cantonment Area/Buildings	417.4	10
Total	4387.6	99.4* Totals rounded

Non–native Plants and Noxious Weeds

A total of 611 plant species have been identified at Camp Dodge, and 113 (18 percent) of these species are not native to the United States (Eilers and Roosa, 1994). Seven primary noxious weeds and nine secondary noxious weeds have been identified at Camp Dodge (97 Acts, ch 317.1). Iowa noxious weed species are listed in Table 4. Landowners are expected to control all noxious weeds listed in the following table.

Designated Iowa Primary and Secondary Noxious Weeds Located at Camp Dodge

Scientific Name	Common Name
Primary Noxious Weeds	
Agropyron repens (L.) Beauv	Quackgrass
Carduus nutans L.	Musk thistle
Cirsium altissimum (L.) Sprengel	Tall thistle
Cirsium arvense (L.) Scop.	Canada thistle
Cirsium vulgare (Savi) Tenore	Bull thistle
Solanum carolinense L.	Horsenettle
Sonchus arvensis L.	Perennial sowthistle
Secondary Noxious Weeds	
Abutilon theophrasti Medic	Velvetleaf
Daucus carota L.	Wild carrot
Helianthus annuus L.	Wild sunflower
Plantago lanceolata L.	Buckhorn plantain
Rosa multiflora Thunb. ex Murray	Multiflora rose
Rumex acetosella L.	Red sorrel
Rumex altissimus Wood	Smooth dock
Rumx crispus L.	Curly dock
Xanthium strumarium L.	Cocklebur

Rare, Threatened, and Endangered Species Inventories

Survey for Listed Plant Species

Two state listed plant species were identified at the training site. Black haw (*Viburnum prunifolium*) is classified as a species of special concern on the State of Iowa endangered, threatened, and special concern plant list. Black haw is generally found on dry, well-drained soils such as savanna, upland dry, steep rocky hillsides, creeks and stream banks and woods edge. Tube penstemon (*Penstemon tubiflorus*) is also classified as a species of special concern. It occurs naturally in dry prairies, rocky glades, and open woods from Nebraska to Texas, east to Mississippi, Tennessee, Indiana, and Wisconsin.

Survey for Amphibians and Reptiles

Surveys have identified 18 species of reptiles and amphibians at Camp Dodge. Eight species were amphibians, and ten were reptile species.

AMPHIBIANS

Salamanders–Caudata

Eastern Tiger Salamander	*Ambystoma tigrinum*

Frogs and Toads–Salientia

American Bullfrog	*Rana catesbeiana*
American Toad	*Bufo americanus*
Cope's Gray Treefrog	*Hyla chrysoscelis*
Cricket Frog	*Acris crepitans*
Eastern Gray Treefrog	*Hyla versicolor*
Northern Leopard Frog	*Rana pipiens*
Western Chorus Frog	*Pseudacris triseriata*

REPTILES

Turtles–Testudines

Blandings Turtle	*Emydoidea blandingii*
Snapping Turtle	*Chelydra serpentina*
Western Painted Turtle	*Chrysemys picta belli*

Snakes–Squamata

Fox Snake (introduced)	*Elaphe vulpina*
Northern Brown Snake	*Storeria dekayi texana*
Red-sided Garter Snake	*Thamnophis sirtalis parietalis*
Northern Water Snake	*Natrix s. sipedon*
Bullsnake	*Pituophis catenifer*
Eastern Yellowbelly Racer	*Coluber constrictor flaviventris*
Prairie Ringneck Snake	*Diadophis punctatus arnyi*
Graham's Crayfish Snake	*Regina grahamii*
Prairie Kingsnake	*Lampropeltis c. calligaster*
Smooth Green Snake	*Opheodrys vernalis*
Speckled Kingsnake	*Lampropeltis getula holbrooki*
Western Earth Snake	*Virginia valeriae elegans*

Animal Species

Several threatened and endangered animal species could potentially inhabit Camp Dodge:

The bald eagle (*Haliaeetus leucocephalus*) is listed as wintering along large rivers, lakes, and reservoirs in Polk County, and has been seen at Camp Dodge. Currently, no eagles are nesting on post, although ideal nesting areas do exist on post.

The state endangered peregrine falcon (*Falco pereginus*) is listed as breeding in Polk County. Reports have indicated that the peregrine falcon may be flying through the area, but no nesting sites are known.

The piping plover (*Charadrius melodus*), which is threatened in Iowa, can be found nesting in Polk County, but has not been seen during surveys at Camp Dodge.

The federally endangered Indiana bat (*Myotis sodalis*) has been noted in Polk County, but bat surveys have not found them on post.

The plains pocket mouse (*Perognathus flavescens*), designated as a State of Iowa endangered species, was live trapped and released during multi-year surveys.

The spotted skunk *(Spilogale putorious),* also designated as a State of Iowa endangered species, has been consistently reported during scientific surveys.

D. Previous Plans and Project Lists

The focus of the previous plans was on the implementation of goals, objectives and management techniques for Integrated Training Area Management (ITAM) and Ecosystem Management at Camp Dodge. The management plan is based on ecosystem management with the intention of demonstrating the interrelationships between the military mission and natural resources management. The plan was prepared in cooperation with the United States Fish and Wildlife Service (USFWS) and the Iowa Department of Natural Resources (IDNR).

The methods in the previous INRMPs were designed to emphasize natural resource stewardship and sustainability while improving training opportunities and minimizing maintenance. General natural resource management included control of soil erosion and ecologically sound site maintenance while maintaining safety. Also discussed were ways to maintain biodiversity through the use of native plants for repair of disturbed areas and planting of vegetation buffers. Methods of poison ivy control were discussed as well.

Management plans for each vegetation community were provided and included restricting activities on the 100-year floodplain, restriction of off-road vehicles in the bottomland forest and wetland areas, and the planting and maintenance of vegetation buffers on each side of Beaver Creek. The plan also discussed prescribed burning for various areas of post. Wildlife habitat management focused on reducing habitat fragmentation, softening the contrast between adjacent habitat areas, and providing landscape links between existing and restored habitats.

The following projects were outlined in the previous INRMP. The tables outline various projects proposed for the previous five-year INRMP cycle and their proposed schedule. Projects were to be undertaken as funding became available. Inclusion of projects on this list did not obligate the IA ARNG to complete required actions if funding was not available from federal sources. Projects that were completed are highlighted in green.

INRMP Ongoing Protection and Enhancement Project List

Many of the projects listed contribute to the long-term health of the training area, both for training activities and for environmental protection.

Project	Schedule	Benefit
Land condition monitoring	As needed	Ensures that damage occurring through normal training use, as well as damage caused by weather and other natural causes, is identified early and is then scheduled for repair.
Bird, fish, invertebrate, plant and small mammal surveys	Initial survey Follow-up every 10 years	Regularly scheduled plant and animal surveys help monitor and update changing habitat conditions.
Integrate data from LCTA, RFMSS and LRAM to monitor current activity and plan future activities.	Ongoing	The integration of data from various site monitoring systems can be used to anticipate demand for particular training areas and to flag areas that have received intensive use.
Environmental awareness materials	Ongoing	Materials such as videos, field cards, posters, pamphlets, displays, signs and user guides are some of the tools that assist both the site user and the public in understanding environmental protection issues.
SIBER Stake program	Ongoing	Promotes environmental awareness in the field by marking areas that are off-limits or hazardous to site users. SIBER stakes, which are posts marked with a series of reflective tape stripes, require periodic site monitoring and upkeep to ensure that sensitive areas continue to be marked.
Geographic Information System (GIS) mapping and analysis	Ongoing	GIS mapping and analysis serve as tools in monitoring site use and damage. Combined with Global Positioning Systems (GPS) and other mapping tools, GIS can provide modeling for land use plans and the location of training site improvements. In addition, GIS can provide quick access to the most up-to-date maps.
Invasive species control program Elimination of reed canary grass (various wetlands) Poison ivy control Controlled burns Mowing and woody vegetation control	Ongoing	Ensures that natural site diversity is encouraged and training land is maintained and ready for use. Useable training area can be destroyed by the encroachment of such aggressive plants as poison ivy, reed canary grass, and non-native plants. Both habitat and training opportunities are enhanced by these ongoing programs.
Training area damage and trail repair	Ongoing	Training events will cause a certain amount of damage to the land. Natural events – wind, rain, wildlife overpopulation – can also affect land quality. A yearly budget for trail damage and vegetation damage repair, as well as wildlife count projects allows early response, preventing erosion, habitat damage, and training area “down-time.”
Agricultural lease program	Ongoing	Rent and services provided through agricultural contracts provide cost savings. Leases are reviewed and renewed at various schedules. When necessary, they are changed to reflect

		new requirements.
State Endangered Species management. Game management	Ongoing	Inventories and land use changes enhance habitat, determine the effectiveness of species protection, and enhance training areas. Monitor game populations, to include counts and disease monitoring.

Site Protection and Improvement Project List

In order to protect the soils and water quality at Camp Dodge, sites that receive repetitive training use will be considered for site protection and improvement projects. Existing sites, which have not been hardened with gravel, concrete or appropriate vegetation tend to become degraded. In addition, specialized training events require specifically designed areas for operation set-up. By planning, designing and hardening these sites, land managers can prevent erosion and contain accidental hazardous substance spills.

Site selection criteria include:

- Access trails will be constructed to allow proper drainage and minimize erosion.
- Crossing material will be placed using all applicable guidelines.
- If fill is required, it will be taken from approved borrow sites.
- GIS and site analysis will be used to avoid wetland, archeological and sensitive species impacts.
- If impacts are unavoidable, all necessary permits and mitigation plans will be put into effect before construction.

Project	Schedule	Status
Repair and harden Forward Area Refueling Point (FARP) sites.	FY 2013/14	Delayed due to reduced priority and lack of funding.
Harden Forward Operating Base site, Training Areas C-3 and C-7.	FY 2007	Completed. Site moved to Training Area C-5 due to environmental concerns.
Locate, design and build hardened stream crossings. Harden access trails.	FY 2007/2009	One hardened stream crossing and access trail constructed. Others delayed due to reduced priority and lack of funding.

Trail Construction Project List

During the 1990s, land purchases expanded Camp Dodge by approximately 2,200 acres. These lands were primarily in agricultural row crop use at the time of purchase. Camp Dodge land managers replanted these acres with a combination of prairie grasses and brome grass/alfalfa hay mix, creating an open grassland/pasture environment. A tree planting program was also initiated.

However, because there were no formal roads or trails on these parcels, site users tended to follow terrain features or use existing farm trails. If this practice was allowed to continue, there would be erosion in steep, dry areas, and rutting in low, wet areas. Traffic tends to drive off the paths to avoid the ruts and gullies, which then enlarged the path and the damage.

The following criteria was/is considered in the construction/design process:

- Trails would be constructed with ditches and culverts to allow proper drainage.
- If fill is required, it will be taken from approved borrow sites.
- GIS and map analysis will be used to avoid wetland, archeological and sensitive species impacts.
- If impacts are unavoidable, all necessary permits and mitigation plans will be put into effect before construction.
- Trails will be designed so that troop traffic will follow a logical and easy-to-follow path, with limited “dead-ends”, which lead to additional erosion due to turn-arounds.

Project	Schedule	Status
Design and construct gravel range trail in training area D-2 –D-4. Close existing farm trail.	FY 2007/2008	Under construction in 2012; completion in 2013
Design and construct gravel range trail in training area D-6.	FY 2008	Delayed due to reduced priority and lack of funding.
Design and construct gravel range trail in training area D-5.	FY 2009	Delayed due to reduced priority and lack of funding.
Design and construct gravel range trail in training area B-5.	FY 2011	Delayed due to reduced priority and lack of funding.
Relocate existing heavy equipment trail.	FY 2007	Completed in 2012
Repair and reconfigure training access trail, A-1 and B-3.	FY 2013	Completed
Design and construct gravel range trail in training area D-1. Close existing farm trail.	FY 2009	Delayed due to reduced prioirity and lack of funding.
Repair and harden SDZ trail.	FY 2012	Delayed due to reduced prioriy and lack of funding.

Training Area Enhancement Project List

One of the challenges facing Camp Dodge land managers is increasing the effective use of available training acres. Some areas of post are underutilized or unavailable for troop training. With some redesign, several areas were identified for rehabilitation, opening up additional acres for training use.

Project	Schedule	Status
Restore borrow site and surrounding area, training area E-2.	Ongoing	Project complete except for monitoring.
Create maneuver corridors in training A-5 and northern Surface Danger Zone.	FY 2012	Delayed due to reduced priority and lack of funding.
Reconfigure, repair and stabilize closed borrow site, Training Area F.	FY 2008	Project complete except for monitoring. Wetland creation was successful.
Design and harden areas in various training areas to accommodate truck driver course.	FY 2008	Partially complete; more planned as funding becomes available.
Reconfigure, design and construct Landing Zone sites.	FY 2010	Delayed due to reduced priority and lack of funding.
Reconfigure and harden bridging sites.	FY 2009	Delayed due to reduced priority and lack of funding.
Corridor restorations.	Ongoing	Delayed due to reduced priority and lack of funding.
Establish riparian and other protective buffer zones.	Ongoing	Delayed due to reduced priority and lack of funding.
Create and maintain Tactical Concealment Areas (TCAs).	Ongoing	Delayed due to reduced priority and lack of funding.

Habitat Improvement Projects List

Part of the INRMP's purpose is to also outline areas of Camp Dodge where habitat can be improved. This must also be measured against the directive that there is no net loss of training area. These do not have to be mutually exclusive, as in many cases an improved habitat area also provides the same environment that Soldiers need for realistic training. One area that meets these criteria is a site in the southern portion of Training Area B-6, where there is a potential to create a restored wetland. The area has been previously tiled and an agricultural pond was created. As the tile system has aged and failed, parts of the south edge of training area B-6 have become inundated and difficult to use for vehicle training. Disruption of the tile system and a selective planting plan would allow the area to return to its natural drainage pattern. Once wetland plants are established in the area, it will be readily identifiable as different from the grasslands surrounding it, allowing troops to visually determine where muddy conditions exist and avoid them – something that is important in teaching troops how NOT to become mired and vulnerable.

The wetland recovery plan for this area must selectively identify tiles to be broken and where water will pool. The preferred type of wetland system for this area will discourage long-term ponding (which attracts larger species of waterfowl that may pose hazard to helicopters and other aircraft training in the area). It will encourage a more ephemeral wetland habitat, which is rarer and more favorable to smaller wetland birds, amphibians and reptiles.

Project	Schedule	Status
Wetland enhancement, training area B-6	FY 03	Delayed due to lack of funding.

Recreation and Outreach Project List

Part of an effective natural resource management includes opportunities for public outreach and education. Camp Dodge Training Site plans to identify areas suitable for controlled public wildlife viewing, as well as an educational interpretive area for scheduled school and student use. These projects will be primarily dependent on outside funding sources and volunteer labor.

Project	Schedule	Status
Wildlife viewing areas	FY 09	Delayed due to lack of funding.
Interpretive trails and signs	FY 08	Delayed due to lack of funding.

E. Proposed Projects for 2013-2017

Projects outlined in earlier plans that have not been completed will remain in the INRMP update. Currently the only additional training area projects planned for Camp Dodge are site improvements relating to building simulation areas for training troops for urban warfare and terrorism protection. These projects will be subject to evaluation for natural resources impacts, wetland impacts and cultural resource impacts.

F. Land Management Changes for 2013-2017

Site surveys for natural resources have resulted in updated land management plans that will increase the protection of migratory birds that are nesting at Camp Dodge. Monitoring will continue and the plans changed if necessary to increase nesting survival. The updated research results and mowing plans are attached to this update and will be placed in the updated INRMP in Appendix K.

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APPENDIX H – PROJECT IMPLEMENTATION 2013 UPDATE

Appendix H lists the projects that will be implemented with this plan. The revised project schedule (by fiscal years-FY) is also shown. Projects will be undertaken as funding becomes available. Inclusion of projects on this list does not obligate the IA ARNG to complete required actions if funding is not available from federal sources.

Projects outlined in earlier plans that have not been completed will remain in the INRMP update. Currently the only additional training area projects planned for Camp Dodge are site improvements relating to building simulation areas for training troops for urban warfare and terrorism protection. These projects will be subject to evaluation for natural resources impacts, wetland impacts and cultural resource impacts.

H-1. INRMP Ongoing Protection and Enhancement Project List

Many of the projects listed contribute to the long-term health of the training area, both for training activities and for environmental protection.

Project	Schedule	Benefit
Land condition monitoring	As needed	Ensures that damage occurring through normal training use, as well as damage caused by weather and other natural causes, is identified early and is then scheduled for repair.
Bird, fish, invertebrate, plant and small mammal surveys	Initial survey Follow-up every 10 years	Regularly scheduled plant and animal surveys help monitor and update changing habitat conditions. Areas requiring additional survey include Beaver Creek riparian area, D-6 and F sand prairie areas, C-1 beaver pond, D-2 prairie pothole, and native prairie near TA-E.
Sensitive areas monitoring	Cyclic as needed	Monitoring of areas with sensitive species or areas prone to invasive species. Includes, but is not limited to, the Betz wetland project (near TA E-2), Des Moines Avenue detention pond/wetland TA- F), Penstemon tubiflorus (near TA-E-2), garlic mustard infestation in TA-F.
Integrate data from LCTA, RFMSS and LRAM to monitor current activity and plan future activities.	Ongoing	The integration of data from various site monitoring systems can be used to anticipate demand for particular training areas and to flag areas that have received intensive use.
Environmental awareness materials	Ongoing	Materials such as videos, field cards, posters, pamphlets, displays, signs and user guides are some of the tools that assist both the site user and the public in understanding environmental protection issues.
SIBER Stake program	Ongoing	Promotes environmental awareness in the field by marking areas that are off-limits or hazardous to site users. SIBER stakes, which are posts marked with a series of reflective tape stripes, require periodic site monitoring and upkeep to ensure that sensitive areas continue to be marked.

Geographic Information System (GIS) mapping and analysis	Ongoing	GIS mapping and analysis serve as tools in monitoring site use and damage. Combined with Global Positioning Systems (GPS) and other mapping tools, GIS can provide modeling for land use plans and the location of training site improvements. In addition, GIS can provide quick access to the most up-to-date maps.
Invasive species control program Elimination of reed canary grass (various wetlands) Poison ivy control Controlled burns Mowing and woody vegetation control	Ongoing	Ensures that natural site diversity is encouraged and training land is maintained and ready for use. Useable training area can be destroyed by the encroachment of such aggressive plants as poison ivy, reed canary grass, and non-native plants. Both habitat and training opportunities are enhanced by these ongoing programs.
Training area damage and trail repair	Ongoing	Training events will cause a certain amount of damage to the land. Natural events – wind, rain, wildlife overpopulation – can also affect land quality. A yearly budget for trail damage and vegetation damage repair, as well as wildlife count projects allows early response, preventing erosion, habitat damage, and training area "down-time."
Agricultural lease program	Ongoing	Rent and services provided through agricultural contracts provide cost savings. Leases are reviewed and renewed at various schedules. When necessary, they are changed to reflect new requirements.
State Endangered Species management.	Ongoing	Inventories and land use changes enhance habitat, determine the effectiveness of species protection, and enhance training areas.
Game management	Ongoing	Monitor game population, to include population counts and disease monitoring.

H-2. Site Protection and Improvement Project List

In order to protect the soils and water quality at Camp Dodge, sites that receive repetitive training use will be considered for site protection and improvement projects. Existing sites, which have not been hardened with gravel, concrete or appropriate vegetation tend to become degraded. In addition, specialized training events require specifically designed areas for operation set-up. By planning, designing and hardening these sites, land managers can prevent erosion and contain accidental hazardous substance spills.

Site selection criteria include:

- Access trails will be constructed to allow proper drainage and minimize erosion.
- Crossing material will be placed using all applicable guidelines.
- If fill is required, it will be taken from approved borrow sites.
- GIS and site analysis will be used to avoid wetland, archeological and sensitive species impacts.
- If impacts are unavoidable, all necessary permits and mitigation plans will be put into effect before construction.

Project	Schedule	Status
Repair and harden aircraft landing zones.	FY 2013-2015	In the past, project has been delayed due to reduced priority and lack of funding.

Locate, design and build hardened stream crossings. Harden access trails.	FY 2015-2016	One hardened stream crossing and access trail has been constructed. Others delayed due to reduced priority and lack of funding.

H-3. Trail Construction Project List

During the 1990s, land purchases expanded Camp Dodge by approximately 2,200 acres. These lands were primarily in agricultural row crop use at the time of purchase. Camp Dodge land managers replanted these acres with a combination of prairie grasses and brome grass /alfalfa hay mix, creating an open grassland/pasture environment. A tree planting program was also initiated.

However, because there were no formal roads or trails on these parcels, site users tended to follow terrain features or use existing farm trails. If this practice was allowed to continue, there would be erosion in steep, dry areas, and rutting in low, wet areas. Traffic tends to drive off the paths to avoid the ruts and gullies, which then enlarged the path and the damage.

The following criteria was/is considered in the construction/design process:

- Trails would be constructed with ditches and culverts to allow proper drainage.
- If fill is required, it will be taken from approved borrow sites.
- GIS and map analysis will be used to avoid wetland, archeological and sensitive species impacts.
- If impacts are unavoidable, all necessary permits and mitigation plans will be put into effect before construction.
- Trails will be designed so that troop traffic will follow a logical and easy-to-follow path, with limited “dead-ends”, which lead to additional erosion due to turn-arounds.

Project	Schedule	Status
Design and construct gravel range trail in training area D-6.	FY 2016	Delayed due to reduced priority and lack of funding.
Design and construct gravel range trail in training area D-5.	FY 2017	Delayed due to reduced priority and lack of funding.
Design and construct gravel range trail in training area B-1, B-2, B-5 and B-6.	FY 2013-2015	Delayed due to reduced priority and lack of funding.
Design and construct gravel range trail in training area D-1. Close existing farm trail.	FY 2014-2015	Delayed due to reduced prioirity and lack of funding.
Repair and harden SDZ trail.	FY 2015	Delayed due to reduced prioriy and lack of funding.

H-4. Training Area Enhancement Project List

One of the challenges facing Camp Dodge land managers is increasing the effective use of available training acres. Some areas of post are underutilized or unavailable for troop training. With some redesign, several areas were identified for rehabilitation, opening up additional acres for training use.

Project	Schedule	Status
Restore borrow site and surrounding area, training area E-2.	Ongoing	Project complete except for monitoring.
Create maneuver corridors in training A-5 and northern Surface Danger Zone.	FY 2015	Delayed due to reduced priority and lack of funding.

Reconfigure, repair and stabilize closed borrow site, Training Area F.	Ongoing	Project complete except for monitoring. Wetland creation was successful.
Design and harden areas in various training areas to accommodate truck driver course; includes turnarounds at trail ends and trail intersection at A-3,4,5.	FY 2013/2014	Partially complete; more planned as funding becomes available.
Reconfigure and harden bridging sites.	FY 2013/2014	Delayed due to reduced priority and lack of funding.
Corridor restorations.	Ongoing	Delayed due to reduced priority and lack of funding.
Establish riparian and other protective buffer zones.	Ongoing	Delayed due to reduced priority and lack of funding.
Create and maintain Tactical Concealment Areas (TCAs).	Ongoing	Delayed due to reduced priority and lack of funding.

H-5. Habitat Improvement Projects List

Part of the INRMP's purpose is to also outline areas of Camp Dodge where habitat can be improved. This must also be measured against the directive that there is no net loss of training area. These do not have to be mutually exclusive, as in many cases an improved habitat area also provides the same environment that Soldiers need for realistic training. One area that meets these criteria is a site in the southern portion of Training Area B-6, where there is a potential to create a restored wetland. The area has been previously tiled and a pond was created. As the tile system has aged and failed, parts of the south edge of training area B-6 have become inundated and difficult to use for vehicle training. Disruption of the tile system and a selective planting plan would allow the area to return to its natural drainage pattern. Once wetland plants are established in the area, it will be readily identifiable as different from the grasslands surrounding it, allowing troops to visually determine where muddy conditions exist and avoid them – something that is important in teaching troops how NOT to become mired and vulnerable.

The wetland recovery plan for this area must selectively identify tiles to be broken and where water will pool. The preferred type of wetland system for this area will discourage long-term ponding (which attracts larger species of waterfowl that may pose hazard to helicopters and other aircraft training in the area). It will encourage a more ephemeral wetland habitat, which is rarer rare and more favorable to smaller wetland birds, amphibians and reptiles.

Project	Schedule	Status
Wetland enhancement, training area B-6	FY 2015	Delayed due to lack of funding.

H-6. Recreation and Outreach Project List

Part of an effective natural resource management includes opportunities for public outreach and education. Camp Dodge Training Site plans to identify areas suitable for controlled public wildlife viewing, as well as an educational interpretive area for scheduled school and student use. These projects will be primarily dependent on outside funding sources and volunteer labor.

Project	Schedule	Status
Wildlife viewing areas	FY 2016	Delayed due to lack of funding.
Interpretive trails and signs	FY 2015	Delayed due to lack of funding.

APPENDIX I - ANNUAL REPORTS AND UPDATES
NEPA DOCUMENTATION
2014-2017

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Enviro tracking #	ARNG RECORD OF ENVIRONMENTAL CONSIDERATION	State ARNG
		IA

1. Project name:Camp Dodge INRMP Revision
2. Project number: (MILCON if applicable) | 3. Date prepared: 7 August 2013
4. Start date of proposed action (dd-mmm-yy): 30 Aug 2013 *NOTE: this must be a future date.*
5. Programmed fiscal year: 2013
6. End date (if applicable): December 31 2017
7. Description and location of the project/proposed action.

a. Location (Include a detailed map if applicable):

Camp Dodge Joint Maneuver Training Center

b. Description:

Prepare five-year revision to Camp Dodge Integrated Natural Resources Management Plan.

8. Choose one of the following:

☒ An existing environmental assessment* adequately covers the scope of this project. Attach FNSI if EA was completed by another federal agency (non-ARNG).
Date of EA (dd-mmm-yy): 5 Sept. 2001 Lead Agency: National Guard Bureau
☐ An existing environmental impact statement* adequately covers the scope of this project.
Date of EIS (dd-mmm-yy): Lead Agency:
☐ After reviewing the screening criteria and completing the ARNG environmental checklist, this project qualifies for a categorical exclusion (select below).
CAT EX Code:
CAT EX Code:
CAT EX Code:
☐ This project is exempt from NEPA requirements under the provisions of:
Cite superseding law:
**Copies of the referenced environmental assessment or environmental impact statement can be found in the ARNG Environmental Office within each state.*

9. Remarks (if needed):

Mary L Jones
Signature of Proponent (requestor)
Name: Mary L. Jones
Date: 8 Aug 2013

Curtis L. Madsen
Signature of Environmental Program Manager
Name: Curtis L. Madsen
Date: 8 Aug 13

Proponent Information

10. Proponent: Natural Resources Manager, NGIA-DIM
11. Address: Bldg. 3535, Camp Dodge 7105 NW 70th Ave, Johnston, IA
12. POC: Mary L. Jones
13. Comm. voice: 515 252-4648
14. Proponent POC e-mail: Mary.l.Jones389.nfg@mail.mil

APPENDIX J
FUNDING MATRIX FOR NATURAL RESOURCES MANAGEMENT PROJECTS

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Sustainable Range/Installation Environmental Activities Matrix (Phase 1)

AS OF 2 SEP 05

Environmental Sustainability Requirement	Environmental Program		Range Program			Facilities			Materiel Management/ Logistics
	Conservation (MDEP: VENN)	**Operational Range Environmental Compliance** *(includes Compliance Cleanup Activities)* **(MDEPs: VENC and VEMR as appropriate)**	**Range Modernization (MDEP: VSRM)**	**Range Operations (MDEP: VSCW)**	**Integrated Training Area Management (ITAM) (MDEP: TATM)**	**Sustainment (MDEP: QRPA)**	**Restoration & Modernization (MDEPs: E315, ERVT, QLPR, QPSM, VTER, DA3O, and DA3S as appropriate)**	**Real Property Services (MDEP: QDPW)**	**Materiel Management/Logistics**
Overall Program Responsibility for Range Sustainment	Enable the Army mission by funding characterization, monitoring, compliance, and continuing oversight of installation natural and cultural resources. Exercise stewardship of natural and cultural resources by facilitation of the planned management of natural and cultural resources, via the Integrated Natural Resources Management Plan (INRMP) and Integrated Cultural Resources Management Plan (ICRMP). This is accomplished in coordination with facility managers, trainers and other land users, through implementation of projects that help preserve, maintain, repair, and improve natural and cultural resources for sustaining mission requirements.	Enable the Army mission by funding implementation of legally mandated actions to protect and enhance environmental media from the negative effects of pollution and human alteration and allow sustained access to and use of operational ranges to meet doctrinal training requirements.	Enable the Army mission by funding the design and construction of ranges and the acquisition of training lands that are capable of sustaining long-term doctrinal training requirements.	Enable the Army mission by funding the operation of ranges and training lands to sustain long-term doctrinal training requirements.	Enable the Army mission by funding the management and maintenance of training lands to sustain and enhance the capability to meet long-term doctrinal training requirements.	Enable the Army mission by funding the sustainment of range facilities in good working order to meet long-term doctrinal training requirements.	Restoration is work to restore failed or failing facilities, systems, and components damaged by lack of sustainment, excessive age, fire, storm, flood, freeze, or other natural occurrences. Improves facilities to current standards. Modernization adapts facilities to meet new standards and includes the erection, installation, or assembly of a new real property facility; the addition, expansion, extension, alteration, conversion, or complete replacement of an existing real property facility.	Provide for those activities of an installation support nature. Includes those support elements and services identified as indirect overhead by Headquarters, Department of Army (HQDA) and grounds maintenance activities. This includes the abatement and disposal of building hazardous waste resulting from the performance of real property services.	Enable the Army mission by funding the stockpile management of all Army materiel.

Sustainable Range/Installation Environmental Activities Matrix (Phase 1)

AS OF 2 SEP 05

Environmental Sustainability Requirement	Environmental Program		Range Program			Facilities			Materiel Management/ Logistics
	Conservation (MDEP: VENN)	Operational Range Environmental Compliance *(includes Compliance Cleanup Activities)* (MDEPs: VENC and VEMR as appropriate)	Range Modernization (MDEP: VSRM)	Range Operations (MDEP: VSCW)	Integrated Training Area Management (ITAM) (MDEP: TATM)	Sustainment (MDEP: QRPA)	Restoration & Modernization (MDEPs: E315, ERVT, QLPR, QPSM, VTER, DA3O, and DA3S as appropriate)	Real Property Services (MDEP: QDPW)	Materiel Management/Logistics
Air Emissions									
Other Air Emissions From Training and Range Operations (Toxics Release Inventory [TRI] considerations, Volatile Organic Compounds [VOCs], Open Burning/Open Detonation [OB/OD], constituents)	Monitor the impacts of range-related air emissions on listed or proposed threatened and endangered species (TES). Facilitate issue resolution when required to protect the species.	Installation-wide air-emissions inventories that include training, range operations, prescribed burning, and range modernization. Planning and implementation of emission controls from point and mobile sources on ranges to achieve compliance with new or more stringent legal environmental requirements. Environmental compliance requirements such as air monitoring equipment, studies, surveys, and sampling related to specific statutory requirements on ranges and training areas, permits or compliance agreements. Includes equipment, manpower and other resources necessary to comply with the Emergency Planning and Community Right-to-Know Act TRI. Activities to reduce or eliminate air emissions. Implementation of emission controls does not include major infrastructure or equipment modifications.	None.	Record keeping of the number and type of munitions fired. Information provided to installation environmental staff.	None.	None.	None.	None.	Oversight of maintenance of all material safety data sheets (MSDS) for all Army chemicals managed and distributed through the DoD's central materiel and supply distribution system. Maintenance of complete munitions constituent database for all munitions issued and used on Army ranges (MIDAS Database).
Sedimentation and Soil Erosion									
Excessive soil erosion/sedimentation	Installation-wide planning for soil stabilization and erosion control to ensure no net loss in the capability of military installation lands in order to support the military mission (e.g., soils section of the INRMP, planning level surveys). Implementation of projects to characterize impacts to TES. Installation-wide consultation and monitoring to mitigate impacts to TES and Cultural Resources.	Permits and monitoring required by compliance with Clean Water Act (CWA) Section 319 and related State or local regulations. Development of installation-wide stormwater surveys and stormwater pollution prevention plans. Environmental funds do not pay for compliance issues that result from inadequate design, lack of and/or improper sustainment, restoration, or maintenance of real property.	Erosion control analysis is part of design Standard Operating Procedures (SOPs) for all Military Construction (MILCON) projects. Local hydrological criteria stipulate allowable surface flow discharge volume. The completed MILCON project will include design and installation of materials or structures (retention, detention, crossings) that will minimize erosion. Examples of erosion control structures include, stormwater controls, landscape design, initial plantings, bullet pockets, target coffins and catch ponds.	None.	ITAM only applies to supported ITAM installations. Conducting erosion impact surveys necessary to make Training Requirements Integration (TRI) decisions or to assess cause/effect relationships relevant to training activities. Designing and implementing Land Rehabilitation and Maintenance (LRAM) projects and conducting monitoring under Range and Training Land Assessments (RTLA) within the range complex. Constructing or maintaining maneuver area trails (for tactical vehicles), hardened water crossing (for tactical vehicles), and erosion control structures needed to repair damage caused by maneuver training or increase capability. Vegetative and non-vegetative surface treatments. Does not pay for roads or naturally caused erosion with the training area.	Sustainment of paved and unpaved roads, including roads in the range complex. Sustainment of all installation training areas and ranges to prevent excessive soil erosion/sedimentation.	Restoration of paved and unpaved roads, including roads in the range complex. Restoration of all installation training areas and ranges to prevent excessive soil erosion/ sedimentation.	Management of ponds, lakes, streams, swamps and estuaries and ranges and maneuver areas. Planting vegetation and utilization of structural measures and non-vegetative surface treatments to control dust, natural erosion (excluding erosion caused by maneuver training damage), and surface water on ranges and maneuver areas (excludes impact areas).	None.

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Sustainable Range/Installation Environmental Activities Matrix (Phase 1)

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Environmental Sustainability Requirement	Environmental Program		Range Program			Facilities			Materiel Management/ Logistics
	Conservation (MDEP: VENN)	Operational Range Environmental Compliance *(includes Compliance Cleanup Activities)* (MDEPs: VENC and VEMR as appropriate)	Range Modernization (MDEP: VSRM)	Range Operations (MDEP: VSCW)	Integrated Training Area Management (ITAM) (MDEP: TATM)	Sustainment (MDEP: QRPA)	Restoration & Modernization (MDEPs: E316, ERVT, QLPR, QPSM, YTER, DA3O, and DA3S as appropriate)	Real Property Services (MDEP: QDPW)	Materiel Management/Logistics
Water Quality Issues									
Sanitary Sewer and Grey Water Generation and Disposal Issues From Field Services (e.g. food prep, latrines, field showers, laundry)	Initial development and periodic update of installation Surface Water Planning Level Survey. Oversight of impacts of water pollution from range activities on listed or proposed TES. Facilitate issue resolution when required to protect the species.	Permitting and monitoring required by compliance with CWA, Safe Drinking Water Act (SDWA), and related State or local regulations on ranges and training areas. Development of installation-wide stormwater surveys and stormwater pollution prevention plans. Environmental funds do not pay for compliance issues that result from inadequate design, lack of and/or improper sustainment, restoration, or maintenance of real property.	Full infrastructure support is not required for range projects. Rarely feasible to extend sewer and water utility services over long distances to support ranges. Range standards provide field support through other means (vault latrines or portable latrines).	None.	None.	Sustainment of all real property assets supporting the range operations. Sanitary Sewer and Grey water generation and disposal included in the Real Property Inventory (e.g. wash racks, permanent structures, field showers, potable/non-potable water, etc.). Includes facility/infrastructure upgrades and/or replacements to comply with new or more stringent legal environmental requirements or to bring a system back into compliance with environmental regulations.	Improvements to fix design flaws. Restoration and Modernization of all real property supporting the range operations sanitary and Gray water generation and disposal while complying with existing environmental regulations.	Provides real property services supporting on-going range operations (e.g. servicing vault latrines). Range mission funding reimburses the Real Property Services (RPS) account for RPS support (e.g. vault latrines) for special events or temporary ranges.	None.
Wetlands/Riparian Areas Impacts From Training or Range Construction and/or Impacts to Training (includes §§ 401 & 404 and Special Use permits) .	Development of the wetland planning level survey and wetland management portion of the INRMP. Consult with regulatory agencies when required due to proponent actions. Write and submit sections 401 and 404 permit or special use permit applications and jurisdictional surveys for construction projects. Includes one-time wetlands mitigation costs (including related project design) necessary for approved MILCON projects; excludes Base Realignment and Closure (BRAC) funded MILCON actions. Monitor wetland functions and values as required.	Monitoring and permitting of wetlands used for the treatment of stormwater or wastewater only when required under the CWA.	Current SOP for range design employs wetlands "design avoidance" to minimize wetlands disturbance. This is accomplished during design by coordination with environmental representatives. Long-term monitoring of wetlands not included as part of MILCON.	None.	None.	None.	None.	Protection and development of ponds, lakes, streams, swamps, and estuaries for training areas and ranges. Planting vegetation and utilization of structural measures and non-vegetative surface treatments to control dust, erosion, and surface water on maneuver areas and ranges. Does not include initial cost of constructing wetland mitigation site. Includes management of wetlands used for the treatment of stormwater or wastewater.	None.

Sustainable Range/Installation Environmental Activities Matrix (Phase 1)

AS OF 2 SEP 05

Environmental Sustainability Requirement	Environmental Program		Range Program			Facilities			Materiel Management/ Logistics
	Conservation (MDEP: VENN)	Operational Range Environmental Compliance *(Includes Compliance Cleanup Activities)* (MDEPs: VENC and VEMR as appropriate)	Range Modernization (MDEP: VERM)	Range Operations (MDEP: VSCN)	Integrated Training Area Management (ITAM) (MDEP: TATM)	Sustainment (MDEP: QRPA)	Restoration & Modernization (MDEPs: E316, ERVT, QLPR, QPSM, YTER, DA3O, and DA3S as appropriate)	Real Property Services (MDEP: QDPW)	Materiel Management/Logistics
Hazardous Waste Issues									
Characterization and Response to Contaminated Soils (and other media) From Substances Other Than Munitions and Explosives of Concern	Monitor the impacts of contaminated soils on listed or proposed TES. Facilitate issue resolution when required to protect the species.	Assessments and Findings for Determination of Eligibility (similar to Preliminary Assessments/Site Inspections) to determine whether there is a release or potential release and the nature of any associated threat. Conduct cleanup necessary to maintain operations or protect human health and safety. Purchase or retrofit and installation of monitoring equipment, if required. Includes sampling, collection and analysis of other field data to determine if further action or investigation is appropriate.	None. Ranges are not constructed on contaminated soils.	None.	None.	Berm maintenance to maintain consistency with original design specifications. Although the sustainment requirement does not currently include lead removal, the funding for sustainment can be used for lead removal.	None.	None.	Oversight of Army maintenance of all material safety data sheets (MSDS) for all chemicals managed and distributed through the DoD's central materiel and supply distribution system. Maintenance of complete munitions constituent database for all munitions issued and used on Army ranges (MIDAS Database).
Hazardous Waste Storage	None.	Cost to accumulate, store, manage, characterize, and collect data of hazardous wastes at garrison-operated storage facilities prior to off-site treatment and disposal. Environmental funds do not pay for compliance issues that result from inadequate design, lack of and/or improper sustainment, restoration, or maintenance of real property.	None.	None.	None.	Maintenance of hazardous waste storage facilities (included in the Installation Facility System (IFS) database under CATCD: 44229), excluding permit required specialized hazardous waste handling equipment within the facility. Includes facility/infrastructure upgrades and/or replacements to comply with new or more stringent legal environmental requirements or to bring a system back into compliance with environmental regulations.	Improvements to fix design flaws. Restoration and Modernization of all real property supporting hazardous waste storage while complying with existing environmental regulations.	None.	Oversight of Army maintenance of all material safety data sheets (MSDS) for all chemicals managed and distributed through the DoD's central materiel and supply distribution system. Maintenance of complete munitions constituent database for all munitions issued and used on Army ranges (MIDAS database). Reusable missile and some conventional ammunition containers are returned to the depot and funded by the Joint Munitions Command (sub element of Army Field Support Command).

Sustainable Range/Installation Environmental Activities Matrix (Phase 1)

AS OF 2 SEP 05

Environmental Sustainability Requirement	Environmental Program		Range Program			Facilities			Materiel Management/ Logistics
	Conservation (MDEP: VENN)	Operational Range Environmental Compliance *(Includes Compliance Cleanup Activities)* (MDEPs: VENC and VEMR as appropriate)	Range Modernization (MDEP: VSRM)	Range Operations (MDEP: VSCN)	Integrated Training Area Management (ITAM) (MDEP: TATM)	Sustainment (MDEP: QRPA)	Restoration & Modernization (MDEPs: E315,ERYT, QLPR, QPSM, VTER, DA3O, and DA3S as appropriate)	Real Property Services (MDEP: QDPW)	Materiel Management/Logistics
Natural Resource Issues									
Threatened and Endangered Species Conservation, Impacts, and Encroachment Mitigation	Serve as the integrators of TES issues on the installation. Consultation, monitoring, planning, and implementation of projects to characterize and mitigate impacts of on-going operations, maintenance, and training on listed or proposed TES, when such projects are required by formal and informal agreement or determined by HQDA to be necessary to avoid species listing, critical habitat designation, taking or jeopardy. Also included are projects to establish programs to conserve listed/proposed species such as TES planning level surveys and their updates. Includes one-time TES mitigation costs (including related project design) necessary for approved MILCON projects; excludes BRAC funded MILCON actions. State Listed Species: The Department of Army is not subject to complying with state species laws unless the federal government waives its sovereign immunity on this matter.	None.	TES & habitat disturbance is considered during design as a matter of USACE policy. TES & habitat disturbance mitigation requirements are derived from NEPA consultation and agreements.	None.	Costs of placing markers (e.g., Seibert stakes) to designate off-limits site for TES and habitats in maneuver areas.	None.	None.	None.	None.
Invasive Species & Noxious Weeds Management	Identification, monitoring and planning as a component of the Integrated Pest Management Plan (IPMP) and INRMP. Includes identification of invasive species and noxious weeds as part of the Conservation Program funded planning level surveys.	None.	Removal of vegetation (including use of chemical application) as necessary for construction (not maintenance) of a range facility.	None.	Removal of vegetation that inhibits maneuver or training activities. Creating maneuver corridors in high vegetation areas. Clearing other natural or manmade material to open land to maneuver & training.	None.	None.	Develop and implement integrated open space and building/facility pest management strategies. Includes personnel to conduct pest surveillance, identification, breeding site removal, pesticide applications and other required actions. Also includes mowing, prescribed burning, and application of herbicides to control weeds (to include invasive species & noxious weeds), brush, vegetative fire hazards and poisonous plants on training areas and ranges.	Oversight of Army maintenance of all material safety data sheets (MSDS) for all chemicals managed and distributed through the DoD's central materiel and supply distribution system. Maintenance of complete munitions constituent database for all munitions issued and used on Army ranges (MDAS Database).

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Sustainable Range/Installation Environmental Activities Matrix (Phase 1)

AS OF 2 SEP 05

Environmental Sustainability Requirement	Environmental Program		Range Program			Facilities			Materiel Management/ Logistics
	Conservation (MDEP: VENN)	Operational Range Environmental Compliance *(Includes Compliance Cleanup Activities)* (MDEPs: VENC and VEMR as appropriate)	Range Modernization (MDEP: VSRM)	Range Operations (MDEP: VSCN)	Integrated Training Area Management (ITAM) (MDEP: TATM)	Sustainment (MDEP: QRPA)	Restoration & Modernization (MDEPs: E315,ERYT, QLPR, QPSM, VTER, DA3O, and DA3S as appropriate)	Real Property Services (MDEP: QDPW)	Materiel Management/Logistics
Natural Resource Issues (cont'd)									
Impacts and Mitigation for Reimbursable/Fee Natural Resource Programs (Forestry, Ag Grazing/Outlease, Hunting & Fishing Fee)	These programs are intended to offset all costs allowable by law associated with program execution at installation level. Reimbursable programs pay for cultural inventories at sites that their activities may impact.	None.	None.	None.	None.	None.	None.	Administration of agriculture and grazing leases and management expenses for forest areas, except for responsibilities under Conservation.	None.
Fish & Wildlife Management (does not include TES)	Provide oversight of fish and wildlife management activities. Facilitate the integration of various installation proponents planned actions through projects that support ecosystem management and biodiversity, to include the establishment of hunting and fishing harvest limits and planning level surveys (i.e. Flora, Fauna, and Vegetation Communities). Manage Army species at risk as determined by HQDA to be necessary to avoid species listing, critical habitat designation, taking or jeopardy.	None.	None.	None.	None.	None.	None.	Funds for protection and development of land, water, and renewable natural resources; fish and wildlife habitats; training areas and ranges; administration of agriculture and grazing leases and management expenses for forest areas, except for responsibilities under Conservation.	None.
Managing Wildland Fires (establish and maintain fire breaks, conduct prescribed burns, and wildland fire fighting/suppression)	Plan, through the INRMP, monitor and implement projects that manage wildland fire for the purpose of ecosystem management, and for the protection or benefit of listed or proposed TES.	None.	Sustainable design features are integrated into all USACE reviewed range MILCON projects as required by USACE SOPs. Specific to wildfires, design and construction may include initial establishment of firebreaks or other features associated with ranges to mitigate potential range fires.	None.	None.	None.	None.	Mowing, prescribed burning and application of herbicides to control weeds, brush, vegetative fire hazards and poisonous plants on small arms ranges, maneuver areas, and artillery ranges. Wildland fire prevention, response, and control of fires when necessary to protect people, property, equipment or mission capability of all facilities on Army installations. Includes maintenance of established fire breaks.	None.

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Sustainable Range/Installation Environmental Activities Matrix (Phase 1)

AS OF 2 SEP 05

Environmental Sustainability Requirement	Environmental Program		Range Program			Facilities			Materiel Management/ Logistics
	Conservation (MDEP: VENN)	Operational Range Environmental Compliance *(Includes Compliance Cleanup Activities)* (MDEPs: VENC and VEMR as appropriate)	Range Modernization (MDEP: VSRM)	Range Operations (MDEP: VSCN)	Integrated Training Area Management (ITAM) (MDEP: TATM)	Sustainment (MDEP: QRPA)	Restoration & Modernization (MDEPs: E315,ERYT, QLPR, QPSM, VTER, DA3O, and DA3S as appropriate)	Real Property Services (MDEP: QDPW)	Materiel Management/Logistics
Other Issues									
Operational Noise Outreach	None.	None.	None.	Communication and coordination with local public on noise issues is conducted as a coordinated activity within the garrison staff among the Director Public Works (DPW), Public Affairs Office (PAO), Director of Plans, Training, Mobilization, and Security (DPTMS), and environmental staff as a part of SRP Outreach.	None.	None.	None.	None.	None.
Access Controls (Security)	Consult with regulators/stakeholders concerning access (by military and non-military personnel) issues related to historic properties, sacred sites, and TES.	None.	Design and installation of signage for access controls to ensure safety and security of range facilities constructed under Range Modernization program.	Design and installation of signage for access controls to ensure safety and security of range facilities.	None.	Sustainment of facilities for the enclosure of land parcels for both security and decorative purposes and facilities providing protection and over-watch of land parcels (e.g. entry gates and secured areas). Includes facility/infrastructure upgrades and/or replacements to comply with new or more stringent legal environmental requirements or to bring a system back into compliance with environmental regulations.	Restoration and Modernization of all real property supporting access controls while complying with existing environmental regulations	None.	None.

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Sustainable Range/Installation Environmental Activities Matrix (Phase 1)

AS OF 2 SEP 05

Environmental Sustainability Requirement	Environmental Program		Range Program			Facilities			Materiel Management/ Logistics
	Conservation (MDEP: VENN)	Operational Range Environmental Compliance *(Includes Compliance Cleanup Activities)* (MDEPs: VENC and VEMR as appropriate)	Range Modernization (MDEP: VSRM)	Range Operations (MDEP: VSCN)	Integrated Training Area Management (ITAM) (MDEP: TATM)	Sustainment (MDEP: QRPA)	Restoration & Modernization (MDEPs: E315,ERVT, QLPR, QPSM, VTER, DA3O, and DA3S as appropriate)	Real Property Services (MDEP: QDPW)	Materiel Management/Logistics
Other Issues (cont'd)									
Statutory and Regulatory Compliance for Historic Buildings and Structures, Archeological Sites, and Sites of Traditional or Religious Importance to Native Americans	Develop the ICRMP. Complete cultural resources inventories, preliminary determination of eligibility for listing in the National Register of Historic Places, and an in-house determination of whether these properties or sites are ineligible or potentially eligible for listing of Army managed lands when ongoing training, or other installation support activities could affect significant cultural resources. Includes one-time historic properties mitigation costs (including related project design) necessary for approved MILCON projects;excludes BRAC funded MILCON actions. Consult with regulators and stakeholders on actions that may affect cultural sites. Ensure that consultations with Federally recognized Indian tribes are conducted on a government-to-government basis. Coordinate with installation users to ensure their activities comport with the installation ICRMP, and all applicable laws, regulations, and signed Memorandum of Agreements. Execute Army responsibilities pursuant to the Native American Graves Protection and Repatriation Act (NAGPRA).	None.	Protect, preserve, and mitigate damage to previously unknown archaeological objects or findings discovered during construction up to 1% of the MILCON project program amount (Public Law 93-291). A secondary consideration for this 1% is to compensate the construction contractor for contractual impacts and delays resulting from discovery of previously unknown archaeological objects or findings during construction. If removal & curation required, installations must contact DAIM-ED for review & approval. Per AR415-15, military construction projects will not be proposed for sites that contain known or suspected archaeological findings until those sites have been properly assessed.	None.	Costs of placing markers (e.g., Seibert stakes) or other mechanisms to designate off-limit cultural site areas in maneuver areas.	None.	None.	None.	None.

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Sustainable Range/Installation Environmental Activities Matrix (Phase 1)

AS OF 2 SEP 05

Environmental Sustainability Requirement	Environmental Program		Range Program			Facilities			Materiel Management/ Logistics
	Conservation (MDEP: VENN)	Operational Range Environmental Compliance *(Includes Compliance Cleanup Activities)* (MDEPs: VENC and VEMR as appropriate)	Range Modernization (MDEP: VSRM)	Range Operations (MDEP: VSCN)	Integrated Training Area Management (ITAM) (MDEP: TATM)	Sustainment (MDEP: QRPA)	Restoration & Modernization (MDEPs: E315,ERYT, QLPR, QPSM, VTER, DA3O, and DA3S as appropriate)	Real Property Services (MDEP: QDPW)	Materiel Management/Logistics
Other Issues (cont'd)									
Resource Conservation and Recovery Act - Subtitle D (RCRA - D): Solid Waste Reduction, Diversion and Operations	None.	Cost of activities to achieve compliance with the Resource Conservation and Recovery Act (RCRA) - Subtitle D and other applicable Federal, state, local, and host nation or Final Governing standards for solid waste management. Includes compliance costs for permits, studies, assessments, audits and solid waste management plans. Excludes facility or infrastructure upgrades, replacements or maintenance to comply with new or more stringent legal environmental requirements or to bring a system back into compliance with environmental regulations.	None.	None.	None.	Sustainment of all real property supporting collection and disposal of solid waste. Includes facility or infrastructure upgrades, replacements or maintenance to comply with new or more stringent legal environmental requirements or to bring a system back into compliance with environmental regulations.	Restoration and Modernization of all real property supporting collection and disposal of solid waste while complying with existing environmental regulations	Collect and dispose of solid waste by all methods, including contracts. Provide for recycling collection and transportation; operation and maintenance of Army-owned recovery/recycling centers, drop-off points and associated equipment. Includes all costs associated with source separation of recyclable materials for the purposes of sale for recycling; and sale of salvage by Defense Reutilization and Marketing Offices (DRMO). Provide design, construction, management, operation, inspection and closure (to include preparation of closure plans) of Army-owned landfills and associated facilities for municipal solid waste, construction/demolition debris and other RCRA - D permitted waste. Ensure sanitary condition of facilities, equipment and containers. Does not include activities associated with RCRA - C hazardous waste.	None.

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APPENDIX K
GRASSLAND MANAGEMENT PLAN

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Grassland Bird Summary Report: Trends, Nesting habitat, Breeding, Conservation and Management

Cathy Mabry McMullen
Natural Resource Ecology and Management
Iowa State University
January 15, 2013

Grasshopper Sparrow fledgling, June 21, 2012

Trends: Species of Conservation Concern

North American Breeding Bird Survey (BBS) data and Partner's In Flight (PIF) designations are commonly used to categorize species of conservation concern.

BBS data has been collected since 1966 and is often summarized over the entire span of the surveys as well as a shorter increment of the most recent decade. (Table 1). BBS decline signifies a species that has experienced a significant decline over the course of the entire survey. Six species occurring at Camp Dodge are considered in significant decline (Table 1). Common Yellow throat previously had been categorized as significantly declining, but this designation was removed with the addition of the most recent data, and due to a change in how statistical significance was determined.

Partners In Flight uses a more comprehensive set of metrics to assess conservation status. It incorporates BBS trends, as well as other measures such as population size and threats to breeding. Species with the greatest conservation concern are assigned to categories based on priority for action. Six species breeding at Camp Dodge fall into the category of needing immediate management attention. Several species were previously listed as of conservation concern by PIF, but are no longer listed according to the latest data (Table 1).

Summary for Camp Dodge:

1. Priority species of highest conservation concern based on current status with BBS and/or PIF: Bell's Vireo, Bobolink, Dickcissel, Eastern Kingbird, Eastern Meadowlark, Field Sparrow, Grasshopper Sparrow, Henslow's Sparrow
2. Other species of interest, based on past conservation concern: Baltimore Oriole, Common Yellowthroat, Orchard Oriole, Sedge Wren.

Table 1. Grassland bird species at Camp Dodge of either current management concern, or of concern in the recent past according to Breeding Bird Survey trends or by Partners In Flight (PIF).

	BBS Trend 1966-2010	BBS Trend 2000-2010	Status BBS Conservation Partners in Flight (PIF)
Baltimore Oriole	0.3	-0.1	previous PR
Bells's vireo	-0.8	2.5	BBS decline; MA
Bobolink	-3.8	-0.7	BBS decline; MA
Common Yellowthroat	-0.8	-0.8	previous BBS decline
Dickcissel	-1.3	-0.5	BBS decline; MA
Eastern Kingbird	-1.7	-2.0	BBS decline; MA
Eastern Meadowlark	-2.3	-1.9	BBS decline; MA
Field Sparrow	-1.8	-1.3	MA
Grasshopper Sparrow	-3.2	-2.5	BBS decline; MA
Henslow's Sparrow	3.8	9.4	MA
Orchard Oriole	0.4	3.2	previous MA
SedgeWren	2.9	8.0	previous MA

PR = Planning and responsibility - focus on monitoring and planning

MA = Management attention - focus on on-the-ground management

The nesting habitat, breeding biology, and conservation and management recommendations of five of these birds are highlighted below. They each are considered grassland obligate species; however, their habitat requirements within grasslands differ somewhat. If habitat were maintained for these five, there is a high likelihood that habitat would also be provided for the full suite of grassland and open country birds listed above.

Nesting habitat

Bells's vireo – Nests in a wide range of shrubs and small trees; prefers dense and low early successional habitat, often near water. Nest height averages about 2.8 feet, suspended from forked branches of these dense shrubs and small trees.

Bobolink – An area sensitive species, only nesting in large contiguous grasslands; prefers old fields, pastures and prairies, with a marked preference for old hay fields (with plenty of litter and few legumes); nests are built on ground in a depression, often covered with overhanging grasses; however the nest itself is usually placed at the base of forbs.

Field Sparrow – Favors brushy successional habitat; average nest height is about 1 foot, early nest built at base of woody plants, later nests placed in small saplings or shrubs; territory size 0.75 – 2 acres. Young can fly short distances at day 13-14 and are independent at days 26-34. Multiple broods per year.

Grasshopper Sparrow – An area sensitive species. Has high site fidelity (returning to the same fields where fledged and previously nested). It prefers fields with shorter grasses, preferring drier sparser sites within the lusher tallgrass prairie (historically maintained by fire); nest is on ground below a tussock of grass, usually domed with a side entrance, well concealed and very difficult to locate. Territory size 0.8 to 4.3 acres.

Henslow's Sparrow – An area sensitive species. Prefers dense grass of medium height, with dense litter and taller forbs. Prefers unburned areas (standing dead vegetation a component of habitat) and scattered forbs for singing perches; nests are placed among layers of thick litter ~6-8 inches above ground, or on ground within a grass clump if litter is not thick; sometimes attached to vegetation from 6-20 inches (later in season as vegetation grows).

Breeding

Bells's vireo: Arrives in Iowa from early to Mid-May. Lays 3-5 eggs/clutch, incubation 13 days, fledgling 10-11 days, 2 broods/year and may re-nest. Has probably co-evolved with cowbirds, and often drives them away or abandons a nest containing a cowbird egg, but it is still a common host. Re-nesting common although rarely fledge young from multiple broods. Fledglings fed for 20 days after leaving nest, and after 30 days can forage for themselves.

Bobolink: Egg dates are from 25 May to 21 June; single population will include unmated, monogamous and polygynous males; eggs 3-7, incubation 12 days, fledgling 8 days; single brood most common but double broods are known. Cowbird predation may not be critical factor. Fledglings remain in thick vegetation for 13-16 days after leaving nest, until capable of flight.

Field Sparrow: Arrives in Iowa early to mid-April. Eggs 2-5, incubation 11-13 days; fledge at about 7-8 days but remain dependent on parents another 20-28 days; multiple broods are common. Cowbird parasitism is common and may lead to nest abandonment; nest losses to predation can also be high. May have strong site fidelity.

Grasshopper Sparrow: Arrives in Iowa in early May. Egg dates from 19 May to 20 July; eggs 4-5, incubation 11-13; fledge in about 9 days, protracted breeding season with 2-3 broods common. Cowbird parasitism appears significant and can lead to nest abandonment. Some cooperative breeding occurs, with unrelated individuals carrying food to nestlings. Fledglings immediately disperse from nest. Period of parental care is unknown.

Henslow's Sparrow: Arrives in Iowa in late April to early May, and may still be singing on territory in late August. Nesting biology not well known; nests in colonies of 6-15 pairs; earliest egg date late May, latest mid-August; eggs 4-5, incubation 10-11 days, fledge 9-10 days, maybe nests twice. One instance of cooperative breeding known, with unrelated male bringing food to nest. Infrequent cowbird host.

Conservation and Management

Bells's vireo: Population numbers have been declining nationally since beginning of BBS surveys in 1966, although they have stabilized since 1980. In Iowa, declined 0.8 percent/year since 1966, but populations increased 2.5% from 2000-2010. Cause of decline likely related to cowbird parasitism and loss of shrubby habitat, particularly along riparian areas. Where controlled burns are part of the prairie management regime, Bell's Vireo abundance decreased with fire frequency (Flint Hills region of Kansas), with the lowest numbers occurring at sites with annual burning and the highest at sites with 4-year burn cycles.

Recommendation for Bell's Vireo: fire rotation and protection of riparian and wet areas to retain dense shrubland habitat.

Bobolink: In Iowa, populations have declined 3.8 percent/year since 1966, and 0.7percent/year from 2000-2010. Cause of decline is loss of grassland habitat and early season haying.

Recommendation for Bobolink: Fields should be mowed annually to maintain breeding habitat, but mowing should be delayed until early July to minimize impacts on fledglings. Even later mowing would allow fledging of birds in re-nesting situations.

Natural prairies can be managed by prescribed burning, but this should be done after one nesting season or at least several weeks prior to arrival of adults in spring.

Field Sparrow: Has been undergoing significant population decline in Iowa and nationally. Cause of decline is predation and cowbird parasitism, along with loss of brushy and successional habitat.

Recommendation for Field Sparrow: Maintaining shrubby areas is key to maintaining local populations. If woody vegetation is removed from fields, the fields are not used. Burning is tolerated as long as woody vegetation remains following fire.

Grasshopper Sparrow: Populations have been declining both in Iowa and nationally due to loss of grasslands due to agricultural intensification, fragmentation and early-season mowing of hayfields and other agricultural lands is generally responsible for major nest failure. More recently, probably has benefitted from an increase in CRP land.

Recommendation for Grasshopper Sparrow: Either very early or deferred mowing would provide a window for birds to fledge. This species tends to respond quickly to effective habitat management and restoration, especially abandoned agricultural land.

Henslow's Sparrow: Nationally, this species has experienced the steepest population decline of any grassland bird, estimated to be -7.5% annually over the last 3 decades (1966–2000). In Iowa the species is very uncommon, with only 6 possible and one probably nesting populations recorded in the last Breeding Bird Atlas (1996). The population at Camp Dodge may be the first recorded in Polk County in recent times. This species has recently been identified as the highest priority for grassland bird conservation in eastern and Midwestern regions of North America. The long-term population decline appears to be attributable to the loss, draining, and degradation of grassland habitats throughout its range. More recently, conversion of hay fields and pastures to row crops and other intensively managed forage crops, such as alfalfa, have contributed to the continued population decline.

Recent (after 1990), local population increases appear to be associated with the creation of undisturbed grassland habitat by the Conservation Reserve Program (CRP). Although it does not appear that these local increases have been sufficient to offset overall population declines, it demonstrates the effectiveness of appropriate management.

Recommendation for Henslow's Sparrow: Since Henslow's Sparrow prefers tall, dense vegetation for breeding (see Habitat: breeding range, above), grazing, mowing, and burning all generally reduce local breeding densities by removing standing vegetation and standing dead vegetation. A 4-6 year rotation of these practices, however, is needed to prevent woody encroachment.

Important Bird Area (IBA) Program

The Important Bird Areas Program (IBA) is both a global and local effort to identify and conserve areas that are key bird habitat. Local Audubon chapters, landowners, public agencies, community groups, and other non-profits work together to form a broad network of supporters to ensure that areas designated as Important Bird Areas are properly managed.

The Important Bird Areas Program recognizes that habitat loss and fragmentation are among the most serious threats facing populations of birds across America and around the world. By working to identify and implement conservation strategies at Important Bird Areas, Audubon hopes to minimize the effects that habitat loss and degradation have on birds and also other biodiversity.

The Important Bird Area Program or IBA has been active in Iowa since 2003. In Iowa, the program is a partnership between the Iowa Ornithologists' Union, Iowa Audubon, the Department of Natural Resources, and other public and private entities. The goal in Iowa is to identify areas that are 1) important to breeding birds designated as of conservation concern, endangered or threatened.

Forty-three criteria species falling into one of these three groups have been chosen as indicators of important breeding areas; 2) important for migration staging; or 3) important wintering roosts. IBAs are designated for their significance based on these three categories. Potential sites are classified in order of importance from 1 to 5.

Category 1 sites are important to any of the threatened or endangered bird species. Category 2 sites support at least three species identified as high priority for conservation (conservation concern).
Criteria for category 1 sites: The endangered or threatened species must be present at the site for 2 or more years out of the previous 6 years (since 1999) with evidence of either confirmed or probable breeding. Confirmed breeding includes observed activities such as nest building, nest with eggs or young, fledged young. Probably breeding includes observing paired birds, permanent territories and courtship behavior.

At Camp Dodge, the presence of Henslow's sparrows on permanent breeding territories in 2008, 2009 and 2012 would qualify the base to be nominated as a Category 1 site.

Category 2 sites. Criteria for category 2 sites: A site has to support at least three species from the list of high conservation priority species in order to be nominated. The same three species must be present at the site for 2 or more years out of the previous 6 years (since 1999) with evidence of either confirmed or probable breeding, with the same criteria for breeding described above.

The presence of three bird species on permanent breeding ground – Bell's vireo (savanna/shrub habitat) and Bobolink and Grasshopper sparrow (grassland habitat) -- in 2008, 2009, and 2012 qualifies Camp Dodge to be nominated as a category 2 site. In addition, grasshopper sparrow fledglings were observed in 2012

Summary of number of field numbers with four Iowa Audubon/IBA conservation priority bird species at Camp Dodge.

Bird Species	2008	2009	2012
Bell's Vireo	0 of 8	2 of 14	5 of 14
Bobolink	8 of 8	11 of 14	14 of 14
Grasshopper Sparrow	8 of 8	13 of 14	14 of 14
Henslow's Sparrow	3 of 8	3 of 14	10 of 14

Location of Conservation Priority Species at Camp Dodge

Field locations of four Iowa Audubon/IBA conservation priority bird species at Camp Dodge.

Area	Bird Species	2008	2009	2012
B1	Bell's Vireo			
B1	Bobolink	x	x	x
B1	Grasshopper Sparrow	x	x	x
B1	Henslow's Sparrow		x	
B5	Bell's Vireo	na	x	x
B5	Bobolink	na	x	x
B5	Grasshopper Sparrow	na	x	x
B5	Henslow's Sparrow	na		x
B6	Bell's Vireo	na		
B6	Bobolink	na		x
B6	Grasshopper Sparrow	na	x	x
B6	Henslow's Sparrow	na		
C1/C6	Bell's Vireo			x
C1/C6	Bobolink	x	x	x
C1/C6	Grasshopper Sparrow	x	x	x
C1/C6	Henslow's Sparrow			x
C2	Bell's Vireo	na		
C2	Bobolink	na		x
C2	Grasshopper Sparrow	na	x	x
C2	Henslow's Sparrow	na		x
C3	Bell's Vireo	na		x
C3	Bobolink	na	x	x
C3	Grasshopper Sparrow	na	x	x
C3	Henslow's Sparrow	na		x
C4/C5	Bell's Vireo	na		x
C4/C5	Bobolink	na		x
C4/C5	Grasshopper Sparrow	na	x	x
C4/C5	Henslow's Sparrow	na		

Area	Bird Species	2008	2009	2012
C7	Bell's Vireo			
C7	Bobolink	x	x	x
C7	Grasshopper Sparrow	x	x	x
C7	Henslow's Sparrow	x		x
D1	Bell's Vireo			
D1	Bobolink	x	x	x
D1	Grasshopper Sparrow	x	x	x
D1	Henslow's Sparrow			x
D2	Bell's Vireo			
D2	Bobolink	x	x	x
D2	Grasshopper Sparrow	x	x	x
D2	Henslow's Sparrow		x	x
D4	Bell's Vireo			
D4	Bobolink	x	x	x
D4	Grasshopper Sparrow	x	x	x
D4	Henslow's Sparrow	x	x	x
D5	Bell's Vireo			
D5	Bobolink	x	x	x
D5	Grasshopper Sparrow	x	x	x
D5	Henslow's Sparrow			x
D6	Bell's Vireo	na	x	
D6	Bobolink	na	x	x
D6	Grasshopper Sparrow	na		x
D6	Henslow's Sparrow	na		x
E2	Bell's Vireo			x
E2	Bobolink	x	x	x
E2	Grasshopper Sparrow	x	x	x
E2	Henslow's Sparrow	x		

Mowing Recommendations

The compartments below are the top priority for avoiding mid season mowing. They have Henslow's sparrows, a state listed endangered species and a Partners in Flight priority species. They also have Bobolinks, and some Grasshopper sparrows, two other Partners in Flight priority conservation species that have experienced steep decline, along with other good grassland birds (Meadowlarks, Dickcissels). Henslow's sparrows prefer to nest in fields that have relatively dense grass with a dense litter layer.

Mowing fields in late summer every other year would provide them a continuous supply of needed conditions. Looking at the fields last season, they are mostly grass.

Training Area/ Year	
B5 2013	D5 2014
C3 2013	D4 2014
C6 2013	D2 2014
C7 2013	D6 2014

The following compartments could be burned every year or every other year. They have many grasshopper sparrows using them right after they are burned because these birds prefer grasslands that have very little litter, and therefore ample bare ground between the grass clumps.

C2 B6

The remaining compartments surveyed were:

D1	C4
D3	C5
B1	E2

These also have many of the same grassland birds using them, with the exception of Henslow's sparrow. I would recommend that these fields be mowed before the nesting season, ideally before May 15, but definitely before June 1. If possible, half could be mowed in 2013, and the other half mowed in 2014, so that they are mowed every other year.

This scheme would result in about half the compartments with a late season mow and the other half with an early season mow, and the two with restored prairie managed with fire. However, if this isn't possible, the compartments at the top of the email that have Henlsow's sparrows are the priority for provided habitat for the endangered Henslow's sparrow.

Bibliography

Spess Jackson, Laura, Thompson, Carol and James J. Dinsmore. 1996. The Iowa Breeding Bird Atlas. University of Iowa Press, Iowa City, IA.
Poole, A. (Editor). 2005. The Birds of North America Online: http://bna.birds.cornell.edu/BNA/. Cornell Laboratory of Ornithology, Ithaca, NY.

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Mowing/Haying Contracts
2013/2014

Based on
Grassland Bird Survey Recommendations

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Jarnagin
Crop Year 2013 -Tract Management Plan

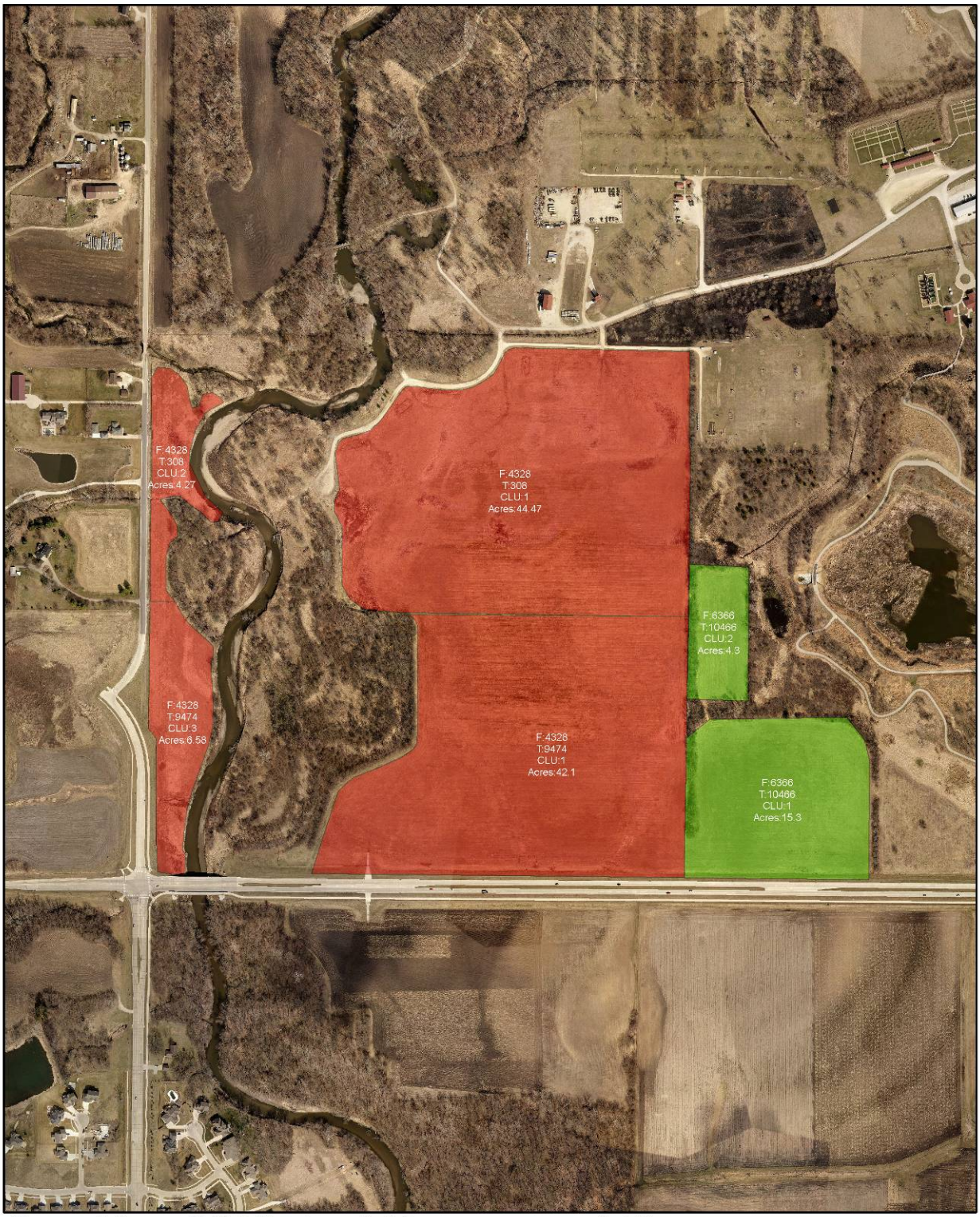
Corps' Property Number Previous Owner's Name	Farm and Tract Number	Acres	Other Needs	Comments
116 Betz	6366-T10466 (Fields 1 and 2)	19.6		
118 Harding	4328-T308	10.9		Two tracts on NE side of the intersection of NW 86th Street and NW 70th Avenue on the west side of Beaver Creek.
118/119 Harding	4328-T308 and T9474	86.8		**Do not cut prior to 15 July.** Cut whole field if no vehicles are on north end.
120/121 McIntire	6366-T286	145.0		
123 Smith/Knapp (east)	6366-T305	37.2		
123 Smith/Knapp (west)	6366 T304 and T8713	73.7 and 42.5		
125 Hoopes	6366-T115	129.2		**Do not cut prior to 15 July.**
127 Hoesing	6366-T8530	37.1		**Do not cut prior to 15 July.**
129 Herrold	6366-T10464	5.0		5 acre field east of old sod farm.
132 Shattuck	6366-T8514	103.6		
Various	Food Plot A		Food Plot	Plant with grain sorghum per the Land Management Agreement specifications. Total of 2.2 acres. **See map for location.**
Various	Food Plot B		Food Plot	Plant with grain sorghum per the Land Management Agreement specifications. Total of 2.0 acres. **See map for location.**
Various			Roadside mowing	Cut two times per year; 15th of June and September. **See map for locations.**
Total acres for Crop Year 2013		690.6		

Christenson
Crop Year 2013 - Tract Management Plan

Corps' Property Number/ Previous Owner's Name	Farm and Tract Number	Acres	Other Needs	Comments
129/146 Herrold				
Farm 1 (south)	6461-T10465	88.8		
Farm 2 (north)	6461-T284	21.0		Borrow pit to expand.
135 C. Smith	6366-T10595 (Fields 3, 4 and 5)	53.8		Includes 10.7 acre grass area south of Rowe Drive.
136 Christenson	6461-T10463	14.2		**Do not cut prior to 15 July.**
140 Green	6461-T278	76.1		
141 Melos	6461-T281	29.3		
142 Seibert	6461-T2597	21.4		**Do not cut prior to 15 July.**
145 Christenson	6461-T280	70.8		
147 Kern	6461-T9549	43.1		
Various	Food Plot C		Food Plot	Plant with grain sorghum per the Land Management Agreement specifications. Total of 2.0 acres. **See map for location.**
Various	Food Plot D		Food Plot	Plant with grain sorghum per the Land Management Agreement specifications. Total of 1.8 acres. **See map for location.**
Various	Food Plot E		Food Plot	Plant with purple top turnips per the Land Management Agreement specifications. Total of 2.0 acres. **See map for location.**
Various	Food Plot F		Food Plot	Plant with purple top turnips per the Land Management Agreement specifications. Total of 2.2 acres. **See map for location.**
Various			Roadside mowing	Cut two times per year; 15th of June and September. **See map for locations.**
Total acres for Crop Year 2013		418.5		

Namanny
Crop Year 2013 - Tract Management Plan

Corps' Property Number/ Previous Owner's Name	Farm and Tract Number	Acres	Other Needs	Comments
100 Miller	6461-T9545	52.7		Cut a minimum of 1 time per year. Watch for thistle growth and control.
143 Mosier/Ridgeway	6461-T2600	11.6		
144 Bernard	6461-T9578	15.6		Currently in prairie grass. Can cut once per year, if desired.
Total acres		79.9		



Crop Year 2013 Tract Management Plan

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Date 01/04/2013

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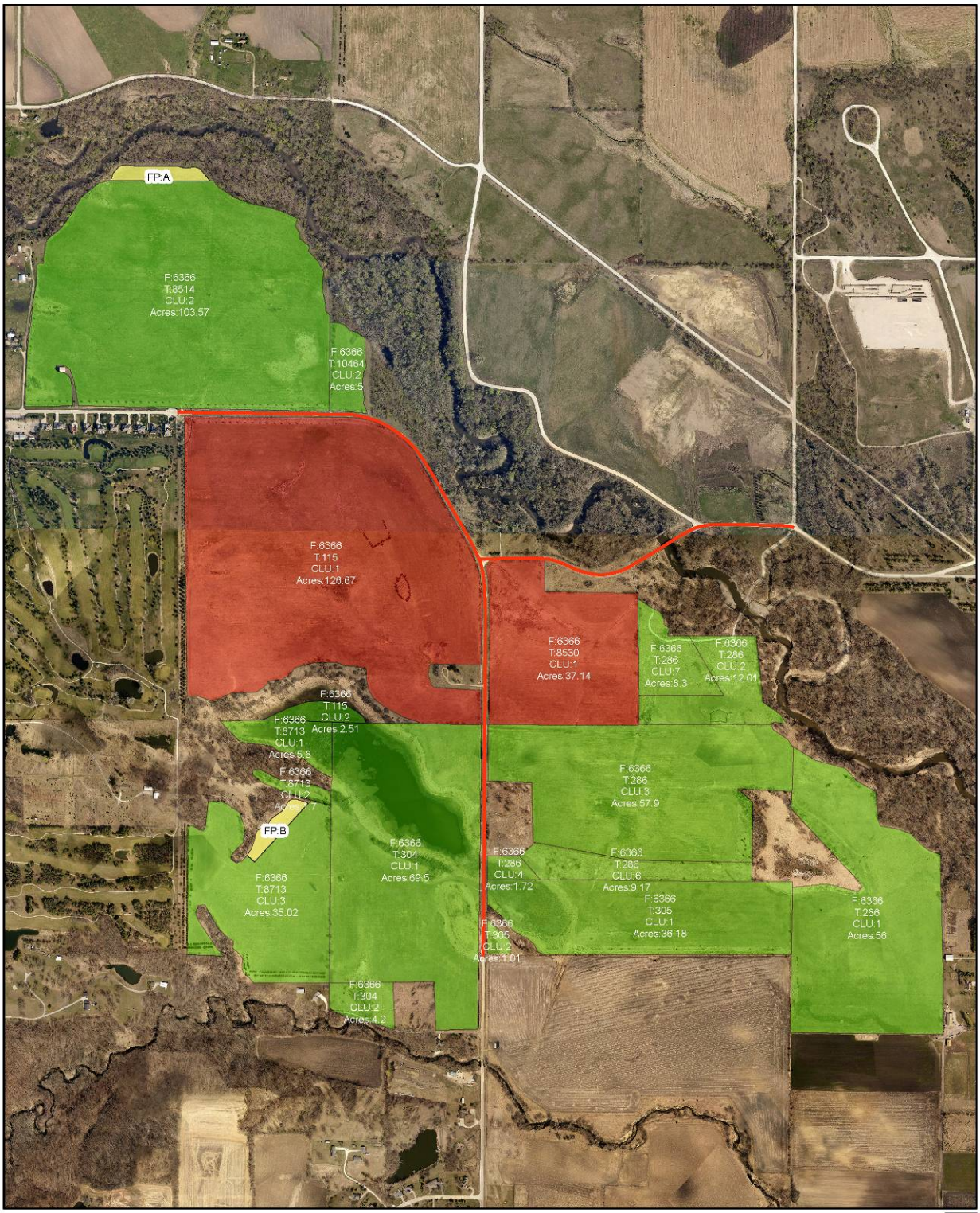
Mow Any Time

Mow After 15 July



Crop Year 2013 Tract Management Plan

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Date 01/04/2013

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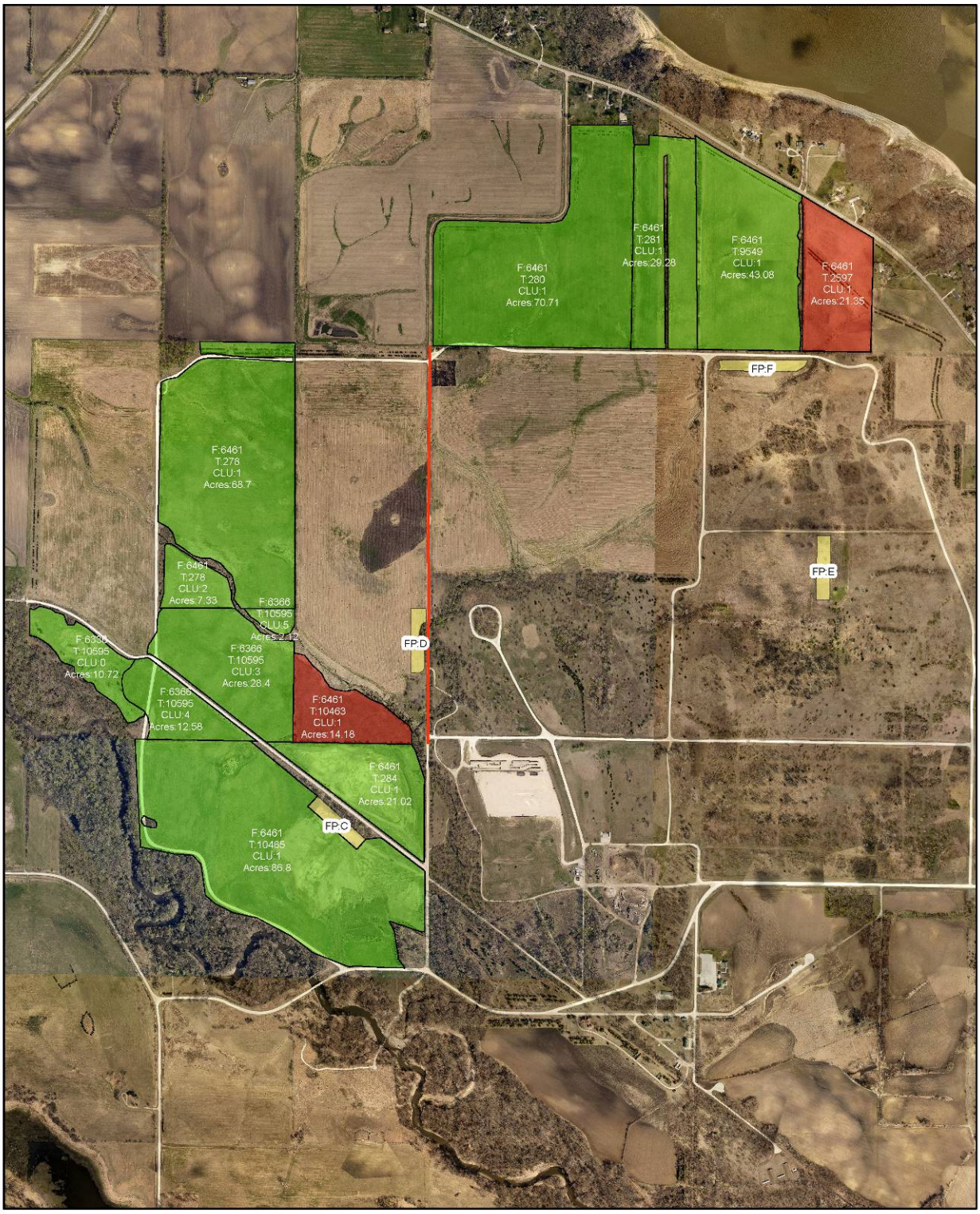
Mow Any Time
Mow After 15 July
Food Plots
Road Side Mowing



Crop Year 2013 Tract Management Plan

Christenson

Date 01/04/2013

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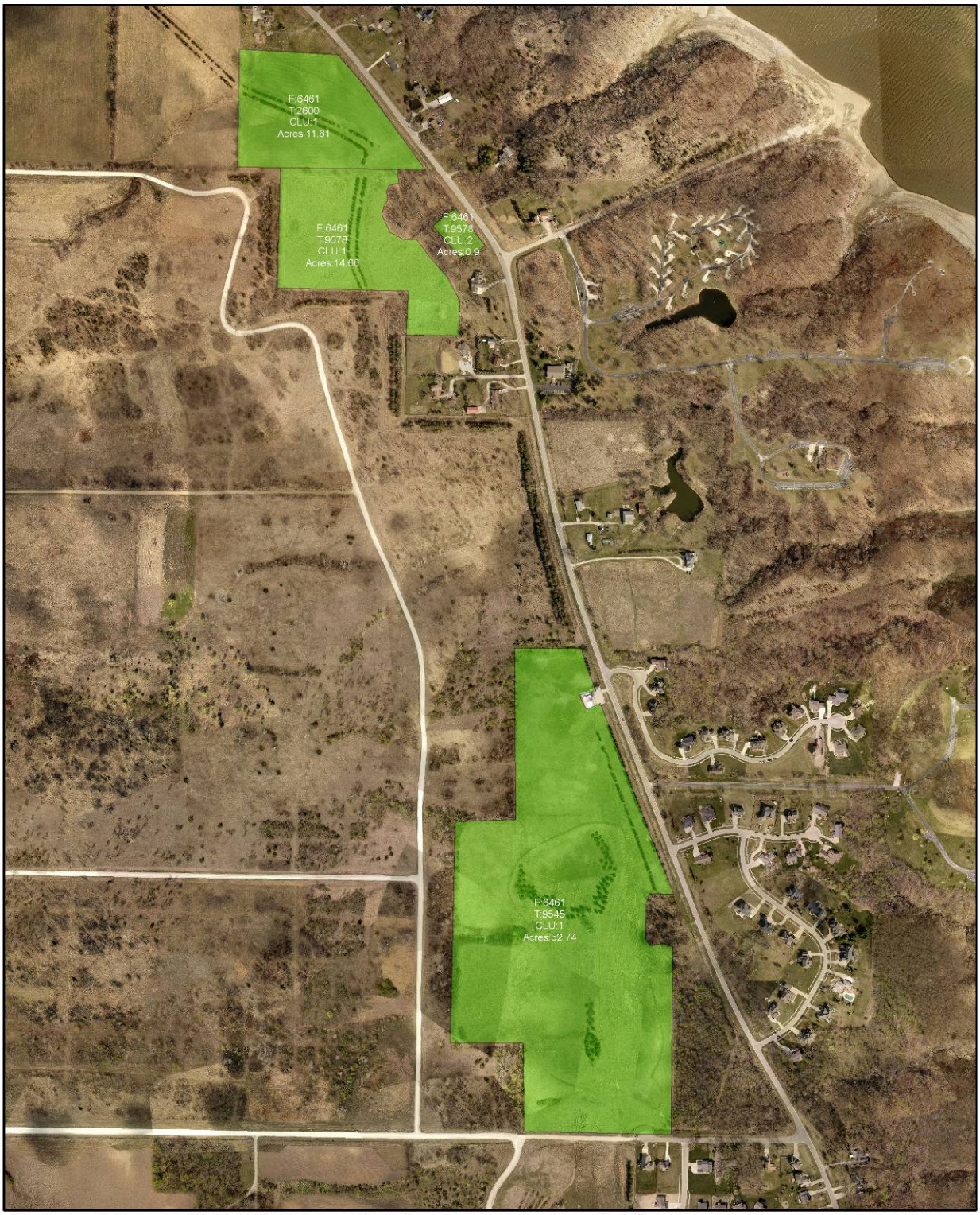
Food Plots
Mow Any Time
Mow After 15 July
Roadside Mowing



Crop Year 2013 Tract Management Plan

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Date 01/04/2013

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Crop Year 2014 - Tract Management Plan

CDJMTC Training Area	Corps' Property Number/Previous Owner's Name	Farm and Tract Number	Acres	Mowing Schedule	Chapter 7.0 O ther Needs	Comments
E2	116 Betz	6366-T10466 (Fields 1 and 2)		Do not mow during Crop Year 2014		
E2	118 Harding	4328-T308	10.9	Before 15 May and after 31 July		Two tracts on NE side of the intersection of NW 86th Street and NW 70th Avenue on the west side of Beaver Creek. **Mow as far south as possible to cut thistles.**
E2	118/119 Harding	4328-T308 and T9474	86.8	Before 15 May and after 31 July		Cut whole field if no vehicles are on north end.
D2	120/121 McIntire	6366-T286	145.0	After 31 July		
D2	123 Smith/Knapp (east)	6366-T305	37.2	After 31 July		
D1	123 Smith/Knapp (west)	6366 T304 and T8713	73.7 and 42.5	Before 15 May and after 31 July		
D5	125 Hoopes	6366-T115		Do not mow during Crop Year 2014		
D4	127 Hoesing	6366-T8530		Do not mow during Crop Year 2014		
D6	129 Herrold	6366-T10464		Do not mow during Crop Year 2014		5 acre field east of old sod farm.
D6	132 Shattuck	6366-T8514		Do not mow during Crop Year 2014		
	Various				Roadside mowing	Mow ditches two times per year; 15th of June and September. **See map for locations.**
	Various	Food Plots A and B			Plant food plots	Plant two separate areas with sorghum. Total of 4.2 acres. **See map for locations.**
	Total acres for Crop Year 2014		396.1			

Christenson
Crop Year 2014 - Tract Management Plan

Training Area	Corps' Property Number/Previous Owner's Name	Farm and Tract Number	Acres	Mowing Schedule	Other Needs	Comments
	129/146 Herrold					
C7	Farm 1 (south)	6461-T10465	86.8	After 31 July		
C1	Farm 2 (north)	6461-T284	21.0	After 31 July		Borrow pit to expand.
C6-C7	135 C. Smith	6366-T10595 (Fields 3, 4, 5)	53.8	After 31 July		Includes 10.7 acre grass area south of Rowe Drive.
C1	136 Christenson	6461-T10463	14.2	After 31 July		
C3	140 Green	6461-T278	76.1	After 31 July		
B5	141 Melos	6461-T281		No mow Crop Year 2014		
B5	142 Seibert	6461-T2597		No mow Crop Year 2014		
B5	145 Christenson	6461-T280		No mow Crop Year 2014		
B5	147 Kern	6461-T9549		No mow Crop Year 2014		
	Various				Roadside mowing	Mow ditches two times per year; 15th of June and September.
	Various	Food Plots C,D,E and F			Plant food plots	Plant four separate areas with sorghum. Total of 8.0 acres.
	Total acres for Crop Year 2014		251.9			

Namanny
Crop Year 2014 - Tract Management Plan

CDJMTC Training Area	Corps' Property Number/Previous Owner's Name	Farm and Tract Number	Acres	Mowing Schedule	Other Needs	Comments
B1	100 Miller	6461-T9545	52.7	Before 15 May and after 31 July		
B2	143 Mosier/Ridgeway	6461-T2600	11.6	Before 15 May and after 31 July		
B2	144 Bernard	6461-T9578	15.6	Before 15 May and after 31 July		Currently in prairie grass.
	Total acres for Crop Year 2014		79.9			

Crop Year 2014 Tract Management Plan

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Date 01/04/2013

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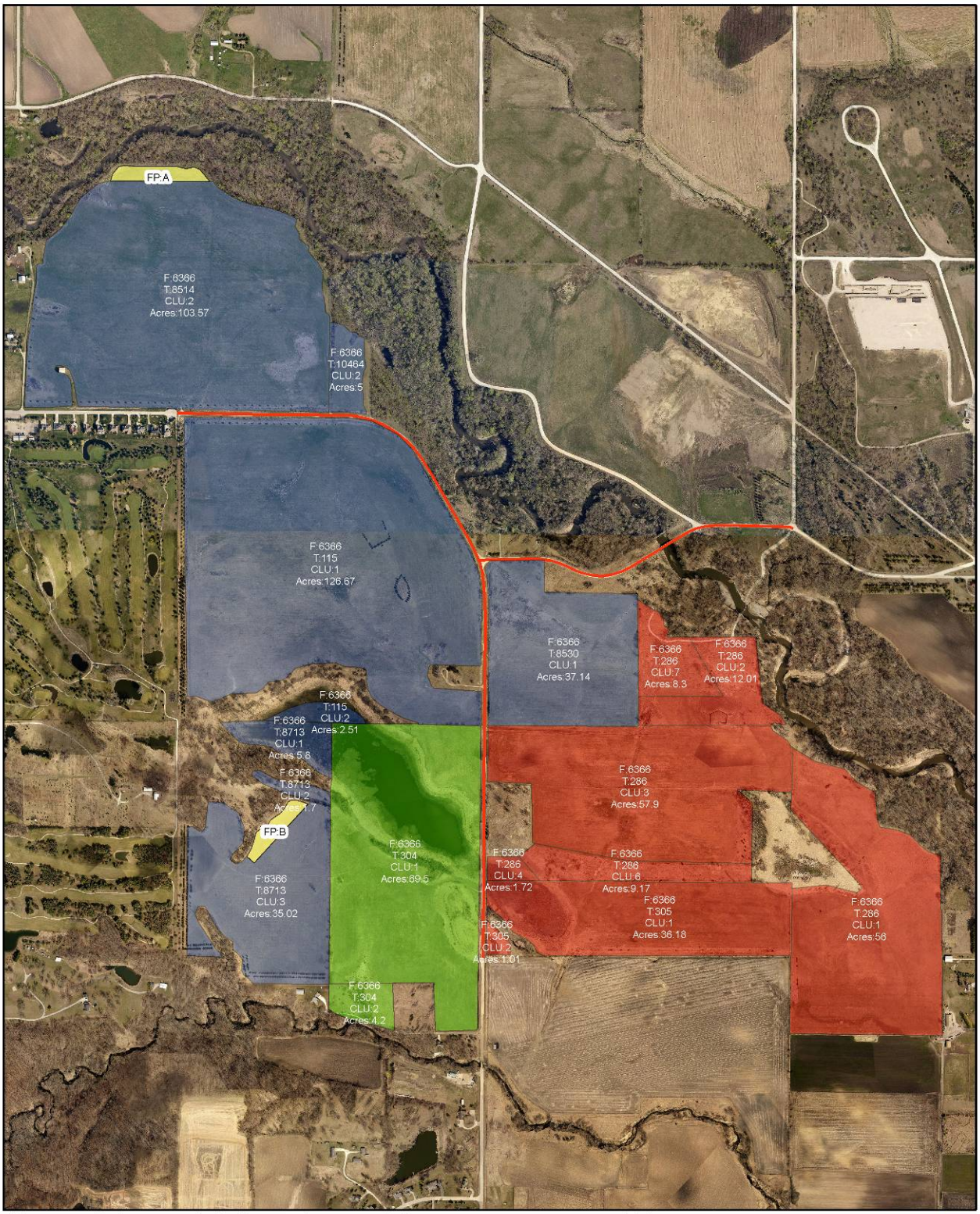
Mow Before15 May and After 31 July

Do Not Mow During Crop Year 2014

Mow After 31 July



Crop Year 2014 Tract Management Plan

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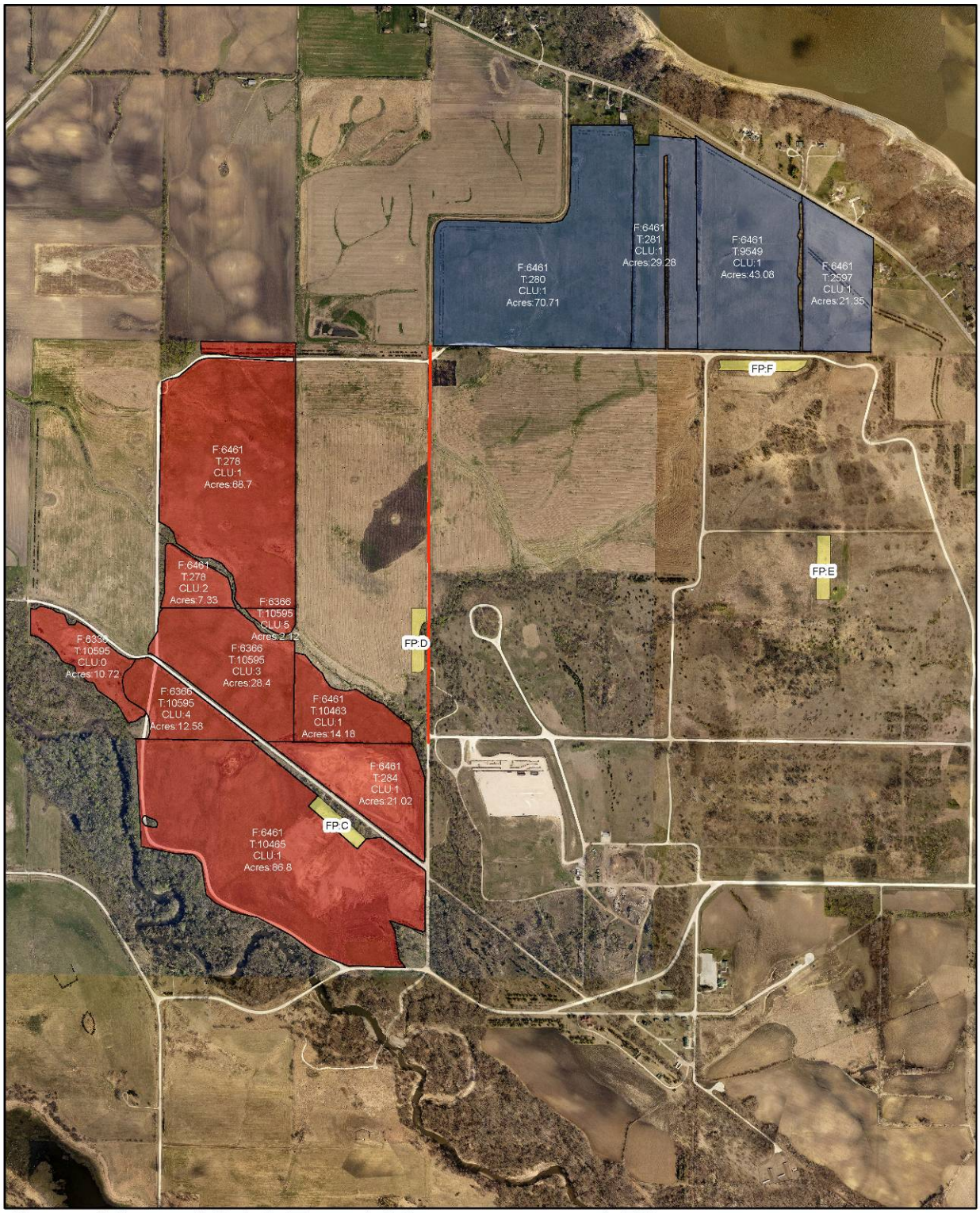
Do Not Mow During Crop Year 2014
Mow Before15 May and After 31 July
Mow After 31 July
Food Plots
Road Side Mowing



Crop Year 2014 Tract Management Plan

Christenson

Date 01/04/2013

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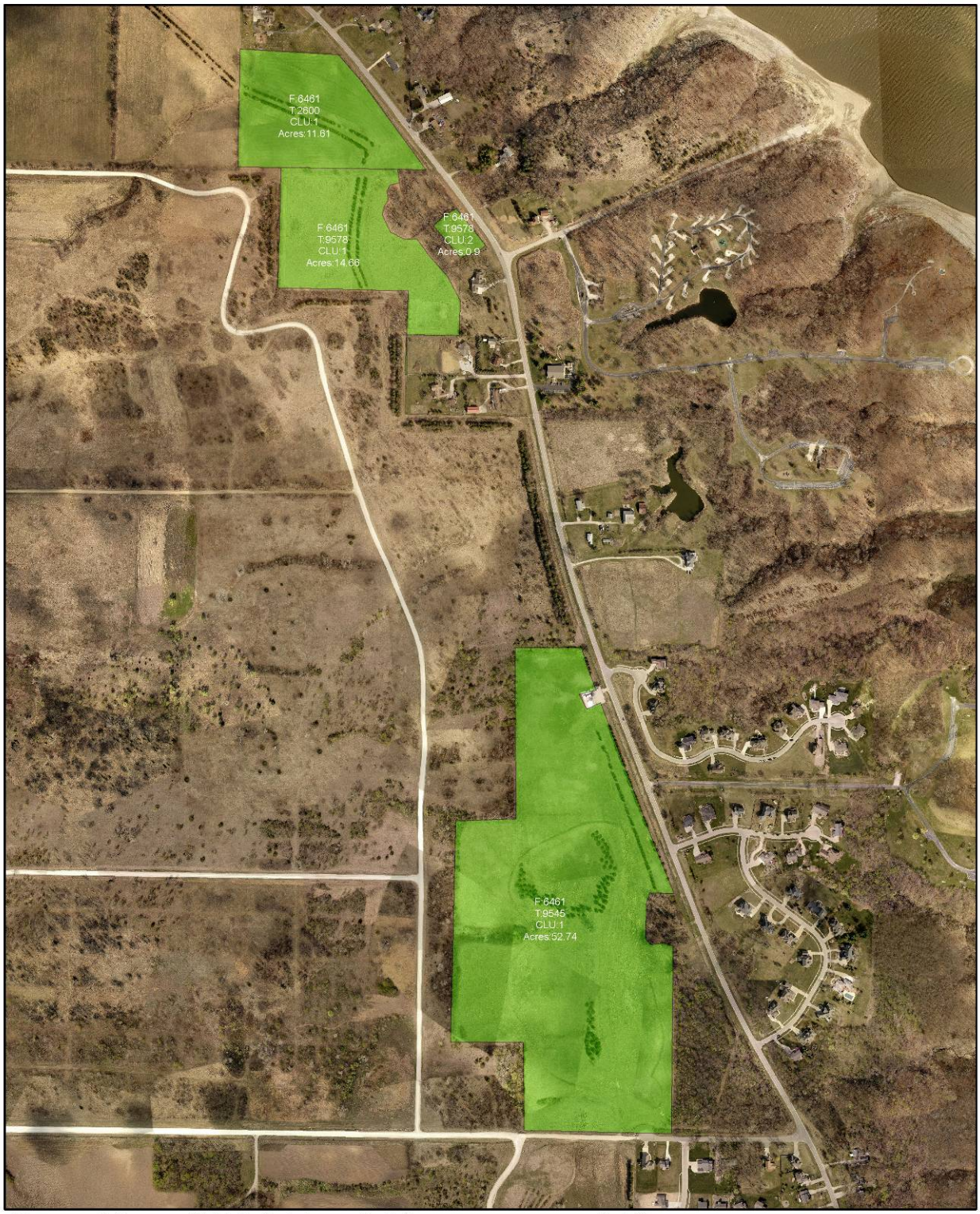
Food Plots
Do Not Mow
Mow After 31 July
Roadside Mowing



Crop Year 2014 Tract Management Plan

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Date 01/04/2013

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Mow Before15 May and After 31 July

APPENDIX L
INTEGRATED WILDFIRE MANAGEMENT PLAN

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Iowa Army National Guard Integrated Wildland Fire Management Plan

Plan Period 2013-2017

August 2013

FINAL

Iowa Army National Guard environmental programs

PREPARERS:

Mary L. Jones
Natural and Cultural Resources Manager
Iowa Army National Guard

Andy Roby
Installation Prescribed Burn Manager
Camp Dodge Joint Maneuver Training Center

REFERENCES:

- DoD Instruction 6055.6, 10 Oct 00, *DoD Fire and Emergency Service Program.*
- Army Regulation 200-3.
- 32 CFR 651, Environmental Analysis of Army Actions 29 Mar 2002
- Army Memorandum (04 September 2002), *Army Wildland Fire Policy Guidance.*
- Installation INRMP, ICRMP, fire and emergency services plan.
- Review and Update of the 1995 Federal Wildland Fire Management Policy, Jan 01.
- National Wildlife Coordinating Group (NWCG) Wildland Fire Qualifications Subsystem Guide, PMS 310-1/NFES 1414.
- *Iowa Department of Natural Resources Prescribed Fire Policy* (12 Mar 2010)
- National Interagency Incident Management System *Wildland and Prescribed Fire Qualification System Guide*, PMS 310-1/NFES 1414, January 2000.
- *Wildland Fire Operations*, Draft, National Guard Domestic Incident Handbook Series, as of 05 Sept 2012.

SIGNATURE PAGE

Approving Officials – Iowa Army National Guard

13 Aug 13
TIMOTHY E. ORR — Date
Major General, Iowa National Guard
The Adjutant General

12 AUGUST 2013
BENJAMIN J. CORELL — Date
Brigadier General, Iowa Army National Guard
Installation Officer in Charge

Reviewing Officials – Iowa Army National Guard

22 Jul 13
GARY A. FREESE — Date
Colonel, Iowa Army National Guard
Chief of Staff

25 JUL 13
GREGORY O. HAPGOOD — Date
Colonel, Iowa Army National Guard
Public Affairs Officer

18 July 2013
STEPHEN B. BOESEN — Date
Lieutenant Colonel, Iowa Army National Guard
Chief Operations Officer, Training Center Operations

18 July 2013
ALLYN D. GRONEWALD — Date
Lieutenant Colonel, Iowa Army National Guard
Acting Chief, Department of Public Works

18 July 2013
ANDREW P. ROBY — Date
Installation Prescribed Fire Manager
Iowa Army National Guard

18 Jul 2013
MARY L. JONES — Date
Natural Resources Manager
Iowa Army National Guard

EXECUTIVE SUMMARY

The purpose of an Integrated Wildland Fire Management Plan (IWFMP) is to provide a framework for the management of any prescribed or accidental fire in the Camp Dodge Joint Maneuver Training Center's training areas.

An IWFMP is required of every installation with unimproved grounds that may present a wildfire hazard, as well as those installations that use prescribed burns as a land management tool. The plan is to be reviewed annually and revised every five years.

This plan has been developed in coordination with the Iowa Army National Guard's Integrated Natural Resources Management Plan (INRMP), the existing fire and emergency services program, and the Integrated Cultural Resources Management Plan (ICRMP). It has been developed in keeping with criterion compatible with the Iowa Army National Guard's Environmental Management System (EMS).

As a referenced appendix of the INRMP, this plan is included in the National Environmental Policy Act (NEPA) review process of the master document.

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CHAPTER 1 -WILDLAND FIRE MANAGEMENT

1.1 Introduction.

The purpose of an Integrated Wildland Fire Management Plan (IWFMP) is to provide a framework for the management of any planned (prescribed) or accidental fire in the training areas at Camp Dodge Joint Maneuver Training Center's (shortened to "Camp Dodge" for the remainder of the document).

An IWFMP is required of every National Guard installation with unimproved grounds that may present a wildfire hazard, as well as those installations that use prescribed burns as a land management tool. The plan is to be reviewed annually and revised every five years.

The contents of an installation's IWFMP varies with the size of the installation. As a smaller installation, Camp Dodge does not face the same level of fire risk, nor does it have the same financial resources, as a large military training installation. The IWFMP format required by the Army National Guard has been used for this document, but it has been modified to reflect the current operations at Camp Dodge. Large installations have fire departments able to respond to emergency fires; Camp Dodge does not. Camp Dodge relies upon interagency agreements to control emergency fires in both the training area and building fires on post. However, Camp Dodge does have trained staff capable of conducting prescribed fires for maintaining ecological balance and for training land management. Trained staff are also available to provide initial response to identify and contain unplanned fires until the determination is made to activate emergency fire attack response teams.

The concepts and definitions used in fire control and management are currently under evaluation and change. The use of key definitions in this IWFMP will therefore vary from previous plan guidance. These new definitions reflect revised guidance being developed at the national level and will use terms defined by the planned update of the 2009 *Guidance for the Implementation of the Federal Wildland Fire Management Plan* (GIFWFMP), under the auspices of the United States Forest Service and the Department of the Interior.

Previously, the definition of "wildland fire" was "an uncontrolled fire that occurs in the countryside or a wilderness area." Other names such as brush fire, bushfire, forest fire, grass fire, or wildfire may have also been used to describe the same phenomenon depending on the type of vegetation being burned. Historically, many vegetation communities evolved from the wildland fire phenomenon and still require a fire regime to maintain their proper ecological balance. However, these uncontrolled fires can have devastating consequences to life, property and other natural communities not adapted to fire.

The terms "prescribed fire" and "controlled burns" have both been used to describe the process of "harnessing" the beneficial aspects of "wildland fire", yet maintaining control over the timing and the area to be burned. Planned fires can be used to improve an area for use, to preserve a fire-dependent ecosystem; or be used to prevent a build-up of flammable materials that, if ignited by accidental means, then become a true "wildland fire."

To avoid confusion between the terms "wildland fire" and "wildfire" the GIFWFMP has proposed new definitions. This IWFMP will use these GIFWFMP definitions:

> **Wildland** - An area in which development is essentially non-existent, except for roads, railroads, powerlines, and similar transportation facilities. Structures, if any, are widely scattered.
>
> **Wildland Fire -** A general term describing ANY non-structure fire that occurs in an undeveloped area, otherwise known as the "wildland."

Wildland fires then are the categorized into two distinct types:
Wildfires - Unplanned ignitions or prescribed fires that are declared wildfires.
Prescribed fires - Planned ignitions.

Funding sources for these fire events can vary. The following chart outlines the capabilities and limitations of each funding source.

FIRE TYPE DEFINITIONS AND FUNDING SOURCES

Type	Funding Sources
Prescribed Fire – Training Area The planned use of fire for land management such as pest and vegetation control, training area enhancement, ecosystem management, reduction of flammable vegetation build-up, Soldier safety and site accessibility.	Environmental funds – costs related to ecosystem management Camp Dodge Integrated Training Area Management (ITAM) funds – costs related to training area enhancement CFMO funds – costs related to burns for site maintenance, costs related to construction of burn control structures
Structure Fire - Cantonment Normally unplanned, emergency, not located in the training area.	CFMO funds - emergency fire response
Wildfire – Training Area A non-planned, non-controlled vegetation fire requiring emergency response. Sources of ignition include training events, weapons fire, lightning, off-post fires that threaten post.	CFMO funds - emergency fire response

1.2 Compliance

This IWFMP is in compliance with:

- DoD Instruction 6055.6, 10 Oct 00, *DoD Fire and Emergency Service Program*
- Army Regulation 200-1
- 32 CFR 651, Environmental Analysis of Army Actions 29 Mar 2002
- Army Memorandum (04 September 2002), *Army Wildland Fire Policy Guidance*
- Installation INRMP, ICRMP, fire and emergency services plan
- Installation policies and training regulations

1.3 Installation Location

The Iowa National Guard's Camp Dodge Joint Maneuver Training Center is located just north of Iowa's capitol, Des Moines. The post serves as a training area for Army National Guard, Air National Guard, Army Reserve, Marine Corps Reserve, Reserve Officers Training Corps, as well as state law enforcement agencies. Local communities are also encouraged to make use of Camp Dodge facilities. Camp Dodge is used by state agencies, youth organizations, veteran's groups, and environmental groups. Camp Dodge training areas are also used for hunting and fishing.

The main post is the site of various equipment maintenance and rehabilitation facilities, such as the only National Maintenance Training Center (NMTC) in the nation. As a result, Camp Dodge provides training not only for Iowa National Guard members, but also for military personnel from the entire United States.

Camp Dodge is also the site of the State Emergency Operations Center, the Regional Training Institute, the Midwest Counterdrug Training Center, the Military Interactive Multimedia Instruction Center, the Battle Command Training Center and the Iowa Law Enforcement Academy.

The Camp Dodge Joint Maneuver Training Center consists of approximately 29,463 acres of land north of Des Moines, Iowa near the Des Moines River. The land is spread over three Iowa counties - Polk, Dallas, and Boone. Approximately 4,400 acres are under the direct control of the Iowa National Guard.

Camp Dodge is bisected by a two-mile section of Beaver Creek and is bordered on the east by the Des Moines River valley. Due to its glacial formation, the post is also pocketed with wetlands formed as the ice sheets retreated.

The overall philosophy of land management at Camp Dodge is the concept that the primary mission of military use drives natural resources management.

1.4 Organizational structure and responsibilities

1.4.1. Installation Component Officer in Charge:

- Defines the roles and responsibilities for wildland fire management on the installation.
- Plans and programs resources.
- Designates an installation Wildland Fire Program Manager.
- Approves the installation IWFMP.
- Assures the maintenance of training records.
- Assures that prescribed fire events meet training area management needs.

1.4.2. Wildland Fire Program Manager:

- Assists in the development of the IWFMP.
- Appoints the Installation Prescribed Fire Manager.
- Coordinates wildfire response.

1.4.3 Installation Prescribed Fire Manager

- Reviews and approves burn plans for prescribed fires.
- Coordinates training and compliance.
- Develops budget requirements to insure prescribed fire supplies and equipment are available.

1.4.4 Natural Resources Manager:

- Assists in the development of the IWFMP.
- Reviews the IWFMP for compliance and compatibility with the Integrated Natural Resources Management Plan and the Integrated Cultural Resources Management Plan.

1.5 Interagency cooperation and Mutual Aid Agreements

Camp Dodge staff have certifications that allow prescribed burning activities only. All wildfire and structure fires require coordination with outside agencies. Copies of Mutual Aid and other interagency agreements may be found in Appendix A.

1.6 Goals and objectives of the IWFMP

1.6.1 Goal 1. Maintain effective Soldier training and safety.

The primary purpose of the Camp Dodge training area is to provide a realistic training environment for Soldiers. A wildfire response plan can assist in assuring the safety of troops and

other site users. A prescribed fire program can assist in this through the management of the quality of both the open grassland and the undergrowth in wooded areas. A wildfire prevention plan can assist in maintaining operational ability and Soldier safety.

1.6.1.1 Objective 1-1.
Develop training area evaluation protocol to determine annual prescribed burn plan.

1.6.1.2 Objective 1-2.
Develop a notification system to coordinate prescribed burns with training area activities to avoid conflict with site use.

1.6.1.3 Objective 1-3.
Refine prescribed burns to enhance training area and to anticipate future troop training needs.

1.6.1.4 Objective 1-4.
Develop an emergency response plan for training area wildfires.

1.6.2 Goal 2. Control invasive plant and nuisance plant species.

Prescribed fire can be an effective tool for controlling invasive and nuisance plant species, thereby reducing the use of chemical controls.

1.6.2.1 Objective 2-1.
Develop an evaluation protocol to determine type and extent of the areas of nuisance and invasive plant species.

1.6.2.2 Objective 2-2.
Determine the effect of fire on the species targeted for control, as well as the possible negative effect to other species in the area.

1.6.2.3 Objective 2-3.
Develop a burn plan and long-range schedule to control targeted species. This should also include a monitoring program to gauge the success of the burn plan.

1.6.3 Goal 3. Enhance and protect natural habitat.

Proper wildfire response can protect natural habitat by preventing unintended damage to natural areas that are not adapted to fire. Prescribed fire can be used to enhance and protect natural habitat, which in turn provides native species an opportunity to establish and thrive. Native species are normally more hardy, making them cost effective to maintain and more likely to survive exposure to adverse conditions. This also helps to provide cost-effective Soldier training field conditions, as well as a decrease in the time a training area needs to be idled for repair.

1.6.3.1 Objective 3-1.
Develop an evaluation protocol to determine areas requiring enhancement.

1.6.3.2 Objective 3-2.
Determine the effect of fire on species present and coordinate actions to avoid damage to desired species.

1.6.3.3 Objective 3-3.
Develop a burn plan and long-range schedule to enhance targeted areas. This should also include a monitoring program to gauge the success of the burn plan.

1.6.3.4 Objective 3-4.
Develop an emergency response plan for training area wildfires.

1.6.4. Goal 4. Reduce the risk of wildfires.

Prescribed fire can reduce the risk of wildfires by reducing fuel load in areas vulnerable to fire. This can reduce the safety risks of uncontrolled fire, as well as prevent training area damage.

1.6.4.1 Objective 4-1.
Annually evaluate and note areas at risk of wildfire.

1.6.4.2 Objective 4-2.

Incorporate at-risk areas into annual prescribed burn plan.

1.6.5. Goal 5. Minimize safety hazards and inconvenience to area residents.

A fire management plan must take into consideration the needs of other residents in the area. Public education about prescribed fire can assist in decreasing misunderstanding about a well-managed burn program. In addition, proper burn techniques can minimize both potential safety hazards and nuisance factors that can be associated with wildland fire. Wildfire response plans should also emphasize the importance of the protection of off-post residents and property.

1.6.5.1 Objective 5-1

Minimize smoke that travels off-post through pre-planning.

1.6.5.2 Objective 5-2

Minimize potential escape of wildland fire (both wildfire and prescribed burns) from installation borders through proper fire control.

1.6.5.3 Objective 5-3

Develop a public relations and public notification component. In addition, develop a complaint procedure as well as an annual complaint review process.

1.6.6. Goal 6. Respond rapidly and effectively to wildfire situations.

A properly developed wildland fire management plan will assist in a rapid response to emergency situations involving wildfire in the training area.

1.6.6.1 Objective 6-1

Develop and execute a training plan to ensure staff has the necessary training skills to initiate wildfire response protocols.

1.6.6.2 Objective 6-2

Develop and maintain mutual aid agreements for wildfire response.

1.2.6.3 Objective 6-3

Develop a notification plan for rapid in-house and exterior agency notification.

1.2.6.4 Objective 6-4

Conduct public notification in as timely a manner as possible.

1.6.7 Goal 7. Provide fire response methods that prevent safety hazards and injuries.

1.6.7.1 Objective 7-1

Develop and execute a training plan to ensure staff has the necessary training skills to avoid potentially dangerous situations.

1.6.7.2 Objective 7-2

Provide contingency plans to further ensure the safety of wildfire response and the conduct of prescribed fire events.

1.6.7.3 Objective 7-3

Develop and plan for the purchase of adequate fire-fighting equipment and personal protective equipment for staff involved in wildland fire management.

1.6.8 Goal 8. Meet all applicable federal, state and local reporting requirements.

1.6.8.1 Objective 8-1

Document all needed reporting requirements applicable to wildland fire management. This includes, but is not limited to air quality standards, public notification, etc.

1.6.8.2 Objective 8-2

Develop a Standard Operating Procedure (SOP) outlining staff responsibilities in providing notifications to meet reporting requirements.

1.6.9 Goal 9. Conduct prescribed burns without harm to cultural resources.

1.6.9.1 Objective 9-1

Create a mapping layer identifying post cultural resources.

1.6.9.2 Objective 9-2

Evaluate areas with historic resources and determine the effect of both prescribed burns and wildfires on the resource.

1.6.9.3 Objective 9-3

Develop procedures to protect historic resources. Examples include, but are not limited to capping, fencing, etc.

1.7 Smoke management and air quality

Wildfires are events that are beyond the scope of air quality permits and smoke management plans. However, all prescribed burns require an air quality permit through Polk County's Air Pollution Control Division, Polk County Physical Planning Department. Sample requests and permits are included in Appendix B.

Currently Camp Dodge staff use a smoke management model developed by The Nature Conservancy (TNC). All prescribed burns take into consideration smoke sensitive receptors such as residential areas, local schools and area nursing homes.

Public notification is required for any residences located within 1,000 feet of the prescribed burn area.

Plans for burn events make use of spot weather forecasts from the National Weather Service, which gives crews information concerning smoke dispersal and mixing height (providing poor/fair/excellent condition ratings).

Prescribed burns are planned with the goal of keeping the smoke on post as long as possible, allowing for maximum dispersal. Burns which are planned for areas near the post's borders are normally postponed until wind conditions allow for the smoke to move back into post, rather than off-post.

1.8 Safety and emergency operations

- Firefighter and public safety are the highest priority in every wildland fire event.
- Many installations require safety and emergency operations protocols for unexploded ordnance. Camp Dodge does not use this type of ordnance in its training areas.
- Specialized procedures will be used if a fire affects ammunition or hazardous materials storage areas. However, these areas are all located within the cantonment and would be handled through procedures used for structural fires.
- The Iowa Guard will use National Fire Protection Association (NFPA) 1977 – *Standard on Protective Clothing and Equipment for Wildland Fire Fighting*, which establishes the requirements for protective clothing.

1.9 Risk assessment and decision analysis processes

- Certain indices and/or fire danger rating systems must be considered before conducting prescribed fire activities. Certain environmental factors are evaluated prior to the ignition of a prescribed fire.
- The factors considered in prescribed fire activities at Camp Dodge include temperature, relative humidity, wind speed/direction, and cloud cover. These elements all factor into the probability of ignition, spotting distance and rate of fire spread. While these factors

cannot be controlled in a wildfire situation, they can affect the decision to conduct a prescribed fire. Examples where a prescribed fire event would be cancelled include such situations as when temperatures are above 80 degrees, winds above 25 miles per hour, and relative humidity is below 25 percent.

- A sample pre-execution checklist is located in Appendix C.

1.10 IWFMP considerations

- The risk of wildfire at Camp Dodge varies as to the season, type and intensity of military training, as well as weather conditions.
- Most risk of wildfire occurs from mid-summer until late autumn when increased fuel load, lack of precipitation and increased military training all occur.
- Ignition sources include, but are not limited to tracers, flares, sparks from military vehicles and lightning strikes. Fires caused by lightning are considered exceedingly rare.
- Due to limited access to the post, the threat of arson fires is low.
- No camp fires are allowed on post, which also limits wildfire danger.
- Care must be taken to avoid the risk of any wildland fire crossing over Camp Dodge borders.
- There have been incidents of fires that started off post moving onto post.
- Prescribed fires are planned and executed several times during the year, normally during the early spring and late fall timeframes.
- There are no fire dependant ecosystems that require planned burns to support endangered species management and protection.
- Annual reports will be placed in Appendix E.

1.11 Wildland fuel factors

Many factors can affect the characteristics of training area fires, including fuel types and fuel loads. Areas with high fuel loadings should be burned on a regular cycle, depending on such factors as location of the burn, conditions of the area to be burned, conditions of areas surrounding the planned burn, and desired results. At Camp Dodge, a planned prescribed burn cycle minimizes the excessive build-up of fuel loads, which in turn minimizes the threat of wildfires. About 50-150 acres are burned annually as prescribed burns.

1.12 Natural and cultural resource considerations

Prescribed burns will be planned in consideration of sensitive natural resources and cultural resources. Sensitive cultural resources include World War I concrete piers and the Ammunition Building located in the Surface Danger Zone north. Wildfires would have a low probability of harming remaining WWI resources, but special care should be made to secure the WWI Ammunition Building should a wildfire threaten that area of post. (The WWI Ammunition Building is no longer used to store ammunition.)

1.13 Mission considerations

Prescribed fire is a tool to enhance the post's mission to provide military training. A prescribed fire program can assist in this through the management of the quality of both the open grassland and the undergrowth in wooded areas. Prescribed fire can also reduce the risk of wildfires by reducing fuel load in areas vulnerable to fire. This can reduce the safety risks of uncontrolled fire, as well as prevent training area damage, reducing the time a training area needs to be idled for repair.

Prescribed fire events will be planned at times and locations that do not interfere with training use.

1.14 Military training restrictions

- Training restrictions are placed on various types of ammunition and training devices depending upon the type of training area conditions.
- During dry conditions no firing of tracer ammunition is allowed.
- During excessively dry conditions all weapons firing is limited to the bermed ranges only.
- During dry conditions the use of pyrotechnic devices (smoke grenades, artillery simulators, booby traps, etc.) are also prohibited in the training areas.

1.15 Monitoring requirements

Evaluation of wildland fire should include the following:

- Determination that safety of all personnel is upheld to the highest degree.
- Prescribed burns were implemented in compliance with plan direction, project design, and NEPA compliance.
- Regulations, standard operating procedures, or guidelines were followed.
- Planned goals and objectives were met.
- Emerging issues are addressed.
- Research and baseline inventory needs are identified.
- Assumptions, relationships, and decisions are valid considering new information or changing conditions.
- An After Action Review (AAR) should summarize all issues and be stored with burn records. A copy of the AAR should also be included in Appendix E of this document.

1.16 Public Relations

All media requests and releases will be handled by the Iowa National Guard's Public Affairs Office. For prescribed fires, the requirement for notification to homeowners within 1,000 feet of prescribed fire control lines will be handled by a member of the prescribed fire team. This notification should be done at least 24 hours prior to any ignitions.

1.17 Fire reviews

The objective for a fire review is to evaluate all wildland fire events on post and to ensure that the health and safety of all involved whether firefighters, military personnel, or civilians affected by the incident is maintained. Prescribed burn events will be evaluated by the Installation Prescribed Burn Manager.

1.18 Funding requirements

In order to conduct both emergency fire response and prescribed burns, funding is required to train and equip fire management personnel and ensure safe, effective, and cost-efficient operations in support of the IWFMP. Financing for emergency fire response is separate from prescribed burns. See section 1.1 and Appendix I for further discussion of funding sources.

1.19 National Environmental Policy Act (NEPA)

Implementation of the IWFMP requires a NEPA assessment of the environmental effects.

Since the IWFMP is considered a component plan of the Integrated Natural Resources Management Plan (INRMP), the environmental effects of prescribed fire were outlined, reviewed by partner agencies and made available for public comment at the time of the completion of the original INRMP in 2002. No additional NEPA documentation is required unless there are substantive changes in the use of prescribed fire at Camp Dodge.

CHAPTER 2 - WILDFIRE MANAGEMENT

Wildfire management involves the response to emergency fires in wildland areas, in this case the Camp Dodge range and training areas. The Iowa Army National Guard does not have a trained and qualified wildfire attack unit. However, trained on-site personnel are available to provide initial response to contain unplanned range and training area fires and to identify when a wildfire requires activation of a wildfire attack unit. Camp Dodge relies on interagency agreements to provide wildfire attack response.

Once a wildfire attack unit is activated, Camp Dodge will follow the fire management and operations plan implemented by the lead agency.

An initial response Standard Operating Procedure (SOP) has been developed for initial wildfire response and can be found in Appendix I. The format provided by National Guard Bureau for the IWFMP notes that in such a case this chapter is optional. Therefore, this chapter will be omitted and procedures outlined by the lead fire response agency will be followed.

CHAPTER 3 - PRESCRIBED FIRE MANAGEMENT

3.1 Prescribed fires

Prescribed fires include those ignited by qualified personnel in accordance with an approved burn plan under prescribed conditions as addressed in an approved IWFMP. The Iowa Army National Guard structures their prescribed fire management plan using guidance provided by the Iowa Department of Natural Resources (DNR). The DNR prescribed fire management guidance is included in Appendix H.

Prescribed fire will be used on Camp Dodge to support vegetation management goals and to maintain open training areas. The use of prescribed fire supports ecosystem management and assists in the management of invasive species, which are goals outlined in the Iowa Army National Guard's Integrated Natural Resources Management Plan (INRMP).

Prescribed fire will be used by training site personnel as part of the annual training area maintenance plan.

3.2 Constraints

Considerations in conducting prescribed burns include:

- Possible interference with the military mission
- Funding
- Environmental regulations (smoke and particulate control)
- Adequately training staff

3.3 Site specific burn plans

Components for the planning of each site-specific burn event include:

- Burn objectives
- Acceptable weather and fuel moisture parameters
- Required personnel and equipment resources
- Burn area map
- Smoke management plan
- Safety considerations
- Pre-burn authorization/notification checklist
- Coordination procedures
- Alternative plan to cover plan of action if wind direction changes during prescribe burns
- Plan for analysis of burn success and identification of lessons learned

3.4 Burn plans

An example of a site specific burn plan is included in Appendix C.

3.5 Monitoring

- Pre-burn and post-burn measurements reflect whether the burn objectives were met.
- This information will be maintained for at least ten years.
- Photo points can assist in this evaluation. A photo point monitoring handbook (General Technical Report PNW-GTR-526) can be downloaded at http://www.fs.fed.us/pnw/pubs/gtr526.
- Currently, Camp Dodge burn photos are integrated into the post's Geographic Information System (GIS).

3.6 Project planning

- Annual prescribed burn plans are coordinated between the Natural Resources Manager, Environmental Branch, and Camp Dodge managers.
- Burn plans are developed by the Installation Prescribed Fire Manager.

3.7 Staffing, personnel training and certification standards and records for prescribed fire

- Personnel training and certification levels will be managed by the Installation Prescribed Fire Manager and will meet all applicable standards.
- Training records will be maintained by the Installation Prescribed Fire Manager.
- A list of available training courses is in Appendix F.
- Inexperienced fire fighters are paired with more experienced members.

3.8 Use of fire breaks

- Existing roads are used whenever possible.
- Mowed lines where necessary.

3.9 Fire hazards

- Although no known Unexploded Ordnance (UXO) occurs at Camp Dodge, personnel should take reasonable precautions when any metal object is encountered during a wild or prescribed fire. Under no circumstances should any metal object be touched, moved, or otherwise disturbed. All such objects should be flagged and immediately reported to the burn crew leader and Camp Dodge Range Control.
- Although not as hazardous as UXO, flares and smoke grenades are still dangerous, and caution should be taken if discovered. These items should also be marked and reported to the leader of the burn crew and Camp Dodge Range Control.
- Blank ammunition, generally not considered hazardous, should be noted when conducting fire operations on any military installation.
- Other hazardous items presenting a safety concern when conducting fire operations on Camp Dodge are razor wire, communications line, fighting emplacements (fox holes), bunkers, tent stakes and posts.

3.10 Contingencies for an escaped prescribed burn

- Any fire outside the proposed project boundaries will be immediately reported to the holding and ignition specialists. Ignition operations may be ceased until fire escape is contained. Spot fires within adjacent areas approved for ecosystem management by prescribed fire may be allowed to burn within prescribed boundaries.
- The Installation Prescribed Fire Manager has the authority to declare an escaped prescribed fire as a wildfire. A wildfire will be declared if personnel on the scene cannot control an escaped fire. All fires that leave Camp Dodge boundaries will be considered a wildfire.

3.11 Computer fire models

Currently mapping and modeling requests are reviewed through the Iowa Army National Guard's Installation and Geospatial Information Service.

3.12 Equipment and supplies – prescribed fire

- Supplies for prescribed fire will be inventoried annually by the Installation Prescribed Fire Manager. A listing of needed supplies and their funding source can be found in Appendix F. Supplies should include, but not be limited to:

- Personal Protective Equipment (PPE)
- Fire hand tools
- Chain saws
- Fire pumps - slip on and/or portable pumps
- Drip torches
- Fusees
- Weather belt kit

- An approved dust/smoke mask is recommended when in heavy smoke and dust environments. However, use of a dust/smoke mask is not a PPE requirement.
- Nomex face and neck protection (shrouds) are not required PPE, but if they are part of the fire response inventory, they should be deployed only in impending flash fuel or high radiant heat situations and not routinely worn throughout an operational period as there is the potential to increase heat stress.
- PPE must meet or exceed National Fire Protection Association 1977 Standard on Protective Clothing and Equipment for Firefighters (current edition). PPE includes flame resistant clothing, approved footwear, hard hat, leather gloves and safety glasses.
- PPE clothing will be cleaned or replaced whenever soiled, particularly with oils. It will also be replaced when the fabric's fire resistance capability is in question.
- All firefighters will utilize hearing protection when working with high noise-level equipment such as chainsaws, pumps, helicopters, air tankers, etc.
- Chainsaw users will wear additional safety equipment including gloves, eye and ear protection when operating chainsaws.

3.13 Physical fitness standards

- The fitness level that personnel shall meet is position dependent. Personnel assigned to wildfire are required to meet the following standards for physical fitness or those deemed acceptable by the training site commander:
  - **Arduous duties** involve fieldwork requiring physical performance over an extended period of time, calling for above-average endurance and superior conditioning. These duties may include a demand for extraordinarily strenuous activities in emergencies under adverse environmental conditions and over extended periods of time. Requirements include running, walking, climbing, jumping, twisting, bending, and lifting more than 50 pounds. The pace of work typically is set by the emergency situation; this would rarely occur during a prescribed fire situation.
  - **Moderate duties** involve field work requiring complete control of all physical faculties and may include considerable walking over irregular ground, standing for long periods of time lifting 25 to 50 pounds, climbing, bending, stooping, squatting, twisting, and reaching. Occasional demands may be required for moderately strenuous activities in emergencies over long periods of time. Individuals usually set their own work pace.
  - **Light duties** mainly involve office work with occasional field activity characterized by light physical exertion. Activities may include climbing stairs, standing, operating a vehicle, and long hours of work, as well as some bending, stooping, or light lifting. Individuals almost always can govern the extent and pace of their physical activity.
- Physical fitness levels for the Prescribed Fire Team will consist of
  - Must have a normal range of body motion.
  - Must be able to lift 75 pounds without assistance.
  - Must be able to wear typical personal protection equipment.
  - Must have the physical stamina to work in extreme weather and work conditions.

- The National Interagency Incident Management System Wildland Fire Qualification System Guide PMS 310-1 states that, “Agencies have the latitude to determine the method of evaluating the physical fitness level of their personnel. However, it should be a measurable evaluation process.” Most National Wildfire Coordinating Group (NWCG) agencies currently use the pack test. By NWCG standards the Pack Test is used to determine whether individuals are fit enough to perform wildland firefighting duties. The Pack Test is preferred, but is discretionary, and is where an individual carries a backpack a prescribed level distance within a prescribed time as follows:
    - **Arduous**: Individual must carry a 45-lb backpack 3 miles in 45 minutes or less.
    - **Moderate**: Individual must carry a 25-lb backpack 2 miles in 30 minutes or less.
    - **Light**: Individual must hike 1 mile in 15 minutes with no pack.

APPENDIX A - MUTUAL AID AND INTERAGENCY AGREEMENTS

HEADQUARTERS IOWA NATIONAL GUARD
Camp Dodge Joint Maneuver Training Center
7105 NW 70th Ave
Johnston, Iowa 50131-1824

MEMORANDUM OF AGREEMENT BETWEEN THE IOWA NATIONAL GUARD AND THE CITY OF JOHNSTON, IOWA

9December, 2011

1. The City of Johnston and The Iowa National Guard agree that:

a. Upon notification by Polk County Dispatch, or upon request to an authorized representative of the Johnston Fire Department by an authorized representative of CDJMTC Emergency Services firefighting equipment and/or emergency medical equipment (ambulance) along with trained personnel from the Johnston Fire Department/Ambulance will be dispatched and will respond to CDJMTC in order to provide fire department service and/or a transporting ambulance service for sick or injured on CDJMTC.

b. Johnston Fire Department personnel and any of their required equipment are authorized to be on CDJMTC for the purposes stated in paragraph "a" above. In addition, any fire department or ambulance service that are a part of any 28E (Mutual Aid) agreement with the Johnston Fire Department are also authorized access onto CDJMTC for the stated purposes in paragraph "a" above.

c. CDJMTC Emergency Services personnel shall assist as circumstances permit in order to respond to the scene and facilitate Johnston Fire Department resources and any mutual aid responders through CDJMTC entrance control points and direct them to the location on CDJMTC to assist CDJMTC Emergency Services in the appropriate response measures.

d. When possible, a CDJMTC Fire/Medical Response Unit will already be on the scene of any emergency on CDJMTC. Their initial efforts will be to facilitate the arrival of Johnston Fire and to mitigate any adjacent dwelling structural damage, or to stabilize any medical patient prior to the arrival of Johnston Fire/Ambulance. The Johnston Fire Department is authorized by CDJMTC to establish incident command upon their arrival and then manage incident response as required.

e. The Johnston Fire Department and CDJMTC Emergency Services shall coordinate as necessary to implement this agreement.

f. Each party shall be responsible for the acts or omissions of its own employees and shall, in accordance with state or federal tort claims statutes, indemnify, defend and hold harmless the other party, its officers, agents and employees from and against all suits, actions, debts, damages, costs, charges and expenses, including court costs and attorney fees arising from loss of or damage to property and/or the death of or injury to private persons, arising from services or responses rendered pursuant to this Agreement.

2. Effective Date: This Agreement takes effect on 09 December, 2011 and shall remain in force and effect from year to year unless terminated in writing by either party.

BENJAMIN J. CORELL
Colonel, Iowa National Guard
CDJMTC Garrison OIC

JIM SANDERS
City of Johnston
City Administrator

APPENDIX B - AIR QUALITY PERMIT APPLICATION EXAMPLES

JOINT FORCES HEADQUARTERS - IOWA
Office of the Adjutant General
Camp Dodge
7105 NW 70th Ave
Johnston, Iowa 50131-1824
March 5, 2012

Facilities and Construction Office
Environmental Branch

Mr. Jeremy Becker
Air Pollution Control Division
Polk County Physical Planning Department
5895 N.E. 14th St.
Des Moines, IA 50313-1296

Dear Mr. Becker:

We would like to request a burn permit for our spring burn season. We have several areas in the training area that have not been burned in five years or so and they are starting to be overtaken by woody vegetation, which limits troop training.

As usual, we are allowing a planning window for the burns, due to the dependence on optimum wind and weather conditions, and staff availability. Normally, the areas can be burned in several hours and can be completed in one to two burn events. If possible, we'd like to allow a planning window from March 12 until April 20.

Personnel have been trained in the proper procedures for controlled burning, and Camp Dodge fire-fighting equipment and vehicles will be on site during all burns. We would notify your office on the days that the burns are to actually occur. Please advise our office if conducting this burn is possible, and of any other requirements we may need to meet. Please contact either myself at (515) 252-4648 or Harlan Ratcliff (515) 252-4396 if you have further comments or questions.

Thank you for your assistance.

Sincerely,

Mary L Jones

Mary L. Jones
Environmental Specialist
Iowa Army National Guard

Burn Permit Application Form

Mail To:
Air Quality Division
5885 NE 14th Street
Des Moines, Iowa 50313
Phone # (515) 286-3351
Fax # (515) 875-5599

Applicant Information

Organization: _____

Responsible Party: _____
Last *First* *M.I.*

Address: _____
Street Address *State* *ZIP Code*

Daytime Phone: _____ **Fax #:** _____ **E-mail:** _____
*optional

Signature: _____

Burn Permit Information

Upon receipt of a written request, the Health Officer is authorized to issue a permit for an open fire for the following purposes. The permit may contain conditions and is subject to the provision set forth in PC Board of Health Rules & Regulations Chapter V.

Burn Permit Type: **(*Include Burn Permit Fee of $139 or $35 with your application, see permit fees schedule)**

- ☐ Bonfire
- ☐ Prairie Maintenance
- ☐ Tree & Tree Trimmings (Municipality, Local Government Only)
- ☐ Industrial Training Fires * ($35)
- ☐ Landscape Waste (Clearing & Grubbing Permit)* ($139)
- ☐ Flare Stack * ($139)
- ☐ Right of Way Clean Up (Crews Operating Under the Authority of any Political Subdivision)
- ☐ Flag Retirement Ceremony
- ☐ Other (Please Specify)_____
- ☐ Fire Dept. Training (Attach Asbestos Report)

Landscape Waste
(Clearing & Grubbing Permit - Fee Requirement $139 + $15 per Inhabited Structure within 1/4 Mile)(Training Fires -Industrial, $35)
The disposal by open burning of landscape waste originating on or growing on the same land site only where permitted in this section. However, the burning of landscape waste produced in clearing, grubbing and construction operations shall be limited to areas located at least one-forth mile from any building inhabited by other than the landowner or tenant conducting the open burning. Rubber tires shall not be used to ignite landscape waste.

Bonfire
For public gatherings under the legitimate sponsorship of civic fraternal, religious, education or similar organization.

Prairie Maintenance
Prairie re-establishment and maintenance at sites which are publicly owned or normally open to the general public.

Burn Site Information

Burn Site Location:

_____
Street

_____
City | State | Zip

Requested Burn Permit Start & End Dates

Start ____ / ____ / ____ **End** ____ / ____ / ____
Month / Day / Year Month / Day / Year

Start Time _____ **End Time** _____

Site maps indicating the location of the proposed burn site must be submitted with the application.

Authorization to permit an open fire will not be granted by the Health Officer when such conditions arise that would deem such fires to be a safety hazard. The health officer shall have the authority to suspend this permit at any time for violation of any permit conditions or in the case of weather condition resulting in stagnation or pollutant concentrations such that the public health is jeopardized.

COUNTY OF POLK
Public Works Department

Larry L. Land, Director
5885 NE 14 Street
Des Moines, Iowa 50313
Ph 515.286.3705
Fax 515.286.3437
Email:publicwrks@co.polk.ia.us
www.co.polk.ia.us

RECEIVED
MAR 08 2012
NGIA-DIM-E

March 6, 2012

Mary L. Jones
Iowa National Guard
7105 NW 70th Avenue
Johnston, IA 50131

Dear: Ms. Jones:

Per your request, please consider this a permit to perform prescribed burns for maintenance on prairie grasslands, brush and woodland sites located at 7105 NW 70th Avenue, Johnston. Burning must be performed on a will-call basis from March 12th to April 20th, 2012. You are responsible for notifying fire dispatch prior to the burn.

The following conditions must be followed:

1. No man-made materials such as lumber, roofing, fuel oil or tires may be used to start or fuel the fires. Drip torches may be used to start the fires.
2. Burning must be done on days during which the prevailing wind direction carries smoke from areas of heavy population concentrations.
3. Burning must occur between sunrise and sunset. All burning materials must be extinguished by sunset.
4. Residents within 1,000 feet must be notified of the burn on the day of the burn.

The health officer shall have the authority to suspend this permit at any time for violation of the above listed provisions or in the case of weather condition resulting in stagnation or pollutant concentrations such that the public health is jeopardized.

This Department assumes no liability, directly or indirectly, for any loss due to damage to persons or property caused by, resulting from, or arising out of this activity.

If you have any questions, please call this office at 286-3351.

Sincerely,

Jeremy Becker
Air Quality Manager
Polk County Public Works Department - Air Quality Division

Cc: Johnston Fire Department

Air Quality | Building Inspection | Development Services | Engineering
Planning | Secondary Roads | Utilities | Weed Commission | Weatherization

APPENDIX C - CHECKLISTS

Unit :

1. **GEOGRAPHIC INFORMATION**
   County/State: Polk/ Iowa
   Ownership: Iowa Army National Guard
   Lat/Long or UTM: 41.7292/93.7372
   Unit Acres:
   Fire line Perimeter:

2. **EMERGENCY ASSISTANCE**
   Fire: 911
   Camp Dodge Security: 240-3742
   Medical: 911
   Fire Manager (24-hour access numbers): Andy Roby 515-276-4542/515-494-6034
   Ignition Boss:

3. **PERMITS**
   Burn Permit/Notification Required
   Source(s): Polk Co Public Works Dept. (Air Quality Div.)

   Air Quality Permit/Notification Required
   Source(s): Polk Co Public Works Dept. (Air Quality Div.)

4. **UNIT DESCRIPTION**

Vegetation Types	Fuel Models	% of Unit Area	% Slope	Aspect
Short to tall grass	3			
Timber litter	8			

Burn Unit Description:

5. **PRESCRIBED BURN JUSTIFICATION**

6. **UNIT GOALS:**

7. **FUEL AND WEATHER PRESCRIPTION** (give acceptable ranges)

8.

Fuel Parameters:	MIN	PREFERRED	MAX
1-Hour Fuel Moisture (%)	8	12	20
10-Hour Fuel Moisture (%)	10	15	20
100-Hour Fuel Moisture (%)	NA	NA	NA
Live Fuel Moisture (%)	50	100	300
Weather Parameters:			
Air Temperature (ºF)	50	60-70	80
Relative Humidity (%)	25	30-35	60
Days Since Rain	NA	5	15
20 ft wind speed (mph)	0	5-8	20
Wind Direction(s)			
Midflame Windspeed (mph)			
Atmospheric Mixing Height (ft)			

9. **PRESCRIBED FIRE BEHAVIOR** :

10. **SMOKE MANAGEMENT**
Acceptable wind directions:

11. **MANAGING THE BURN**

a. Burn Duration:

b. Will this burn be implemented or continue into night-time?

c. Will the burn exceed 1 burning period?

d. Firebreak preparations:

e. Safety zones and Escape Routes:

f. Unusual hazards to crew:

g. Ignition Plan:

h. Holding Plan (include known critical holding concerns):

i. Type and location of water source:

j. Communications plan:

k. Fire behavior and weather monitoring:

l. Mop-up:

Location, description, and availability of nearest emergency resources:

Description	**Contact Point Person**	**Contact Method** (phone, radio frequency)	**Availability**	**Response Time** (from time of call to arrival on scene)
Johnston FD	Polk Co Dispatch	911	24/7	10-25
Grimes FD	Polk Co Dispatch	911	24/7	10-25
Polk City FD	Polk Co Dispatch	911	24/7	20-30
Granger FD	Polk Co Dispatch	911	24/7	30-40

Secondary control lines:

m. North:

n. South:

o. East :

p. West :

Back-up water sources:

12. SAFETY AND MEDICAL PLAN : See attached map for evacuation and entrance routes for emergency responders. First aid kits located with holding team.

PRE-BURN GO/NO GO CHECKLIST AND CREW BRIEFING

Site Name: **Burn Unit:** **Date:**

Has the area (inside and outside the unit) experienced unusual drought conditions or does it contain above-normal fuel loadings which were not considered in the prescription development? If YES, go to question below. If NO, continue with Section A.	**YES**	**NO**
If YES, have appropriate changes been made to plans for ignition, holding, mop-up and patrol? If YES, continue with Section A. If NO, **stop** and consult Fire Manager.		

A. PRIOR TO CREW BRIEFING

☐ Fire Unit is as described in plan and copy of plan is on site.
☐ Required firebreaks complete and are consistent with current and predicted conditions.
☐ Certified Burn Boss present, permits obtained. Give permit #'s:
☐ Required number of crew present with required protective clothing.
☐ Weather forecast obtained and within prescription. Long-range forecast checked for chance of severe weather.
☐ Public Affairs Office notification complete.
☐ Official and neighbor notifications complete.
☐ Required equipment for holding, weather monitoring, ignition and suppression is on-site and functioning.
☐ Crew has reviewed equipment.
☐ Planned ignition and containment methods are appropriate for current and predicted conditions.
☐ Planned contingencies and mop-up are appropriate for current and predicted conditions.
☐ List of emergency phone numbers are in each vehicle.
☐ Off-site contingency resources are operational and available.

B. CREW BRIEFING

☐ Each crew member has a map

Each item below has been discussed with crew:

☐ Burn unit size and boundaries.
☐ Burn unit hazards and safety issues, including LCES.
☐ Purpose of burn, anticipated fire and smoke behavior.
☐ Organization of crew and assignments.
☐ Methods of ignition, holding, mop-up, communications.
☐ Contact with the public; traffic concerns.
☐ Location of main roads, vehicles, keys, and nearest phone.
☐ Location of back-up equipment, supplies, and water.
☐ Contingencies for escaped prescribed fire.
☐ Contingencies for medical emergency
☐ WUI concerns.
☐ Answer questions from crew.

C. PRIOR TO IGNITION

☐ On-site weather and fuel conditions are within prescription and consistent with forecast.
☐ Test burn conducted; fire and smoke behavior within prescribed parameters.

Unlock gates:_____

NOTE AND JUSTIFY ANY MODIFICATIONS TO PLAN:

When burn is completed, fill out Post-Burn Checklist on next page, sign and date form.

Post Burn Checklist

☐Mop-up completed as described in burn plan.
☐Night patrol assigned, if needed.
☐Day shift assigned for days following burn, if needed.
☐Notifications of completed burn, if required.
Lock gates:_____

Burn Boss: **Date:**

APPENDIX D - ANNUAL FIRE HISTORY REPORTS

(Annual Fire History Reports to Be Filed Here)

APPENDIX E - LIST OF NEEDED EQUIPMENT AND SUPPLIES

F-1. Personal Protective Equipment (PPE)[1]

1. Hard hat w/ chin strap, (Nomex face shroud optional)
2. Eye protection goggles
3. Nomex or Indura cotton shirt (or one piece jumpsuit)
4. Nomex or Indura cotton pants (or one piece jumpsuit)
5. Leather gloves
6. Fire shelter (approved and inspected at least annually)
7. 8" Leather boots, no steel toe, Vibram sole (Army issued combat boots are acceptable)
8. Line gear
9. Fireline pack
10. Canteen (2 quarts minimum)
11. Ear plugs
12. First aid kit
13. MRE
14. Headlamp with batteries
15. Flagging
16. Fuses
17. File
18. Programmed radio

[1]*All PPE must meet or exceed National Fire Protection Association (NFPA) 1977 Standard on Protective Clothing and Equipment for Firefighters (current edition).*

F-2. Equipment

1. Fire hand tools
2. Fire pumps - slip on and/or portable pumps
3. Drip torches
4. Fusees
5. Fire shelter
6. Weather belt kit
7. Dust/Smoke mask[2]
8. Nomex face and neck protection[3]
9. Chain saws[4]
10. Chaps
11. Gloves
12. Hard hat
13. Eye Protection
14. Hearing protection

[2] *An approved dust/smoke mask is recommended when in heavy smoke and dust environments. However, use of a dust/smoke mask is not a PPE requirement.*

[3] *Nomex face and neck protection (shrouds) are not required PPE, but if they are part of the fire response inventory, they should be deployed only in impending flash fuel or high radiant heat situations and not routinely worn throughout an operational period as there is the potential to increase heat stress.*

[4] *Chainsaw users will wear additional safety equipment including approved chaps, gloves, hard hat, eye and ear protection when operating chainsaws.*

APPENDIX F - LIST OF AVAILABLE TRAINING COURSES AND TRAINING REQUIREMENTS

F-1. Incident Command System and Wildland Firefighter Training Courses.

Note: Not all of these courses are required for firefighting/prescribed burns at Camp Dodge.

- ICS Courses:
  - I-100 Introduction to ICS I-300 Intermediate ICS
  - I-200 Basic ICS I-400 Advanced ICS
  - I-401 ICS for Executives
- Skill Courses:
  - S-000 Agency Specific Training S-260 Fire Business Management
  - S-110 Wildland Fire Suppression Orientation S-270 Basic Air Operations
  - Principles for Non-Operations Personnel
  - (optional) *S-27l Helibase Manager
  - *S-l30 Firefighter Training
  - *S-290 Intermediate Fire Behavior
  - *S-l90 Introduction to Fire Behavior
  - S-300 Incident Commander
  - S-200 Initial Attack Incident Commander Extended Attack
  - S-201 Fire Supervision – 2nd Edition
  - S-301 Dynamic Unit Leadership
  - S-203 Introduction to Information Officer
  - S-320 Unit Leader
  - *S-205 Fire Operations in the Urban
  - S-330 Task Force/Strike Team LDR
- Interface
  - *S-336 Fire Suppression Tactics
  - S-211 Portable Pumps and Water Use
  - S-339 Division/Group Supervisor
  - S-212 Power Saws
  - *S-378 Air Attack Group Supervisor
  - S-216 Driving for Fire Service
  - S-390 Fire Behavior Calculations
  - *S-2l7 Interagency Helicopter Training
  - S-401 Effective Management
- Guide
  - S-402 Liaison Officer
  - S-230 Crew Boss (Single Resource)
  - S-403 Information Officer
  - S-231 Engine Boss (Single Resource)
  - S-404 Safety Officer
  - S-232 Dozer Boss (Single resource)
  - S-420 Command and General Staff
  - S-233 Tractor/Plow Boss (Single resource)
  - S-443 Infrared Interpreter
  - S-445 Training Specialist
  - S-234 Firing Methods and Procedures
  - *S-470 Air Operations Branch
  - S-235 Felling Boss (Single Resource)
- Director
  - S-244 Field Observer
  - *S-490 Advanced Fire Behavior
  - S-258 Communications Calculations
  - Equipment/Procedures
  - S-520 Advanced Incident
  - *S-590 Fire Behavior Analyst Management
  - S-620 Area Command

**Indicates a course that contains critical knowledge and skills required for safe operations on a wildfire.*

F-2. Recommended Training Courses by Job Type

Note: Not all of these courses are required for firefighting/prescribed burns at Camp Dodge.

- FIREFIGHTER 2 (FFT2)
  - S-130 Firefighter Training
  - I-339 Div/Group Supervision
  - S-190 Introduction to Fire Behavior
- FIREFIGHTER 1 (FFT1)
  - S-210/200 Fire Supervision
  - S-401 Effective Management
  - S-211 Portable Pump & Water Use
- CREW BOSS (CRWB) Single Resource
  - S-230 Crew Boss
  - S-520 Advanced Incident Mgt
  - S-234 Firing Methods & Procedures
- INCIDENT COMMANDER 4 (ICT4)
  - S-270 Basic Air Operations CRWB QUALIFIED
  - S-290 Intermediate Wildland Fire Behavior
- INCIDENT COMMANDER 3 (ICT3)
  - S-300 Incident Cmd Multiple
- TASK FORCE LEADER (TFLD)
  - S-336 Fire Suppression Tactics

  DIVS QUALIFIED
  - S-390 Intro to Wildland Fire Behavior
- AREA COMMANDER (ACDR)
  - S-205 Fire Operations in the Urban
  - All operations training Interface
  - All Command/Staff training
- HELICOPTER AIR OPS S-620 Area Command
  - S-270 Basic Air Operations

DIV/GROUP SUPERVISOR (DIVS)
- I-375 Air Support Group Supervisor
- I-200 Basic Incident Command Sys

OPERATION SEC CHIEF 2 (OSC2)
- I-420 Command & General Staff
- S-212 Wildfire Power saws
- I-400 Incident Command
- I-430 Operations Section Chief

OPERATION SEC CHIEF 1 (OSC1)
- S-260 Fire Business Mgt Principles

STRIKE TEAM LDR (STLD)
- S-200 Initial Attack Incident CMD Resources

INCIDENT COMMANDER 2 (ICT2)
- I-400 Incident Commander
- I-333 Strike Team Leader
- I-330 Task Force, Strike Team Leader

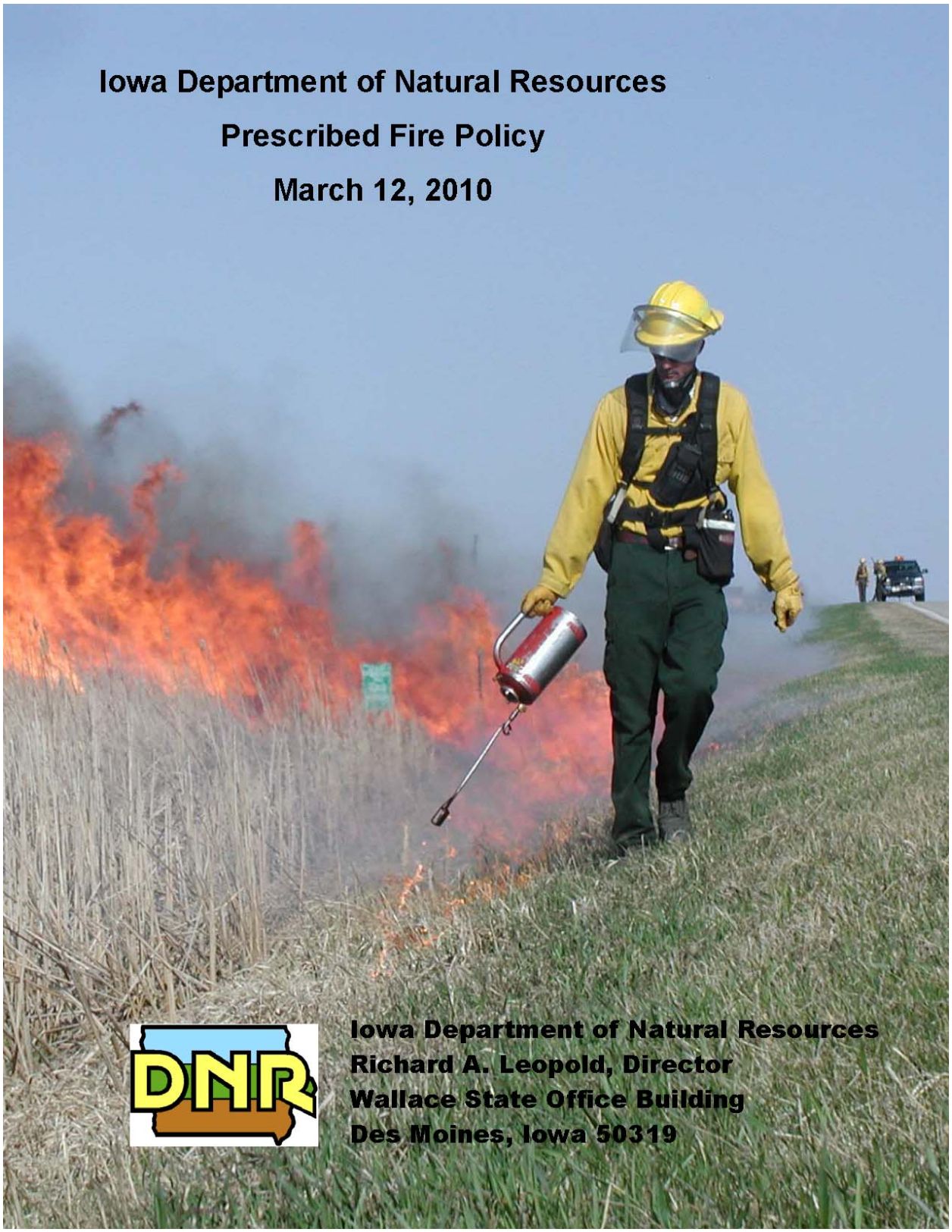
F-3. Prescribed Fire Qualifications.

Note: Currently this is the recommended training list for Camp Dodge employees who conduct prescribed fire.

- **Prescribed Fire Crewmember (FFT2)**
  - Prerequisite Qualification: None
  - Required Training: S-130 Basic Firefighter
  - S-190 Introduction to Fire Behavior
  - Physical Fitness Level: Arduous
- **Ignition Specialist (RXI2)**
  - Prerequisite Qualification: Any single resource boss
  - Required Training: None
  - Physical Fitness Level: Moderate to Arduous (Agency established)
- **Ignition Specialist (RXI1)**
  - Prerequisite Qualification: RXI2
  - Required Training: None
  - Physical Fitness Level: Moderate to Arduous (Agency established)
- **Burn Boss (RXB2)**
  - Prerequisite Qualification: RXI2 and ICT4
  - Required Training: S-390
  - Physical Fitness Level: Moderate (Agency established)

- **Burn Boss (RXB1)**
    - Prerequisite Qualification: RXB2 and ICT3
    - Required Training: S-490
    - Physical Fitness Level: Moderate (Agency established)
- **Prescribed Fire Manager (RXM2)**
    - Prerequisite Qualification: RXB2
    - Required Training: None
    - Physical Fitness Level: Moderate (Agency established)
- **Prescribed Fire Manager (RXM1)**
    - Prerequisite Qualification: RXB1
    - Required Training: None
    - Physical Fitness Level: Moderate (Agency established)
- **Fire Use Manager (FUMA)**
    - Prerequisite Qualification: RXB1 or ICT2
    - Required Training: S-580
    - Physical Fitness Level: Moderate

APPENDIX G - IOWA DEPARTMENT OF NATURAL RESOURCES PRESCRIBED FIRE POLICY (12 MAR 2010)



Iowa Department of Natural Resources

Prescribed Fire Policy

March 12, 2010

Iowa Department of Natural Resources
Richard A. Leopold, Director
Wallace State Office Building
Des Moines, Iowa 50319

Iowa Department of Natural Resources Prescribed Fire Policy
Date: March 12, 2010

The most current version of this Policy will always be the version found on the DNR website.

Section 1: Purpose

The purpose of the Iowa Department of Natural Resources' Prescribed Fire Policy (Policy) is to guide the effective and safe use of fire as a tool for ecological restoration and maintenance of Iowa's natural areas on state owned, leased or managed lands, and private lands for which landowners seek the advice and consult of the DNR and declare their intention to use fire as a management tool. Prescribed fire is any fire ignited by intentional management actions under specific conditions to meet defined objectives and undertaken in accordance with a burn plan developed for that area. The use of prescribed fire contributes to the DNR goals of improving habitat and forest health by implementing fire treatments that approximate the natural ecological role of fire, and conserving resources that DNR holds and manages for the public trust.

Section 2: Scope

This Policy will define the base requirements for both DNR-approved burn plans and the participation of DNR employees in developing and executing the approved burn plans on state-owned and/or managed lands and private lands.

Section 3: Roles and Qualifications

DNR staff, volunteers and contractors participating in prescribed burning activities shall have training and experience commensurate to their involvement in the prescribed burn. Training and experience requirements will vary based on the individual's level of involvement.

Physical fitness requirements will be specified by the individual's condition of employment or determined by their supervisor where no employment condition exists. Individuals working directly on a prescribed fire should be capable of walking two miles in less than 35 minutes. Employees are responsible for informing their supervisor if they are not capable of performing that task or of any condition that may limit them in performing a job on a prescribed burn. In addition, it is the responsibility of the employee's supervisor, lead worker or the Burn Leader to take preventive action in situations where an employee appears physically incapable of performing without risk of injury due to work demands.

Required Training and Experience:

All permanent DNR employees working on prescribed burns shall successfully complete the following National Wildfire Coordinating Group (NWCG)[1] training courses or other equivalent state or federal training; Basic Incident Command System (I-100), Fire Fighter Training (S-130) and Wildland Fire Behavior (S-190). DNR employees participating in prescribed burns must also complete a fire training refresher course at least once every two years. The Burn Leader shall make appropriate assignments to personnel and volunteers who have not completed the above courses. Such assignments shall be based on the individual's observable or known physical condition, stated experience, level of training and observable leadership qualities. Additional training beyond the minimum requirements may be prescribed by the employee's supervisor to build upon and enhance prescribed burning skills and to meet specific DNR needs. All participants are responsible to document their training and must be able to provide proof of such training upon the request of a supervisor or a Burn Leader overseeing the participant.

[1] NWCG training programs and tools are used by a number of governmental and non-governmental organizations, including without limitation US Forest Service, US Fish & Wildlife Service, US Department of the Interior, many states and the Nature Conservancy.

Requirements for writing and Approving Burn Plans:
Supervisors will designate who will write and approve burn plans based on individual training and experience level. Prescribed Burn Plans (Burn Plans) will be written in accordance with the form found in *Attachment A*. Employees' Burn Plans will be reviewed by their supervisors or their supervisors' designees.

Requirements and role of the Burn Leader
The Burn Leader is responsible for all activities relating to the on-site execution of the burn, including review of the burn plan, completion of the Pre-Burn and Go/No-Go Checklist *(Attachment C)*. The Burn Leader shall evaluate the level of burn crew expertise needed for particular burns and will ensure the appropriate crew is in place prior to instigating such a burn. In addition to the minimum training required for all DNR employees participating in prescribed burns (I-100, S-130 and S-190), a Burn Leader must have participated in five (5) prescribed burns and served an apprenticeship under a Burn Leader on two (2) burns prior to a first assignment as a Burn Leader.

Volunteers
Non-DNR personnel may be involved in burning on DNR owned and/or managed lands, or on private lands when DNR personnel are acting in leadership capacities for the burn. Non-DNR personnel may include volunteers, volunteer fire departments or non-profit organizations. In such instances, they will work under the direct oral and visual control and supervision of the Burn Leader and shall be required to sign the appropriate volunteer forms and agree to follow the direction of the burn leader. The Burn Leader shall have the right to exclude any person, including non-DNR personnel, from participating in a burn, if in their sole opinion, the participant is not following this Policy or their participation may otherwise detrimentally impact their own safety, the safety the burn crew, the public's safety or burn plan implementation.

Section 4: Training
DNR shall provide the requisite training and opportunities for experience to its employees as part of their professional development plans when prescribed fire participation is a part of an employee's position description or is otherwise an expected activity for that employee. This Policy encourages the different sections, bureaus and divisions of the DNR to coordinate their interests in and share their respective expertise with regard to prescribed fire.

Section 5: Safety Equipment
The safety of personnel and volunteers is paramount in this Policy. All DNR personnel working on prescribed burns near open flames shall have access to and wear National Fire Protection Agency or NWCG approved fire resistant clothing, leather gloves, leather boots, and appropriate head and eye protection. Volunteers not wearing the protective gear listed above may participate directly on the burn provided they wear 100% cotton clothing and leather boots and gloves and appropriate head and eye protection.

All participants wearing clothing made of synthetic fibers (e.g., nylon, lycra, etc.) or common permanent-press materials shall be **prohibited** from working near open flames from the time the prescribed burn is initiated until the Burn Leader declares that the fire is extinguished. These materials may melt or stick to the skin when exposed to flame or heat.

The Burn Leader shall ensure that all personnel and volunteers working on prescribed burns shall have access to drinking water.

The Burn Leader shall assign radios, cell phones, or any other equipment as necessary.

Section 6: Burn Plans

The Burn Plan is an important document in the fire-use planning process that is completed prior to each specific prescribed burn. It is a field document that sets forth the details for conducting a particular burn treatment on a specified site to ensure the burn will be ecologically and technically feasible given the specific characteristics of the site. The details that are included in this plan are those necessary to conduct a safe and effective burn that will accomplish the specific goals and objectives specified in the Burn Plan.

This Burn Plan may be adapted in the field on the day of the burn under circumstances that require modification to insure safety or the achievement of the stated goals, provided the Go/No Go Checklist is satisfied. The Go/No Go Checklist is discussed more in Section 7 of this Policy.

A Prescribed Burn Plan form is included at the back of this Policy and shall be used for DNR-sponsored prescribed burns (*See Attachment A*). The Burn Plan must be adhered to during the burn to the extent practicable and must include, at a minimum, the following information, which is discussed in detail below:

1. Area background information.
2. Area/site objective of the burn.
3. Site-specific fire operations.
4. Burn Plan execution.

Area Background Information
This portion of the Burn Plan shall include a general description of the area including location, topography, vegetation, conservation targets or species of concern. A Burn Plan may be specific to a burn unit or to a whole property comprised of several burn units.

Area/Site Objectives of the Burn
The Burn Plan shall state an objective or group of objectives that the Burn Plan should achieve. The objectives shall reflect the DNR's conservation interest at the site, which specifically identifies how the prescribed fire will improve area biodiversity, overall ecological health, and/or reduce hazardous fuels. These goals will assist the burn plan writer in defining management actions that will contribute to those goals and will assist the Area Manager in monitoring how successful management has been. Ecological goals should focus on the desired results of fire management.

Site Specific Information for Fire Operations
This section of the Burn Plan shall address how burns will be accomplished. It should outline logistics that pertain to all burn sites and should include both background information about the site and risk analysis taking those site characteristics and objectives outlined above into account. Logistics addressed here should include:

- Target dates for the burn to be conducted.
- Location of the burn, as shown on high-quality maps that will orient the reader and fully illustrate the features of the burn. GIS maps are appropriate. The necessary maps shall include sufficient detail to show the following:
    - Location of site within the county.
    - Property boundaries.
    - Access and Trails.

- Targeted burn sites.
- Smoke sensitive areas (housing, livestock facilities, hospitals, businesses, schools, airports, nursing homes and roads etc.) *(See Attachment B)*
- Species of Concern: plant and animal.
- Alternate local water sources / dry hydrants.
- Firebreaks already present or that will be developed, alternative firebreaks, and who will be responsible to develop them.
- Adjacent land use / fuels
- Proposed ignition pattern and sequence

- Minimum number of participants needed.
- Equipments necessary to facilitate the burn.
- Preferred wind and weather conditions
- Radio frequencies to be used.
- Communication needs, including:
  - Notifications required by law,
  - Notifications to local residents,
  - Notification to the Environmental Services Division's local field office and
  - Notifications to emergency responders who may be upon called to assist.
  - Location and phone number of nearest medical emergency facility.
- Special safety concerns not otherwise addressed in the Burn Plan.
  - Primary constraints to burning operations at the site, including smoke management problems, legal restrictions or requirements, need for permits, hazards, public relations problems, and proximity to neighbors, and how they have been addressed. This section should also consider special requirements for federal lands or lands subject to special agreements.
  - Significant hazards and limitations associated with the burn site, including adjacent fuels, topography, size and fire treatment objectives.
- Smoke Management Plan.
- Contingency Plan (more information is available in Section 9).
- Recommendations for post-burn reporting and monitoring.

Burn Plan Execution
This portion of the Burn Plan will describe how the Burn Leader shall execute the approved Burn Plan and shall complete the Pre-Burn Checklist, as described in Section 7 of this Policy, including the Go/No-Go checklist contained therein, prior to the burn.

Section 7: Pre-Burn and Go/No-Go Checklist

The Pre-Burn Checklist is a document to be used prior to initiating a burn for the purpose of insuring that the proper protocol is being followed and as a final checklist to eliminate overlooking any important details. The Pre-Burn Checklist also serve as an educational tool for all burn crew members to fully understand their specific duties, the Burn Plan, procedures, smoke management

issues and safety measures. The Burn Leader shall use the Pre-Burn Checklist provided in this Policy *(See Attachment C)* prior to every burn.

The Burn Leader shall assess factors on the day of the burn that may influence the fire behavior, such as weather, quality of the crew, and allocation of emergency resources. The Burn Leader will assess the fire resources on the day of the burn to determine if the appropriate resources are available to the burn and document those determinations in the Pre-Burn Checklist.

If any element of the Go/No-Go portion of the Pre-Burn Checklist is not satisfied, the Burn Plan shall not be deemed approved by the DNR, and either the Burn Plan must be changed to satisfy the Pre-Burn Checklist or the burn must be postponed.

Section 8: Burn Report

The Burn Report shall include records of each completed prescribed burn. The format for the Burn Report is included at the end of this Policy *(See Attachment D)*. The Burn Leader or the Area Manager shall complete the Burn Report upon completing the burn. (The Area Manager should retain copies of the Prescribed Burn Plans and the Burn Reports.) The Burn Report shall include the following information, which is discussed more thoroughly below:

1. Operational Data.
2. Weather and vegetation conditions.
3. Fire summary.
4. Impacts to the site.

Operational Data
The Burn Leader shall summarize the operational data related to the burn, including the date of burn; time set; time completed; time mop-up completed; acres burned; name of burn plan writer; name of Burn Leader; and the total number of personnel in the crew.

Weather and Vegetation Conditions
The Burn Leader shall summarize the weather and vegetative conditions prior to and just after the burn, including the vegetation stage; wind speed; wind direction; mixing height (if available); temperature; and humidity.

Fire Summary
The Burn Leader shall summarize the conditions and quality of the fire, including type of fire used, fire escape problems, smoke behavior and impacts, immediate observed results of the prescribed burn, and any recommendations for future burning or management.

Impacts to the Site
The Area Manager shall summarize the short and long-term post-burn fire effects in relation to burn objectives on species and community responses as deemed necessary through a period of time identified in the Burn Plan. The summary should be well-documented and may include photographs.

Section 9: Wildfires, Escaped Prescribed Burns, and Reporting Requirements.

Any fire, regardless of ignition source, which is unplanned (other than minor slopovers), has escaped control, or is not authorized under state law or local ordinances, is considered a wildfire. An escaped fire is when there is fire outside the prescribed burn perimeter that requires additional resources beyond those planned to be on-site in the Burn Plan, or which causes significant property damage. Fire that crosses the fire line and is contained with resources on-site is not an escaped fire.

Every DNR Burn Plan must include a *Contingency Plan* (e.g., trigger points, water sources, other firefighting resources available, emergency contact numbers, rendezvous locations, safety zones, etc) that addresses what action must be taken in the case of a wildfire resulting from the DNR's activities. In the event of unplanned or escaped fire, once the emergency is past and the fire is extinguished, the Burn Leader will notify his/her immediate supervisor of the event and will provide the supervisor with copies of the Burn Plan, Pre-Burn Checklist and Go/No-Go Checklist, and the Burn Report, along with any other supporting documentation that may be necessary to investigating the event and providing to legal counsel if necessary.

Prescribed Fire Accomplishment Reporting
Bi-Annually, at the end of June and November, each Burn Leader is responsible for preparing and submitting a seasonal report showing their prescribed burn accomplishments.
Attachment F: Iowa Prescribed Fire Report Form will be used to report the data for each prescribed fire. This report is to be sent to the Division of Forestry – Fire Supervisor.

Wildfire Reporting
Generally, wildfire reports are submitted by the responding fire departments. However, if any DNR activities result in a wildfire, the Burn Leader shall complete *Attachment G: Iowa Wildfire Report Form* and submit it to the Division of Forestry – Fire Supervisor.

Section 10: Special Considerations for DNR Assistance on Private Lands

DNR supports and encourages the use of prescribed fire on private lands and other public lands when used for habitat or forest management goals which are consistent with the State Wildlife Action Plan or the Forest Resource Assessment and Response Plan. Burning on private lands enhances DNR activities on adjacent lands under its jurisdiction, allows for valuable demonstration of its benefits, and promotes natural and native habitat development, all of which benefit Iowa.

DNR personnel may assist in the planning, permitting, execution and report writing for prescribed burns conducted on private lands. An approved Burn Plan is required for DNR staff to participate in a prescribed burn on private property, the prescribed burn must be lead by a qualified Burn Leader and the execution of the burn most otherwise conforms to the requirements of this Policy. In addition, for DNR to conduct prescribed burns on private lands, DNR must inform the landowner that they are liable for their own acts and should encourage landowners to contact their insurance providers to discuss whether damages arising from or related to prescribed burns are covered within their policies and to make appropriate changes. The state and DNR shall be liable only for their own acts, only as legally allowed under the Iowa Constitution and Iowa Code chapter 669. The DNR in no way waives its sovereign immunity or discretionary function defense by participating in prescribed burns on private lands.

Nothing in this Policy prohibits DNR personnel from participating in prescribed burns on private lands on their own time. However, in doing so, those DNR personnel are not acting in an official capacity and are not, therefore, protected from liability by the Iowa Tort Claims Act.

Section 11: Smoke Management

The DNR shall strive to ensure the goals of the Clean Air Act are satisfied in these small-scale burns.

The U.S. Environmental Protection Agency (EPA) is in the midst of revising federal rules and guidelines for prescribed burning to address current and expected air pollution standards. Concurrently, the DNR Air Quality Bureau is evaluating the need for a state-wide Smoke Management Program (SMP) and is also considering amending state air quality rules to specifically address prescribed natural resource burning. At such time as a state-wide SMP or new air quality rules are final and effective, this Policy may be revised, if appropriate. Until then,

each DNR Burn Plan shall include a smoke management plan that addresses the following elements:

1. Actions to minimize smoke impacts
2. Smoke dispersion map
3. Notifications
4. Smoke monitoring

These elements and other recommendations for basic smoke management practices are described in more detail in *Attachment B, Smoke Management Guidelines*. Smoke management planning should also address potential effects of smoke on prescribed fire crew members.

Air Quality & Smoke Management Resources:

- EPA AIR NOW website: http://airnow.gov/: Includes interactive maps showing current national, regional, state and local air quality. Includes links to other air quality resources.
- NWS Fire Weather Planning Forecast website: http://www.crh.noaa.gov/dmx/firewx.php or www.weather.gov/dmx (click on Fire Weather link): Get fire weather and smoke management information for Iowa, including transport wind, mixing height, relative humidity and smoke dispersion. Request a spot forecast and get other fire weather information.
- NWCG Smoke Management and Smoke Committee websites: http://www.nifc.gov/smoke/ and www.myfirecommunity.net (join the Air Quality and Fire Issues group): Sharing information on smoke management issues, air quality regulations, strategies for managing smoke from wildland fires, approaches to technical smoke questions, and fire environment issues that affect smoke generation, transport, impacts and measurement. Links to other smoke management resources.
- DNR Air Quality Bureau: Go to www.iowacleanair.com or www.iowadnr.gov/air/ or call 515-242-5100.

Section 12: Legal Requirements

DNR prescribed burns will comply with all applicable federal, state and local laws, ordinances, regulations or emergency declarations. A discussion of relevant legal considerations and a list of relevant laws are available in *Attachment E* of this Policy.

Section 13: Attachments

The documents attached to this Policy shall be used by the burn plan writer, the Burn Leader and the Area Manager in developing and executing DNR-sponsored prescribed burns in the state of Iowa.

A. Prescribed Burn Plan Form
B. Smoke Management Guidelines
C. Pre-Burn Checklist and Go/No-Go Checklist
D. Burn Report Form
E. List of applicable laws
F. Iowa Prescribed Fire Report Form
G. Iowa Wildfire Report Form

(Retain in permanent Unit files)

ATTACHMENT A

PRESCRIBED BURN PLAN

A. <u>Background Information</u> **Photo Record Taken? _____**

Area or site name:

Location:

Record of previous burn management:

Topography:

Vegetation description (target species):

Threatened or Endangered Species:

<u>B. Objectives</u>

Objectives of the burn (clearly state):

<u>C. Site Specific Information</u>

Target burn dates (range):

Segment to be burned (attach map or aerial photo):

Attached maps will include the following:

- **Location of site within the county**
- **Property boundaries**
- **Access and Trails**
- **Targeted Burn sites**
- **Smoke Sensitive Area**
- **Species of Concern (plant/animal)**
- **Alternative local water source / dry hydrants**
- **Firebreaks already present or that will be developed, alternative firebreaks, and who will be responsible to develop them**
- **Adjacent land use/fuels**
- **Proposed ignition pattern**

Minimum # of Personnel:

Equipment needed:

Preferred wind and weather conditions:

Communication needs &
Radio Frequencies to be used:

Special Regulations; permits needed; etc:

Safety concerns:

Smoke Management Plan *(refer to Smoke Management Guidelines – Attachment B)***:**

(Retain in permanent Unit files)

Emergency Response Notifications

Contact:	Location	Phone #	Who Will Notify?	By When?
Fire Department:				
Public Safety Com. Center (Dispatch)				
Medical Emergency Facility				
Environmental Services Division – Field Office				
Other				

Additional Notifications:

Adjacent Landowners:	Location	Phone #	Who Will Notify?	By When?

Potential Downwind Smoke Receptors:	Location	Phone #	Who Will Notify?	By When?

*Guidelines for notifying adjacent landowners and other potential downwind receptors are explained in *Attachment B – Smoke Management Guidelines*.

Mop-Up Instructions:

Contingency Plans:

Attachment B
Smoke Management Guidelines
Date: March 5, 2010

Smoke management is becoming a larger concern with respect to public health and environmental quality. The DNR shall strive to ensure the goals of the Clean Air Act as enacted through the DNR's regulatory authority are satisfied in these small-scale natural resource burns.

The following smoke management guidelines are recommendations. The guidelines are not inclusive of all smoke management techniques and are not meant to limit prescribed burning activities. Rather, these guidelines are intended as interim recommendations until such time as the U.S. Environmental Protection Agency (EPA) or the Iowa DNR Air Quality Bureau (AQB) promulgates rules, policies or guidelines to specifically address natural resource burning and smoke management.

Additionally, AQB is currently evaluating the need for a statewide Smoke Management Program (SMP) and is considering amending state air quality rules for open burning to specifically address prescribed natural resource burning. At such time as a statewide SMP or new air quality rules for prescribed burning become final and effective, these guidelines may be revised, if appropriate.

Smoke Management Plan (Basic Smoke Management Practices)
Each DNR prescribed burn plan (Burn Plan) shall include a smoke management plan that describes the basic smoke management practices to be employed for the prescribed burn. The designated Burn Leader shall ensure that all DNR staff, volunteers and contractors participating in the prescribed burn adhere to the smoke management plan.

Each smoke management plan included in a DNR Burn Plan shall address the following elements:

1. Actions to minimize smoke impacts
2. Smoke dispersion map, including:
    - Predicted smoke behavior
    - Expected smoke dispersion area
    - Smoke sensitive sites within the smoke dispersion area
3. Notifications
4. Smoke monitoring

1. Actions to minimize smoke impacts

The DNR will take appropriate and reasonable actions to keep smoke away from smoke sensitive sites. Examples of smoke sensitive sites include: residential dwellings, businesses, schools, airports, nursing homes, childcare facilities, livestock facilities, hospitals, and roads. The Burn Plan should describe how smoke impacts to the public will be minimized or mitigated before, during, and after the burn.

Depending on the objectives of the burn and current weather and fuel conditions, mitigation techniques may include, but are not limited to, the following:

- Reduce the fuel loading in the burn area by mechanical means
- Reduce the size of the burn area
- Use frequent, low-intensity burns to gradually reduce fuels
- Reduce the amount of fuel consumed by the fire by burning when fuel moistures for larger fuels are high

- Rapid and complete mop-up after the burn or mop-up of certain fuels.

In addition to providing notification of the burn (see #3 below), DNR may, as appropriate, include in its notification suggested actions that smoke sensitive individuals may take to minimize their exposure. Suggestions may include, but are not limited to: leaving the area during the burn, remaining indoors, avoiding rigorous activities, and avoiding exposure to other respiratory stressors.

If the National Weather Service (NWS) has issued an air pollution alert, the Burn Leader will be prepared to safely halt the burn at the closest existing fire break and will not ignite any additional burns until the NWS has lifted the air pollution alert.

2. Smoke Dispersion Map

Each Burn Plan should include a smoke dispersion map. The purpose of the smoke dispersion map is to assist the burn plan writer, the Burn Leader and other prescribed burn participants in determining proper smoke mitigation options, estimating smoke dispersion, establishing the public notification area, and selecting appropriate smoke monitoring activities.

In general, the smoke dispersion map should identify adjacent land owners and all downwind smoke sensitive sites that are could experience smoke from the prescribed burn. A description accompanying the map should explain how the burn plan writer estimated the smoke dispersion area for the burn. If the burn plan writer has determined that a smoke dispersion map is not necessary, the Burn Plan shall include an explanation of why a smoke dispersion map is not needed.

Predicted smoke behavior
There are many methods for predicting smoke behavior from prescribed natural resource burning. As of the date of this Policy, the U.S. Environmental Protection Agency (EPA) has not officially recommended or approved specific tools or models for estimating air quality impacts from prescribed natural resource burning. However, the U.S. Forest Service (USFS) and other federal land management agencies have developed several tools for smoke prediction and for estimating the air quality impacts from prescribed burns.

AQB Analysis
Air quality impacts from prescribed burns are affected by numerous factors, including, but not limited to: fuel characteristics, fuel conditions, size of the burn area, meteorological conditions and burning techniques. To assist in estimating possible air quality impacts from prescribed burns in Iowa, AQB staff collaborated with both DNR and non-DNR prescribed burn professionals and USFS smoke prediction experts to develop an air quality analysis.

Because of the numerous variables inherent in prescribed burning, the analysis necessitated making a number of assumptions. Additionally, the analysis was specifically designed to produce results that are conservative. The analysis is best used as a tool in conjunction with actual, on-site fuel bed information and based on the expected meteorological conditions on the day of the burn.

AQB analyzed eight Iowa burn scenarios using USFS software to estimate air pollution concentrations. Based on the air quality analysis, it is recommended that the DNR consider notification of the smoke sensitive sites located downwind and within the distance specified for the following burn scenarios:

- Prairie burn (1 acre or less) = 0.25 miles from the burn area.
- Prairie burn (1.5 acres -10 acres) = 1 mile from the burn area.
- Prairie burn (10.5 acres -50 acres) = 1.5 miles from the burn area.

- Prairie burn (50.5 acres -100 acres) = 2 miles from the burn area.
- Prairie burn (over 100 acres) = 3 miles from the burn area.
- Forest burn (5 acres or less) = 1.5 miles from the burn area.
- Forest burn (5.5 acres -10 acres) = 2.5 miles from the burn area.
- Forest burn (10.5 acres - 50 acres) = 4 miles from the burn area.
- Forest burn (50.5 acres -100 acres) = 5 miles from the burn area.

Note: *With the exception of the 1 acre prairie scenario, the acreages and distances from the air quality analysis are shown here rounded to nearest half acre and half mile. Additionally, the scenario "Prairie Burn (over 100 acres)" was not included in the air quality analysis, but was very generally estimated based on the results from the other, modeled scenarios.*

AQB's complete analysis, including descriptions of the USFS software, the assumptions used for the analysis, and the software inputs and outputs for the analysis, is available from AQB upon request.

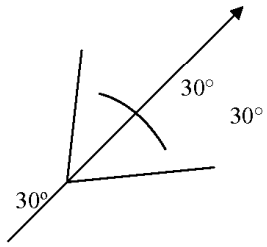
Smoke Dispersion Area
The goal of proper smoke management is to perform the burn when atmospheric conditions will disperse the smoke so that air quality standards to protect public health will not be violated. Unless the burn plan writer has determined that it is unnecessary, the Burn Plan should include a map showing the expected smoke dispersion area. One method that may be used to determine the smoke dispersion area is as follows:

1. Locate on a map the prescribed fire and all potential smoke sensitive sites that could be affected. The distances indicated above from the air quality analysis may be used. However, a site-specific analysis or other factors may indicate that an alternative distance is more appropriate.

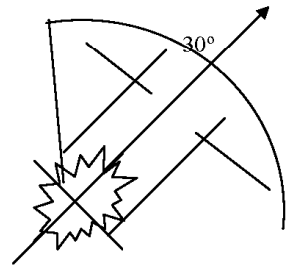
2. Determine the optimal transport wind (wind direction) for the burn that will, to the extent practicable, have the least impact on smoke sensitive sites while also achieving the natural resource objectives for the burn.

3. Draw a line representing the centerline of the path of the smoke plume using the optimal transport wind identified in the previous step.

4. To allow for horizontal dispersion of the smoke, as well as shifts in wind direction, draw two other lines from the burn at an angle of 30 degrees from the centerline(s). If a prescribed fire is represented as a spot, draw as in Figure A. If larger, draw as shown in Figure B.



A



B

Smoke sensitive sites
All smoke sensitive sites within the predicted smoke dispersion area should be identified on the smoke dispersion map.

Other considerations for smoke dispersion and smoke sensitive sites
Each Burn Plan should indicate how the Burn Leader will assess meteorological and air quality conditions prior to the burn and on the day of the burn to ensure that conditions are within prescription and that impacts to smoke sensitive sites will be minimized.

A valuable resource for smoke management planning and meteorological information is the National Weather Service (NWS) Fire Weather Planning program. This easy to access forecast provides specific burn parameters essential for smoke management, such as transport winds, precipitation, temperature, relative humidity and smoke dispersion. Another available resource to check air quality conditions prior to and on the day of the burn is EPA's AIR NOW website.

3. Notifications

As an essential aspect of basic smoke management techniques, DNR shall make a reasonable effort to notify all adjacent land owners and other smoke sensitive sites identified on the smoke dispersion map. A description of the notification strategy shall be included in the Burn Plan.

The DNR shall provide pre-burn season notification to adjacent land owners and smoke sensitive sites in the area. The DNR shall determine the best notification method for the affected area and shall establish how far in advance the pre-burn season notification shall occur. Pre-burn season notification methods may include, but are not limited to: press releases, radio or TV announcements, newsletter articles (electronic or hard-copy), website postings, in-person notification, phone notification, USPS notification, e-mail notification or hand-delivered notification. In some cases, it may be appropriate to provide follow-up notification closer to the anticipated burn date to adjacent land-owners and other smoke sensitive sites. Examples of other smoke sensitive sites that should be considered for follow-up notification closer to the anticipated burn date include sites occupied by citizens who expressed health-related concerns to the DNR in response to the pre-season notification, as well as schools, day cares, hospitals, churches, and retirement or nursing homes..

The DNR shall also coordinate to the extent practicable with the immediate Environmental Services Division (ESD) Field Office to notify the field office prior to the burn. This notification ensures that field office staff is knowledgeable of the burn and can work cooperatively with the burn crew and the public if the field office receives complaints.

4. Smoke Monitoring

The Burn Plan shall include a description of how the burn crew will monitor the smoke plume during the burn to ensure that unanticipated smoke impacts do not occur. Smoke monitoring will help ensure that any needed mitigation activities will be underway as quickly as possible.

Smoke monitoring should match the size of the fire. For small or short duration fires (less than one day), such as most prairie burns or small forest burns, visual monitoring of the smoke plume and monitoring complaints from the public should be sufficient. Other monitoring techniques may include, but are not limited to:

- Posting personnel at vulnerable roadways to look for visibility impacts;
- Posting personnel at other smoke sensitive areas to look for smoke intrusions; and
- Continuous tracking of meteorological conditions (such as spot forecasting) during the fire.

Air Quality & Smoke Management Resources:

- **EPA AIR NOW website -** http://airnow.gov/: Includes interactive maps showing current national, regional, state and local air quality. Includes links to other air quality resources.
- **NWS Fire Weather Planning Forecast website -** http://www.crh.noaa.gov/dmx/firewx.php or www.weather.gov/dmx (click on Fire Weather link): Get fire weather and smoke management information for Iowa, including transport wind, mixing height, relative humidity and smoke dispersion. Request a spot forecast and get other fire weather information.
- **NWCG Smoke Management and Smoke Committee websites -** http://www.nifc.gov/smoke/ and www.myfirecommunity.net (join the Air Quality and Fire Issues group): Sharing information on smoke management issues, air quality regulations, strategies for managing smoke from wildland fire, approaches to technical smoke questions, and fire environment issues that affect smoke generation, transport, impacts and measurement. Links to other smoke management resources.
- **DNR Air Quality Bureau website-** www.iowacleanair.com or www.iowadnr.gov/air/: Or call 515-242-5100
- **DNR ESD Field Services Bureau website-** www.iowadnr.gov/fo/index.html**:** Includes list of ESD field offices and their jurisdictions.
- **USFS Fire and Environmental Research website –** http://www.fs.fed.us/pnw/fera/: Research and development in fuels and combustion science including tools and software for predicting fire behavior and air pollutant emissions from prescribed burning.

ATTACHMENT C

PRE-BURN CHECKLIST, CREW BRIEFING and GO/NO-GO DECISION

Unit Area: _____ Fire Site:_____ Date:_____

Number of people participating in burn:_____

List Names & Agency:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____

A. PRIOR TO CREW BRIEFING

- ☐ Fire Site is as described in plan.
- ☐ Required firebreaks complete.
- ☐ Permits obtained if required.
- ☐ Communications Center/fire officials notified.
- ☐ Neighbor notifications, as needed.
- ☐ Required equipment is on-site and functioning.
- ☐ Radio frequencies to be used are identified.
- ☐ Planned ignition and containment methods are appropriate.
- ☐ List of emergency phone numbers are available.
- ☐ Planned contingencies and mop-up are appropriate.

B CREW BRIEFING

- ☐ Fire Site size and boundaries discussed.
- ☐ Fire Site hazards discussed.
- ☐ Anticipated fire and smoke behavior.
- ☐ Review of equipment and troubleshooting.
- ☐ Review organization of crew and assignments.
- ☐ Review methods of ignition, holding, mop-up, communications.
- ☐ Radio frequency check.
- ☐ Review public traffic concerns.
- ☐ Location of vehicles, keys and nearest phone or police band radio.
- ☐ Location of back-up equipment, supplies and water.
- ☐ Plan and review all contingencies including safety hazards, escape routes, safety zones.
- ☐ Answer questions from crew.
- ☐ Give crew members the opportunity to decline participation.
- ☐ Location of first aid kit.

C. PRIOR TO IGNITION GO / NO-GO DECISION

- ☐ Weather and fuel conditions are within prescriptions.
- ☐ Weather forecast, obtained prior to ignition indicating suitable burning conditions.
- ☐ Necessary fire lines/breaks are constructed and checked.
- ☐ Crew members have required protective clothing.
- ☐ Crew members have matches.
- ☐ Conduct test burn.
- ☐ **In your opinion, can the burn be carried out according to the plan and will it meet the planned resource management objectives? YES _____ NO _____**

D. BEFORE LEAVING BURN UNIT

- ☐ Mop-up completed as described in prescription.
- ☐ Post burn inspection arranged.
- ☐ Notifications of completed burn (if required).

E. NOTE ANY MODIFICATIONS TO PRESCRIPTION

Burn Leader:_____ Date:_____

(Retain in permanent Unit files)

ATTACHMENT D
BURN REPORT

A. Operational Data

Date of prescribed burn: _____ **Acres burned:** _____

Time set: _____ **Time completed:** _____ **Time mop-up completed:** _____

Fire planner name: _____

Fire leader name: _____

Total number personnel in fire crew: _____

B. Weather & Vegetation Conditions

Vegetation stage (cured, transitional, green): _____

Wind speed at start: _____ **Wind speed at completion:** _____

Wind direction at start: _____ **Wind direction at completion:** _____

Temperature at start: _____ **Temperature at completion:** _____

Humidity at start: _____ **Humidity at completion:** _____

C. Fire Summary

Type fire used (head, back, strip back, ring, combination): _____

Fire escapes or problems of note: _____

Summarize immediate results (litter reduction, areas of incomplete burn, etc.): _____

Recommendations for future burning or management: _____

Burn report completed by: _____ _____
(signature) **(date)**

ATTACHMENT E

Legal Requirements

Authority for Prescribed Burns

Prescribed burns are open burns allowed pursuant to 567 Iowa Administrative Code section 23.2(d). Burns that involved cleared materials may not occur closer than ¼ mile from any building inhabited by other than the landowner or tenant conducting the burn. Additional disaster declarations may allow for additional burning if an emergency condition exists.

The air quality rules for open burning are set forth under 567 Iowa Administrative Code (IAC) Chapter 23 (rule 567-23.2). Copies of the current rule provisions and definitions applicable to open burning are available on the DNR Air Quality Bureau (AQB) website at www.iowacleanair.com (click on "open burning" on the left-side menu). DNR AQB does not issue burn permits.

Currently, prescribed natural resource burning is allowed under the "landscape waste" exemption (paragraph 23.2(3)"d") in most areas of the state, unless prohibited as noted below or unless prohibited under local ordinances or regulations. DNR AQB is considering amending the open burning rules to specifically address prescribed natural resource burning.

General Prohibitions

Locations
Prescribed burns generally may not occur in the cities of: Cedar Rapids, Marion, Hiawatha, Council Bluffs, Carter Lake, Des Moines, West Des Moines, Clive, Windsor Heights, Urbandale, and Pleasant Hill. The Burn Leader must contact the Department's Air Quality Bureau if planning to conduct burns within those cities.

In addition, any local government entity, such as a municipality or a county, may enact local open burning regulations that are more stringent than state open burning rules. Local governments are not required to notify DNR of any such local ordinances. In particular, Linn County and Polk County have their own, state-approved air quality programs and require permits for most open burning activities. DNR is also aware that Council Bluffs has a burn permit program. DNR staff writing and approving burn plans should check with local governments regarding local open burning ordinances and regulations. The Burn Leader is responsible for overseeing compliance with local ordinances and regulations related to prescribed burning.

Materials
Prescribed burns may not include the burning of asbestos, rubber tires or other hazardous materials. If asbestos are found in any structure that is part of a prescribed burn, the Burn Leader must contact the Department's Realty Services Bureau, who will then work with the Department's Air Quality Bureau to safely remove the asbestos prior to the prescribed burn. No prescribed burn shall occur until the asbestos has been removed and properly mitigated.

Deleterious Impacts to Water Quality
Prescribed burning activities are intended to promote a healthy environment and should not create or contribute to water quality defects in the state. While the DNR is not required to obtain NPDES permits for prescribed burns (unless the burning is part of a construction project, in which case the project may require a permit), the DNR is prohibited from undertaking activities that would cause pollutants to enter into waters of the state. Information about pollution prevention and best management plans are available by contacting the Environmental Services Division field office in the area.

Threatened and Endangered Species
During the development of a Burn Plan and prior to the initiation of any prescribed burn, the Burn Leader shall check the Threaten and Endangered species data base and review other local observation data to determine whether T & E species are present in the burn area. If T & E species are present, burn plans require consultation with the Threaten and Endangered species Program Office.

Required Permits
The DNR, the Fish and Wildlife Service and the State Historical Preservation Office (SHPO) have a programmatic agreement that addresses our compliance with Section 106 of the National Historical Preservation Act. Under this agreement prescribed burn activities using accepted prescribed burn techniques do not require SHPO review.

Linn and Polk Counties and the City of Council Bluffs have air quality programs that require air permits for prescribed burns. The Burn Leader must contact those permitting entities and obtain all necessary permits from those local authorities prior to conducting a burn in either Linn or Polk County.

Building Disposal
Building disposal by burning is not considered to be a component of prescribed burning and is not addressed in the DNR Burn Policy. Refer to 567 Chapter 23 (rule 567-23.2), or contact the DNR Air Quality Bureau for more information.

List of Applicable Laws
(As of Date)

City:
- City of Council Bluffs Open Burning Ordinance – Council Bluffs Municipal Code section 4.02.020

County:
- Linn County Open Burning Ordinance – Linn County Ordinances section 10.10
- Polk County Open Burning Rules – Polk County Board of Health Rules and Regulations section 5-7

State:
- Air Quality Duties of Environmental Protection Commission – Iowa Code section 455B.133
- Liability of Landowner Allowing Public Use of Private Property – Iowa Code section 461C.3
- Liability of State Employees under State Tort Claims Act – Iowa Code sections 669.21 and 669.23
- Liability of State Volunteers under State Tort Claims Act – Iowa Code section 669.24
- Open Burning, including building disposal – 567 Iowa Administrative Code section 23.2
- State Threatened and Endangered Species Act – Iowa Code chapter 481B and 571 Iowa Administrative Code chapter 77

Federal:
- Clean Air Act (CAA) – 42 U.S.C. chapter 85
- National Emission Standard for Hazardous Air Pollutants (NESHAP) – 40 C.F.R. part 61
- National Environmental Policy Act (NEPA) – 42 U.S.C. chapter 55
- National Primary and Secondary Ambient Air Quality Standard (NAAQS) – 40 C.F.R. part 50
- Protection of Historic Properties – 16 U.S.C. 470 and 36 C.F.R. Part 800

IOWA PRESCRIBED FIRE REPORT FORM

PLEASE SUBMIT TO Iowa DNR Fire Supervisor Gail Kantak
FAX: 515-233-1131 or
E-MAIL: Gail.Kantak@dnr.iowa.gov

Agency/ Bureau:			Location of Fire (GPS location if available):
Unit:			
Contact:			
Phone:			
Cell:			
E-Mail:		Type of Fire:	PRESCRIBED FIRE
Date of Fire:		Vegetation Type:	
Acres Burned:		NOTES / COMMENTS:	

NAME OF PEOPLE PARTICIPATING ON BURN (For Incident Qualifications (IQS) Tracking):

IOWA PRESCRIBED FIRE REPORT FORM

PLEASE SUBMIT TO Iowa DNR Fire Supervisor Gail Kantak
FAX: 515-233-1131 or
E-MAIL: Gail.Kantak@dnr.iowa.gov

Agency/ Bureau:			Location of Fire (GPS location if available):
Unit:			
Contact:			
Phone:			
Cell:			
E-Mail:		Type of Fire:	PRESCRIBED FIRE
Date of Fire:		Vegetation Type:	
Acres Burned:		NOTES / COMMENTS:	

NAME OF PEOPLE PARTICIPATING ON BURN (For Incident Qualifications (IQS) Tracking):

IOWA WILDLAND FIRE REPORT FORM

PLEASE SUBMIT TO Iowa DNR Fire Supervisor Gail Kantak
2404 S Duff Ave, Ames, IA 50010
FAX: 515-233-1131; PHONE: 515-233-8067 or 1161
E-MAIL: Gail.Kantak@dnr.iowa.gov

1. State: **IOWA**	**2.** County:	**3.** Fire Department:
4. Contact:		**5.** Location of Fire:
Phone:		
E-Mail:		
6. Date of Fire:	**7.** # & Type of apparatus used:	

8. FIRE CAUSE	**LINE #**	**TOTAL ACRES BURNED**
a. Lightening	a.	
b. Campfire	b.	
c. Smoking	c.	
d. Debris Burning (Controlled Burn that got out of control)	d.	
e. Arson	e.	
f. Equipment Use	f.	
g. Railroads	g.	
h. Children	h.	
i. Miscellaneous	i.	
j. Controlled Burn that DID NOT get out of control	j.	

9. INJURIES:

10. NOTES:

APPENDIX H - FUNDING MATRIX
Sustainable Range/Installation Environmental Activities Matrix

Environmental Sustainability Requirement	Environmental Program		Range	Facilities
	Conservation (MDEP: VENN)	**Operational Range Environmental Compliance** *(includes Compliance Cleanup Activities)* **(MDEPs: VENC and VEMR as appropriate)**	**Range Modernization (MDEP: VSRM)**	**Real Property Services (MDEP: QDPW)**
Natural Resource Issues (cont'd)				
Impacts and Mitigation for Reimbursable/Fee Natural Resource Programs (Forestry, Ag Grazing/Outlease, Hunting & Fishing Fee)	These programs are intended to offset all costs allowable by law associated with program execution at installation level. Reimbursable programs pay for cultural inventories at sites that their activities may impact.	None.	None.	Administration of agriculture and grazing leases and management expenses for forest areas, except for responsibilities under Conservation.
Fish & Wildlife Management (does not include TES)	Provide oversight of fish and wildlife management activities. Facilitate the integration of various installation proponents planned actions through projects that support ecosystem management and biodiversity; to include the establishment of hunting and fishing harvest limits and planning level surveys (i.e. Flora, Fauna, and Vegetation Communities). Manage Army species at risk as determined by HQDA to be necessary to avoid species listing, critical habitat designation, taking or jeopardy.	None.	None.	Funds for protection and development of land, water, and renewable natural resources; fish and wildlife habitats; training areas and ranges, administration of agriculture and grazing leases and management expenses for forest areas, except for responsibilities under Conservation.
Managing Wildland Fires (establish and maintain fire breaks, conduct prescribed burns, and wildland fire fighting/suppression)	Plan, through the INRMP, monitor and implement projects that manage wildland fire for the purpose of ecosystem management, and for the protection or benefit of listed or proposed TES.	None.	Sustainable design features are integrated into all USACE-reviewed range MILCON projects as required by USACE SOPs. Specific to wildfires, design and construction may include initial establishment of firebreaks or other features associated with ranges to mitigate potential range fires.	Mowing, prescribed burning and application of herbicides to control weeds, brush, vegetative fire hazards and poisonous plants on small arms ranges, maneuver areas, and artillery ranges. Wildland fire prevention, response, and control of fires when necessary to protect people, property, equipment or mission capability of all facilities on Army installations. Includes maintenance of established fire breaks.

APPENDIX I – WILDFIRE STANDARD OPERATING PROCEDURE

CAMP DODGE WILDIFRE RESPONSE
STANDARD OPERATING PROCEDURE (SOP)

Purpose: The purpose of this SOP is to provide guidance in the event of an unplanned fire (wildfire) on Camp Dodge's qualification ranges and training areas.

Scope: The Scope of this SOP will include the Camp Dodge Fire Brigade, Range Control personnel and the Camp Dodge Security Team. Authority is given to each of these forces to take control of the scene of a wildfire and address the situation based on training received.

Section 1. Camp Dodge Range Control.

Train:

Prior to an actual wildfire event, the range Non-Commissioned Officer in Charge (NCOIC) will ensure that personnel under his/her command have been trained in the use of Personal Protective Equipment (PPE) and firefighting equipment that may be used to respond to a wildfire.

Firefighting equipment should be inspected at the start of each training event to ensure operability and availability. If equipment failures are found and cannot be fixed prior to the start of the training event, efforts will be made to locate back up equipment. This equipment can be provided by the Camp Dodge Fire Brigade, and/or the Camp Dodge Directorate of Public Works. Ensure that all loaned equipment's functions are briefed and understood. Contact numbers for support equipment are located in Annex B of this SOP

Respond:

When notified of an unplanned fire event, the range NCOIC will direct Soldiers under their command to report to the scene of the wildfire. The range NCOIC will ensure that all responding personnel depart the range control building (S21) in the correct posture. Personnel will have donned the approved PPE and will use only firefighting equipment that they have received training on.

Sizeup:

Based on the training the responding forces have received, the first step upon arrival to the fire will be sizeup.

Elements of the sizeup will include:

- Safety:
  - Are there any Soldiers injured?
  - Are Army assets or private assets threatened?
- Area on fire:
  - How much fire is on the ground
  - How big of an area has been burned?
- Weather:
  - What effect is the weather having on the fire?
  - Note and pay particular attention to the wind speed and direction.
- The fire itself:
  - How high are the flames?
  - Where is the fire going?
  - Is it in danger of leaving Camp Dodge property and putting the public at risk? (For example, is the smoke obscuring roads off camp?)

Develop a Course Of Action (COA):

- Are Range Control assets able to contain and/or limit the spread of fire?
    - If the answer is yes, then work to contain the fire is a safe and effective manner.
        - Using approved techniques to suppress the heel and flanks of the fire.
        - Always work from areas that are not in danger of ignition, such as roads, prepared fire breaks or the burned areas.
        - At no time should an attempt be made to do a direct attack on the "head" or area with the greatest fire activity. In some cases it is advisable to allow the head of the fire continue to burn, if it is determined that the fire will burn into a fire break or road, or if it supports the Prescribed Fire Plan for that particular area.

- Are Range Control assets able to contain and/or limit the spread of fire?
    - If the answer is no **or if there are any injuries to report that require immediate medical assistance**, the responding force needs to alert the Range Control NCOIC immediately.
    - This person then should call 911 and prepare to receive the responding Mutual Aid forces.
    - The range NCOIC will work to secure the area and assist with traffic direction.
    - Soldier safety will be paramount to all efforts.
    - Once Mutual Aid arrives on scene, the range NCOIC will brief the relief and hand over command to the responding Incident Commander.

Mission Complete:

After the fire is extinguished, mop up complete and the responding aid has departed:

- Report the incident to the Staff Duty officer.
- Notification to the Environmental Branch is also required, IAW with the Integrated Wildland Fire Management Plan (IWFMP).
- Notification list is located in Annex B of the Training Area Fire Response SOP.
- Before the resumption of any training that resulted in the unplanned fire, the Range NCOIC will brief the training unit OIC/NCOIC and make recommendations to changes in the training activity to prevent a reoccurrence of an unplanned fire.

Section 2. Camp Dodge Fire Brigade (CDFB).

Train:

Prior to an actual wildfire event, the range CDFB Officer in Charge (OIC) will ensure that personnel under his/her command have been trained in the use of Personal Protective Equipment (PPE) and firefighting equipment that may be used to respond to a wildfire.

Firefighting equipment should be inspected at the start of each training event to ensure operability and availability. If equipment failures are found and cannot be fixed prior to the start of the training event, efforts will be made to locate back up equipment. This equipment can be provided by the Camp Dodge Fire Brigade, and/or the Camp Dodge Directorate of Public Works. Ensure that all loaned equipment's functions are briefed and understood. Contact numbers for support equipment are located in Annex B of this SOP

Respond:

When notified on an unplanned fire event, CDFB OIC will direct firefighters under their command to the scene. The CDFB OIC must ensure that all responding personnel depart the fire station in the

correct posture. Personnel will have donned the approved PPE and only use firefighting equipment that they have received training on.

Sizeup:

Based on the training the responding forces have received, the first step upon arrival to the fire will be sizeup.

Elements of the sizeup will include:

- Safety:
  - Are there any Soldiers injured?
  - Are Army assets or private assets threatened?
- Area on fire:
  - How much fire is on the ground
  - How big of an area has been burned?
- Weather:
  - What effect is the weather having on the fire?
  - Note and pay particular attention to the wind speed and direction.
- The fire itself:
  - How high are the flames?
  - Where is the fire going?
  - Is it in danger of leaving Camp Dodge property and putting the public at risk? (For example, is the smoke obscuring roads off camp?)

Develop a Course Of Action (COA):

- <u>Are CDFB assets able to contain and/or limit the spread of fire?</u>
  - If the answer is yes, then work to contain the fire is a safe and effective manner.
    - Using approved techniques to suppress the heel and flanks of the fire.
    - Always work from areas that are not in danger of ignition, such as roads, prepared fire breaks or the burned areas.
    - At no time should an attempt be made to do a direct attack on the "head" or area with the greatest fire activity. In some cases it is advisable to allow the head of the fire continue to burn, if it is determined that the fire will burn into a fire break or road, or if it supports the Prescribed Fire Plan for that particular area.

- <u>Are CDFB assets able to contain and/or limit the spread of fire?</u>
  - If the answer is no **or if there are any injuries to report that require immediate medical assistance**, the responding force needs to alert the Range Control NCOIC immediately.
  - This person then should call 911 and prepare to receive the responding Mutual Aid forces.
  - The CDFB will work to secure the area and assist with traffic direction.
  - Soldier safety will be paramount to all efforts.
  - Once Mutual Aid arrives on scene, the range CDFB OIC will brief the relief and hand over command to the responding Incident Commander.

Mission Complete:

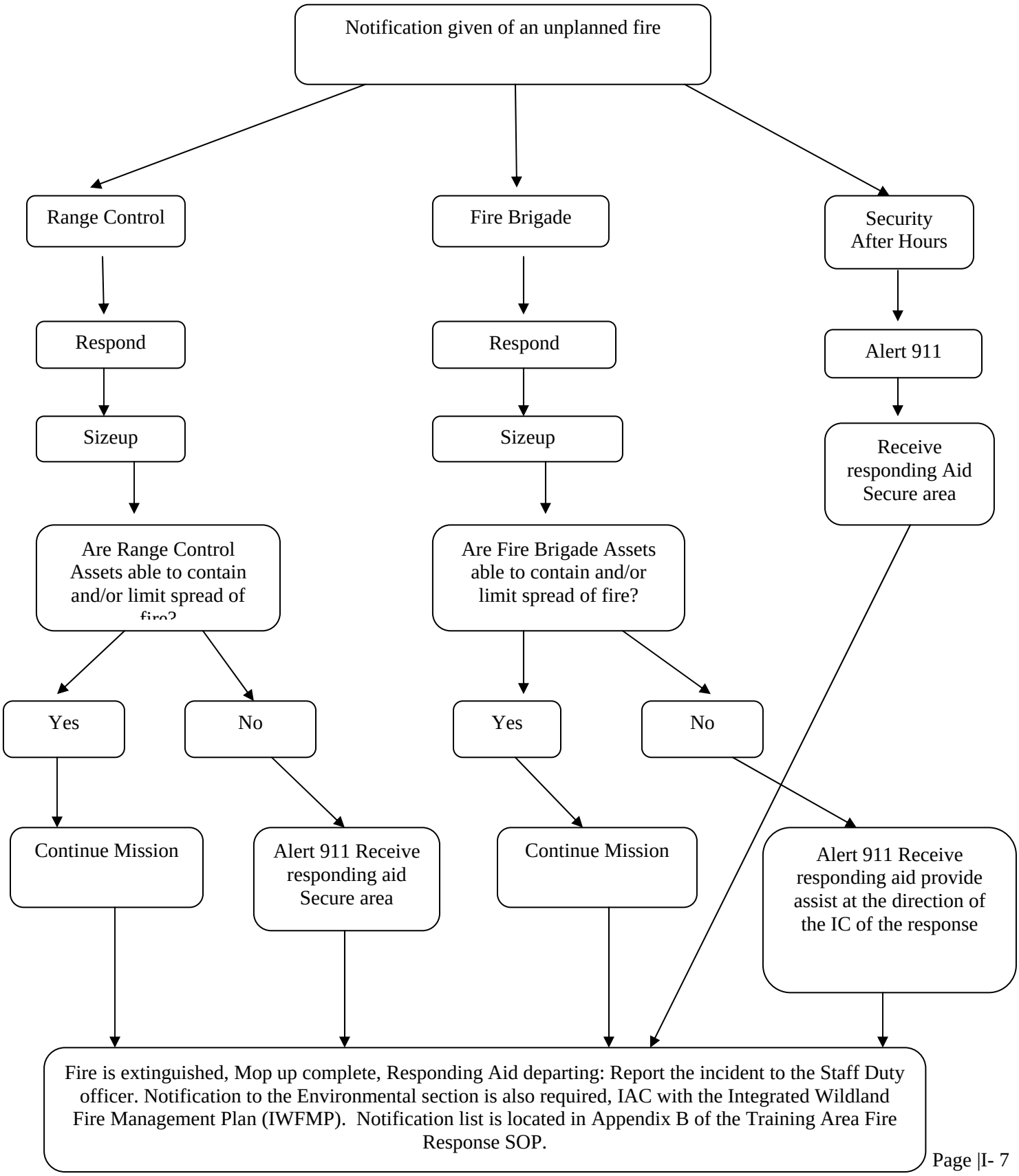
After the fire is extinguished, mop up complete and the responding aid has departed:

- Report the incident to the Staff Duty officer.
- Notification to the Environmental Branch is also required, IAW with the Integrated Wildland Fire Management Plan (IWFMP).

- Notification list is located in Annex B of the Training Area Fire Response SOP.
- Before the resumption of any training that resulted in the unplanned fire, the CDFB will brief the training unit OIC/NCOIC and make recommendations to changes in the training activity to prevent a reoccurrence of an unplanned fire.

Annex A: Fire Response Flow Chart.

Camp Dodge Wild Fire Response



APPENDIX M
Bald Eagle Permit Process
General Information

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Permit for Non-Purposeful Take of Eagles
Fact Sheet:

Authorized Activities Involving Unintentional Eagle Disturbance
The Bald and Golden Eagle Act prohibits anyone from "taking" bald eagles. Among other actions, “take” includes disturbance of bald eagles to the degree that it substantially interferes with breeding, feeding, or sheltering behavior or results in injury.

A permit can be issued for taking eagles when the take is associated with, but not the purpose of, an activity and cannot practicably be avoided. We refer to this type of take as "non-purposeful take." Authorization is subject to conditions to minimize impacts. The regulation authorizing non-purposeful take permits for bald and golden eagles can be found in the Code of the Federal Register 50 CFR 22.26

How Do I Know if I Need a Permit for Non-Purposeful Take?
Is your project or activity near an eagle nest?
In general, if you are conducting a new activity or project near an eagle nest, you may need a permit for "non-purposeful" take.

Bald Eagles: For step-by-step guidance in determining whether you may need a non-purposeful take permit for bald eagles please consult the following web page:
http://www.fws.gov/midwest/MidwestBird/eaglepermits/baeatake/index.html

Golden Eagles: There are no confirmed contemporary nesting records of Golden Eagles in Region 3 (MI, MN, MO, IL, IN, IA, OH or WI), but if you think you may have a golden eagle nest that will be affected by your project, please contact our Migratory Bird Permit Office:
Migratory Bird Permit Office
U.S. Fish and Wildlife Service
5600 American Blvd. West, Suite 990
Bloomington, MN 55437-1458
Phone: 612-713-5436

Is your project or activity near an area where eagles roost or forage?
Eagles are not as sensitive to human disturbance during migration and winter as they are while nesting. However, wintering eagles congregate at specific sites year-after-year for purposes of feeding and sheltering. Eagles rely on these established roost sites because of their proximity to sufficient food sources. Permanent landscape changes may eliminate these "relied upon" areas and force eagles to seek out other wintering roost and foraging areas. Depending on the proximity of other suitable roost or foraging areas and the condition of the affected eagles, loss of these areas can harm eagles. In addition, human activities near or within communal roost sites may—although not physically alter the habitat—prevent eagles from feeding or taking shelter. In either case, the action may violate the Eagle Act's prohibition against disturbing eagles and a permit may be needed. If your activities may disturb roosting or foraging eagles, you should contact your local U.S. Fish and Wildlife Service eagle biologist for advice and recommendations for how to avoid such disturbance and whether a permit is necessary.

Source:
http://www.fws.gov/midwest/MidwestBird/eaglepermits/pdf/R3EaglePermitsFactSheet.pdf

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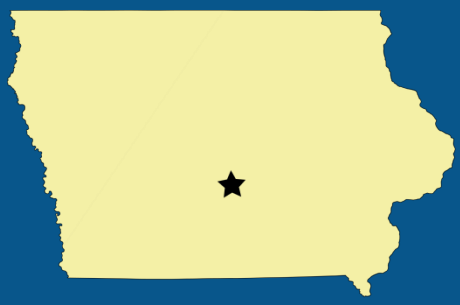
Operational Range Assessment
Phase II Assessment Report
Camp Dodge, Iowa
Iowa Army National Guard

January 2013



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FINAL Report
Operational Range Assessment
Phase II Assessment Report
Camp Dodge, Iowa
Iowa Army National Guard

Contract / Delivery Order:	W912DR-09-D-0003 / 0008
Lead Organizations:	U.S. Army Corps of Engineers (USACE) Baltimore District Army National Guard (ARNG) Directorate
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Acronyms and Abbreviations

°C	degrees Celsius
°F	degrees Fahrenheit
µg/L	micrograms per liter
amsl	above mean sea level
APP	Accident Prevention Plan
APPL	Agriculture and Priority Pollutants Laboratories, Inc.
ARCADIS/Pirnie	ARCADIS/Malcolm Pirnie
ARID-GEO	Army Range Inventory Database – Geodatabase
ARNG	Army National Guard
AVS/SEM	acid volatile sulfide / simultaneously extracted metals
bgs	below ground surface
BLM	Biotic Ligand Model
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COC	chain of custody
CSM	conceptual site model
DI	deionized
DoD	Department of Defense
DoDD	Department of Defense Directive
DoDI	Department of Defense Instruction
DQO	data quality objective
GIS	geographic information system
IA	Iowa
IADNR	Iowa Department of Natural Resources
ISQAPP	Installation-Specific Quality Assurance Project Plan
LOD	Limit of Detection
LOQ	Limit of Quantitation
MCL	Maximum Concentration Level
MCOC	munitions constituents of concern
mg/kg	milligram(s) per kilogram

mg/L	milligram(s) per liter
MOA	Memorandum of Agreement
MS/MSD	matrix spike/matrix spike duplicate
NCR	Nonconformance Report
ORA	Operational Range Assessment
PA	Preliminary Assessment
PAL	project action limit
Phase I	ORA Phase I Assessment
Phase II	ORA Phase II Assessment
PQAPP	Programmatic Quality Assurance Project Plan
QA	quality assurance
QC	quality control
RDX	cyclotrimethylenetrinitramine
SI	Site Inspection
SOP	Standard Operating Procedure
SWS	State Wide Standards
TOC	total organic carbon
URS	URS Group, Inc.
U.S.	United States
USACE	United States Army Corps of Engineers
USACHPPM	United States Army Center for Health Promotion and Preventive Medicine
USAIPH	United States Army Institute of Public Health
USEPA	United States Environmental Protection Agency
VOC	volatile organic compounds

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Executive Summary

To meet Department of Defense (DoD) requirements and support the U.S. Army's Sustainable Range Program, the Army National Guard (ARNG) Directorate is conducting assessments to determine whether a release or substantial threat of release of munitions constituents of concern (MCOC) from an operational range to an off-range area creates a potentially unacceptable risk to human health or the environment.

An Operational Range Assessment (ORA) Phase I Assessment (Phase I) was performed in 2007 (USACE, 2008) to assess whether a potential MCOC source exists on the operational range, a potential MCOC migration mechanism exists, and human and/or sensitive ecological receptors are present at the installation. The Phase I determined that potentially complete source-receptor pathways are present at Camp Dodge.

For operational ranges determined in the Phase I to have a potentially complete source-receptor pathway, the ARNG Directorate conducts an ORA Phase II Assessment (Phase II) of potentially complete pathways of MCOC to non-operational areas. This Phase II report presents the evaluation of source-receptor pathways at Camp Dodge in Johnston, Iowa. URS Group, Inc. (URS) and ARCADIS/Malcolm Pirnie conducted the assessment under contract W912DR-09-D-0003/0008 with the U.S. Army Corps of Engineers (USACE) Baltimore District in support of the ARNG Directorate.

The Phase II established whether the source-receptor pathway identified during the Phase I is complete or whether new information was available that would affect the previous conclusions. To determine whether MCOC were leaving the operational range by an identified pathway (e.g., groundwater, surface water) and posed a potential risk to offsite receptors, the ORA team considered existing and new data, including sampling data. The ORA team may accomplish the Phase II by re-evaluating existing information (e.g., prior sampling, reports), through the use of modeling, and/or collecting additional samples. All available information is used to update the conceptual site model (CSM) and to establish a weight-of-evidence case that determines whether there has likely been an MCOC release from the operational range that may pose an unacceptable risk to an off-range receptor.

Camp Dodge occupies approximately 4,400 acres of land in Polk County located in central Iowa (**Figure ES-1**). Of the 4,400 acres, 2,000 acres are federally owned and licensed to the IAARNG for training. The remaining 2,400 acres are owned by the State of Iowa (IAARNG, 2008). The City of Johnston abuts the installation on the southern border, and the City of Des Moines lies approximately five miles south of the boundary of Camp Dodge (USACE, 2008).

Today, Camp Dodge serves as the joint maneuver training center for the IAARNG. Live-firing, equipment, urban, and vehicle training, and maneuver and training occur at Camp Dodge. The leased land to the east is used infrequently for light maneuver and amphibious training. The installation is also used by Air National Guard, Army Reserve, Marine Corps Reserve, and Reserve Officer's Training Corps for training purposes. Camp Dodge is used to train combat ready units, including the Cavalry, Infantry, Engineer, Transportation, Medical, Aviation,

Maintenance and Quartermaster. Soldiers nationwide come to Camp Dodge to train since it is the site of the only National Maintenance Training Center in the United States. In addition, civilian agencies train at Camp Dodge, including the Iowa State Emergency Operations Center, the Midwest Counterdrug Training Center, and the Iowa Law Enforcement Academy. The State Logistical Support Center is also based out of Camp Dodge and law enforcement training also takes place on the installation (USACE, 2008).

When combined with the Saylorville Training Area (TA) (28,203 acres of USACE-owned land associated with Camp Dodge), Camp Dodge is reported as having a total of 32,641.45 noncontiguous acres in Army Range Inventory Database – Geodatabase (ARID-GEO) (2007). There is a total operational range area of 34,416.21 acres. In ARID-GEO (2007) several of the ranges overlap; hence the reported total operational range acreage is greater than the actual total operational use area. The Saylorville TA is located east of Camp Dodge. The USACE-owned acreage was included with Camp Dodge in ARID-GEO (2007) because the land is used by IAARNG via a Memorandum of Agreement (MOA). The leased area lies east of northwest Beaver Drive and spans 50 miles north and south, starting 30 miles northeast of Camp Dodge and ending seven miles southeast of Camp Dodge in the City of Des Moines. The leased area is used for infrequent light maneuver and amphibious training. Pyrotechnics/obscurants and blanks are authorized to be used on this land through special permission; no munitions are used at Saylorville TA (USACE, 2008). During the ORA Phase I, Saylorville TA was identified as unlikely.

For the purpose of Phase II, potential MCOC source areas are identified as ten *Inconclusive* areas totaling approximately 86 acres, located in the southern portion of Camp Dodge. Small arms ammunition was used at these operational ranges. Explosives were considered a potential MCOC based on a former demolition area located upgradient of the *Inconclusive* areas.

The Phase I determined that potential MCOC from the current impact areas may migrate via runoff, erosion, and/or leaching and infiltration. Infiltration may affect groundwater, which discharges to surface water on/off installation. Groundwater is potentially used for drinking water at domestic wells immediately adjacent to Camp Dodge. Surface water is the primary migration pathway to potential off-range human and ecological receptors. Beaver Creek discharges to Des Moines (three miles south of Camp Dodge), which is used recreational purposes with sensitive ecological receptors.

During the Phase II, surface water samples were collected at two downstream locations and at one reference location during four events conducted during both wet and dry seasons, including one storm event. In addition, three independent groundwater sampling events were completed at two drinking water supply wells. Sediment samples were collected in triplicate during one event in the dry season as 30-point incremental composites from the same depositional areas as the surface water sampling locations. Sample locations are shown on **Figure ES-1**. A summary of the sampling program is provided in (**Table ES-1**). Laboratory analyses included metals MCOC (antimony, copper, lead and zinc) in surface water and sediment and explosives MCOC in surface water and groundwater. Additional laboratory analyses included acid volatile sulfide/simultaneously extracted metals (AVS/SEM) and total organic carbon (TOC) in sediment,

and biotic ligand model parameters in surface water. The analytical results discussed below are also summarized in **Figure ES-1**.

Explosives and metals MCOCs concentrations were below Project Action Levels (PALs) in surface water and groundwater; and metals MCOC were below PALs in sediment. Given site conditions such as natural vegetative barriers and the absence of explosives in surface water and groundwater samples collected during multiple sampling rounds and the low levels of metals detected in sediment samples and multiple rounds of surface water samples collected during a variety of flow conditions, it is concluded that MCOC are not migrating off-range at levels that pose an unacceptable risk to human or ecological receptors. This conclusion is supported by the repeatability of data demonstrated by the multiple sampling events in different seasons, similarity in replicate (triplicate) incremental sediment results, and the inherent conservativeness of the PALs.

Based on the data collected and conditions observed in 2011 and 2012, there was no unacceptable risk to off-range human or ecological receptors from potential sources associated with the operational areas at Camp Dodge. Implementation of appropriate best management practices will reasonably ensure no future MCOC migration from the potential MCOC sources associated with the operational footprint at Camp Dodge.

Table ES-1 Camp Dodge Sampling Program

MCOC	Location										
	DG01 (Reference)			DG02 (Downstream)			DG03 (Downstream)			DGMW07	DGMW08
	SW Wet	SW Dry	SD Dry	SW Wet	SW Dry	SD Dry	SW Wet	SW Dry	SD Dry	3 Events	3 Events
Metals	X	X	X	X	X	X	X	X	X	-	-
Explosives	-	-	-	X	X	-	X	X	-	X	X

Notes:
MCOC = munitions constituents of concern
MW = Monitoring Well
SD = Sediment
SW = Surface Water
Dry Season = November 2011
Wet Season= May 2012

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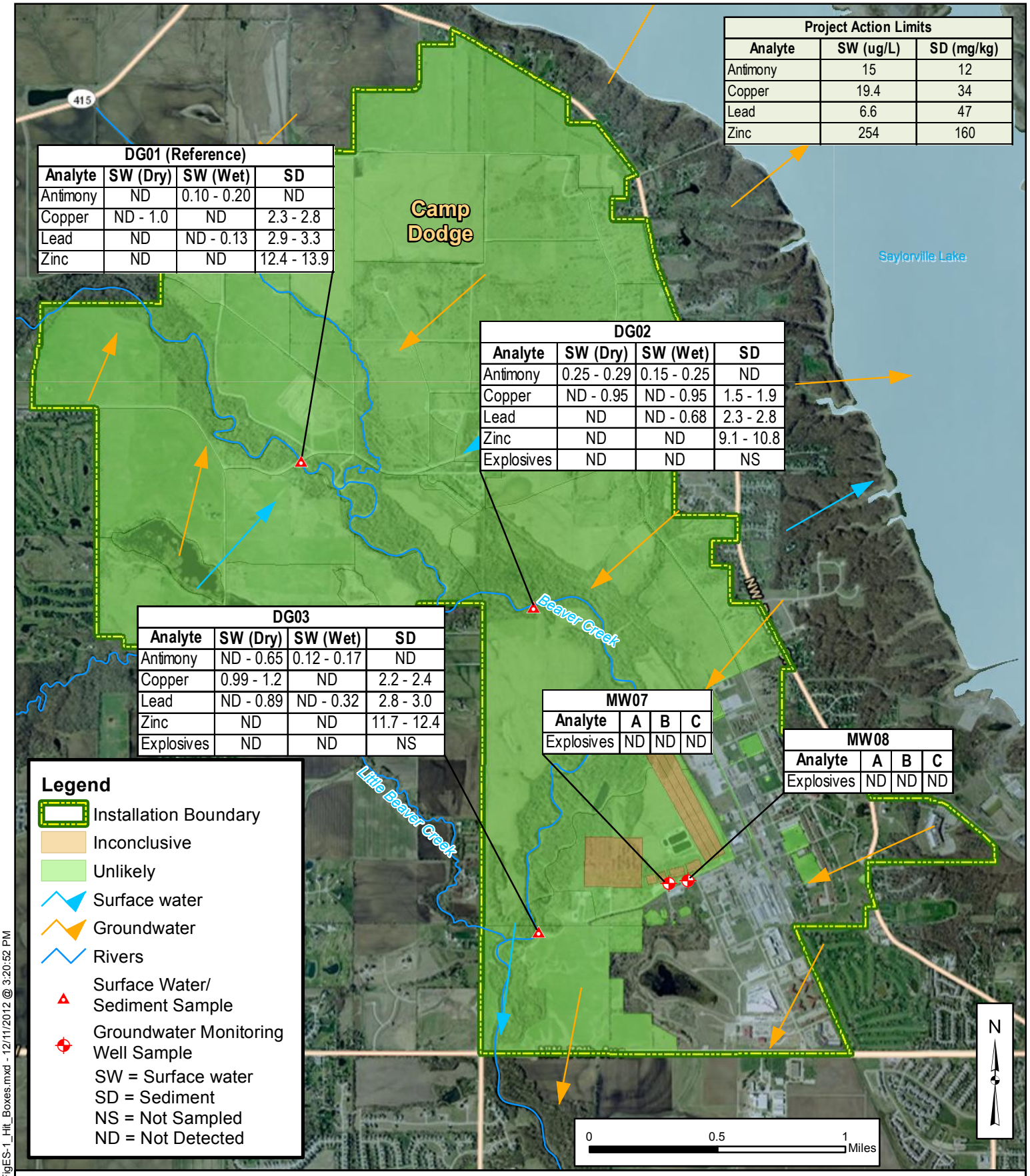

Project Action Limits

Analyte	SW (ug/L)	SD (mg/kg)
Antimony	15	12
Copper	19.4	34
Lead	6.6	47
Zinc	254	160

DG01 (Reference)

Analyte	SW (Dry)	SW (Wet)	SD
Antimony	ND	0.10 - 0.20	ND
Copper	ND - 1.0	ND	2.3 - 2.8
Lead	ND	ND - 0.13	2.9 - 3.3
Zinc	ND	ND	12.4 - 13.9

DG02

Analyte	SW (Dry)	SW (Wet)	SD
Antimony	0.25 - 0.29	0.15 - 0.25	ND
Copper	ND - 0.95	ND - 0.95	1.5 - 1.9
Lead	ND	ND - 0.68	2.3 - 2.8
Zinc	ND	ND	9.1 - 10.8
Explosives	ND	ND	NS

DG03

Analyte	SW (Dry)	SW (Wet)	SD
Antimony	ND - 0.65	0.12 - 0.17	ND
Copper	0.99 - 1.2	ND	2.2 - 2.4
Lead	ND - 0.89	ND - 0.32	2.8 - 3.0
Zinc	ND	ND	11.7 - 12.4
Explosives	ND	ND	NS

MW07

Analyte	A	B	C
Explosives	ND	ND	ND

MW08

Analyte	A	B	C
Explosives	ND	ND	ND

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Figure ES-1
Phase II Assessment Findings
Operational Range Phase II Assessment
Camp Dodge, IA

Data Sources:
AEC, 2006
USACE, 2008
Imagery: USA Prime Imagery, ESRI
ArcGIS Online and data partners

Date.....December 2012
Prepared by.....URS Group, Inc.
Prepared for.....ARNG Directorate
Contract.....W912DR-09-D-0003 / 0008

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1 Introduction

1.1 Project Purpose and Overview

URS Group, Inc. (URS) with the support of ARCADIS/Malcolm Pirnie (ARCADIS/Pirnie) conducted an Operational Range Assessment (ORA) Phase II study at Camp Dodge for the U.S. Army Corps of Engineers (USACE) and the Army National Guard (ARNG) Directorate. The Operational Range Phase II Assessment (Phase II) was required due to the conclusions of the Phase I Assessment (Phase I) conducted for Camp Dodge (USACE, 2008). Camp Dodge is located near Johnston, Iowa (**Figure 1-1**).

The Phase I used readily available information to determine whether operational areas had a source of munitions constituents of concern (MCOC), a migration pathway (via surface water or groundwater systems) for MCOC, and potential receptors (human or ecological) along that pathway. The conclusion of the Phase I was that the available information was not sufficient to confirm whether an off-range release of MCOC is occurring at concentrations that present an unacceptable risk to human health and/or sensitive ecological receptors. A Phase II was therefore required. The Phase II is designed to collect and evaluate appropriate data to determine whether or not an off-range release has occurred at concentrations above risk-based thresholds.

1.2 Project Scope and Drivers

The United States (U.S.) Army is conducting assessments at operational ranges to meet the requirements of Department of Defense (DoD) policy and to support the U.S. Army Sustainable Range Program. The ORA is being implemented to fulfill requirements identified implicitly or explicitly in:

- DoD Directive (DoDD) 4715.11 *Environmental and Explosives Safety Management on Operational Ranges Within the United States* (DoD 2004) and
- DoD Instruction (DoDI) 4715.14 *Operational Range Assessments* (DoD 2005).

The DoDD and DoDI require that U.S. Army installations maintain an operational range inventory and evaluate the potential for off-range migration of munitions constituents. The DoDI identifies munitions constituents to be evaluated and lays out a scientifically sound process for assessing and presorting potential off-range environmental impacts of military munitions used on operational ranges. In particular, the DoDI requires the DoD components to respond to a release or substantial threat of release of MCOC from an operational range area to off-range areas, when such release poses an unacceptable risk to human health or the environment.

1.3 Work Authority

The Phase II for Camp Dodge was performed under Contract No. W912DR-09-D-0003/0008 with the USACE Baltimore District. The ARNG Directorate is the program manager and provides programmatic coordination, as designated by the Assistant Chief of Staff for Installation Management's Installation Services Environmental Division. The U.S. Army Institute of Public Health (USAIPH) provides technical assistance to the ARNG Directorate.

1.4 ORA Phase I

One-hundred and five (105) operational areas at Camp Dodge were evaluated in the Phase I and were placed into one of two possible categories – *Unlikely or Inconclusive*. The two categories are defined as follows:

- ***Unlikely* – Periodic Review:**[1] Based on a review of readily available information, the conceptual site model indicates that one or more of the three conditions for a source-receptor interaction is not present (i.e., no source, pathway, or receptor), or where pathways are complete, data are sufficient to indicate no unacceptable risk to human health or the environment. These operational areas are placed into a periodic review cycle to re-evaluate whether a change in conditions has occurred.
- ***Inconclusive* – Phase II Required**: Readily available information is insufficient to ascertain whether MCOC from an operational area is migrating to a potential off-range receptor or the information indicates the potential for such an interaction, but risk levels are uncertain. These sites undergo a Phase II.

In the Phase I, ninety-five (95) operational areas, specifically non-live fire training and maneuver areas, were categorized as *Unlikely*.

Ten (10) ranges were categorized as *Inconclusive*. These ranges have current and/or historical sources of potential MCOC that were identified during the Phase I. Munitions used at these operational areas include small caliber arms. These MCOC have the potential to migrate off range via Beaver Creek **(Figure 1-2)**. MCOC also include historic use of explosives at the demolition range located on the northern boundary toward the center of the installation.

1.5 ORA Phase II

The strategy for the Phase II was based on the U.S. Environmental Protection Agency's (USEPA's) systematic planning or data quality objective (DQO) process. The application of the DQO process is required by DoDI 4715.14. The DQO process provides a sequence of logical steps to address the sampling rationale, decision criteria, and approaches in selecting a sampling design. The DQO process is iterative and assists in determining the appropriate type, quantity, and quality of environmental data necessary for making decisions that are technically sound and defensible. Guidance on using the DQO process can be found in *Guidance on Systematic Planning Using the DQO Process* (USEPA, 2006).

The structure of the ORA process is based on the DQOs. The Phase I was designed to provide the basis for Step 1 of the DQO process, which leads to the seven-step planning process for the Phase II. The Phase I is the initial gathering of data that enables construction of a conceptual site model (CSM) and the identification of pathways that could allow MCOC from an on-range

[1] All operational ranges must be periodically re-evaluated to determine if there is a release or substantial threat of release of MCOC from an operational range to an off-range area. Range groups categorized as Unlikely are to be re-evaluated periodically. Re-evaluation may occur if significant changes (e.g., changes in range operations or site conditions, regulatory changes) occur that affect determinations made during the Phase I Assessment.

source to interact with off-range receptors at concentrations that would pose a potential risk to human health or the environment.

The Phase II uses a weight-of-evidence approach to determine whether there is an unacceptable risk to off-range human and ecological receptors from on-range MCOC sources. When appropriate, a Phase II includes sampling and analysis of media in the potential pathways for the MCOC identified in the Phase I and refined through the preliminary stages of the Phase II evaluation. The Phase II was guided in part by the USAIPH *Army Operational Range Assessment Phase II Investigation Protocol* (USACHPPM,[2] 2009) and the *ARNG ORA Focus for Technical Sampling* (ARNG, 2011).

1.6 Organization of the Report

The Phase II results, analyses, and conclusions are presented in this report. The report consists of eight sections and four appendices:

- **Section 1 – Introduction**: Project purpose, background, work authority, and introduction to ORA
- **Section 2 – Camp Dodge Overview**: Installation profile, physical features, and summary of previous investigations
- **Section 3 – ORA Phase II**: CSM for the surface water pathway and technical approach for the Phase II
- **Section 4 – Methodology**: Methodologies used in the Phase II
- **Section 5 – Data Analyses**: Overview of laboratory methods and analyses
- **Section 6 – Data Results**: Results of the Phase II and other evidence used to reach conclusions
- **Section 7 – Weight-of-Evidence Evaluation and Conclusions**: Summary of the findings and the conclusions of the Phase II
- **Section 8 – References**: List of all documents used in the preparation of the Phase II report
- **Appendix A – Photograph Log**: Photographs taken at the sampling locations
- **Appendix B – Field Forms**: Documents completed in the field: chain of custody (COC), nonconformance reports (NCRs), field safety forms, and surface water and sediment sample collection logs
- **Appendix C – Analytical Tables**: Summary tables with all surface water, sediment, and Quality Control (QC) sample results

[2] The U.S. Army Institute of Public Health (USAIPH) was formerly the U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM).

- **Appendix D – Data Usability Summary Reports:** Tier III Data Validation Report prepared for each Sample Delivery Group as assigned by the laboratory

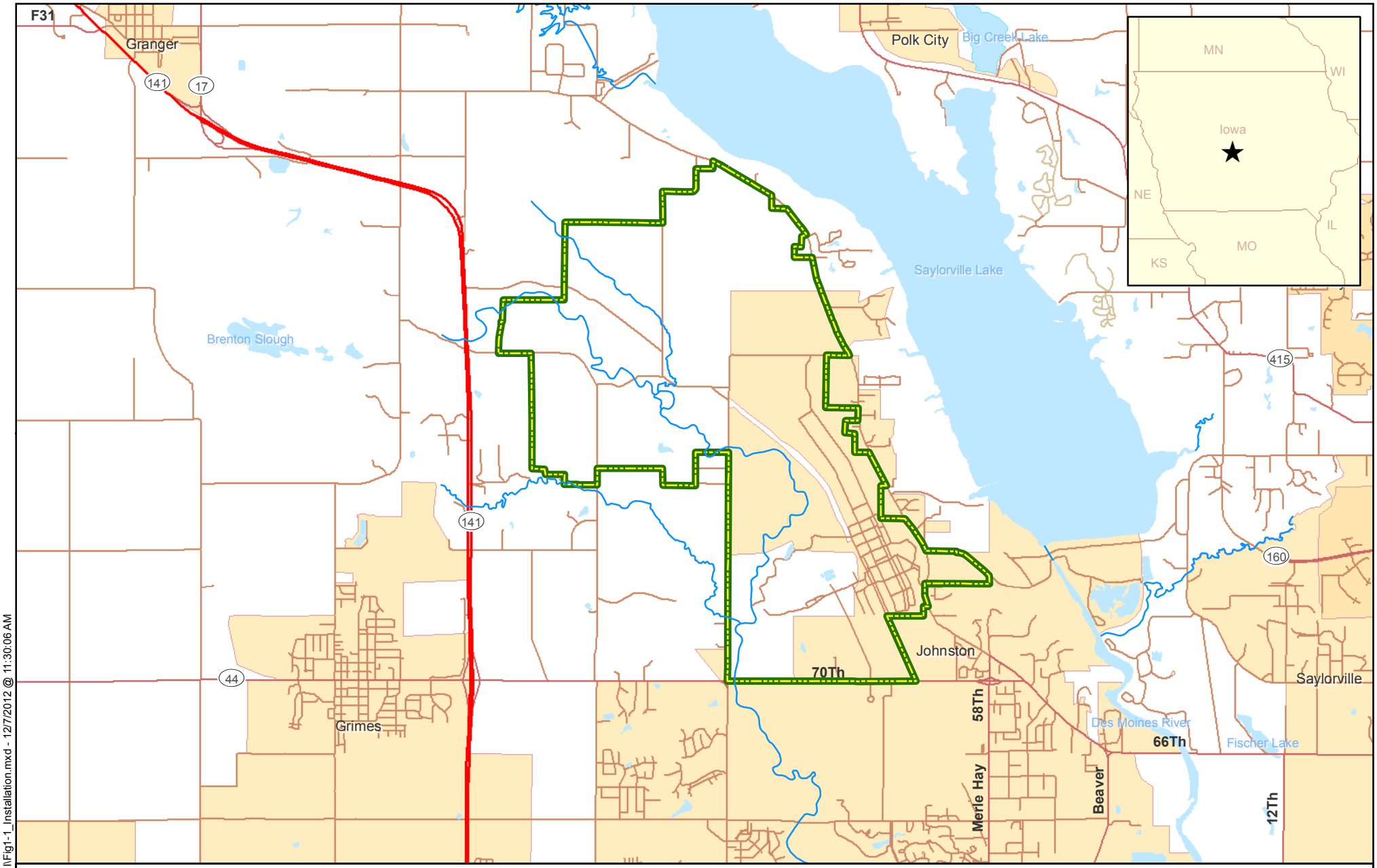

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Figure 1-1
Installation Location Map
Operational Range Phase II Assessment
Camp Dodge, IA

Data Sources:
U.S. Army Sustainable Range Program (SRP), 2009
Imagery: ESRI ArcGIS Online and data partners, including imagery from agencies supplied via the Content Sharing Program

Date.....December 2012
Prepared by.....URS Group, Inc.
Prepared for.....ARNG Directorate
Contract.....W912DR-09-D-0003 / 0008

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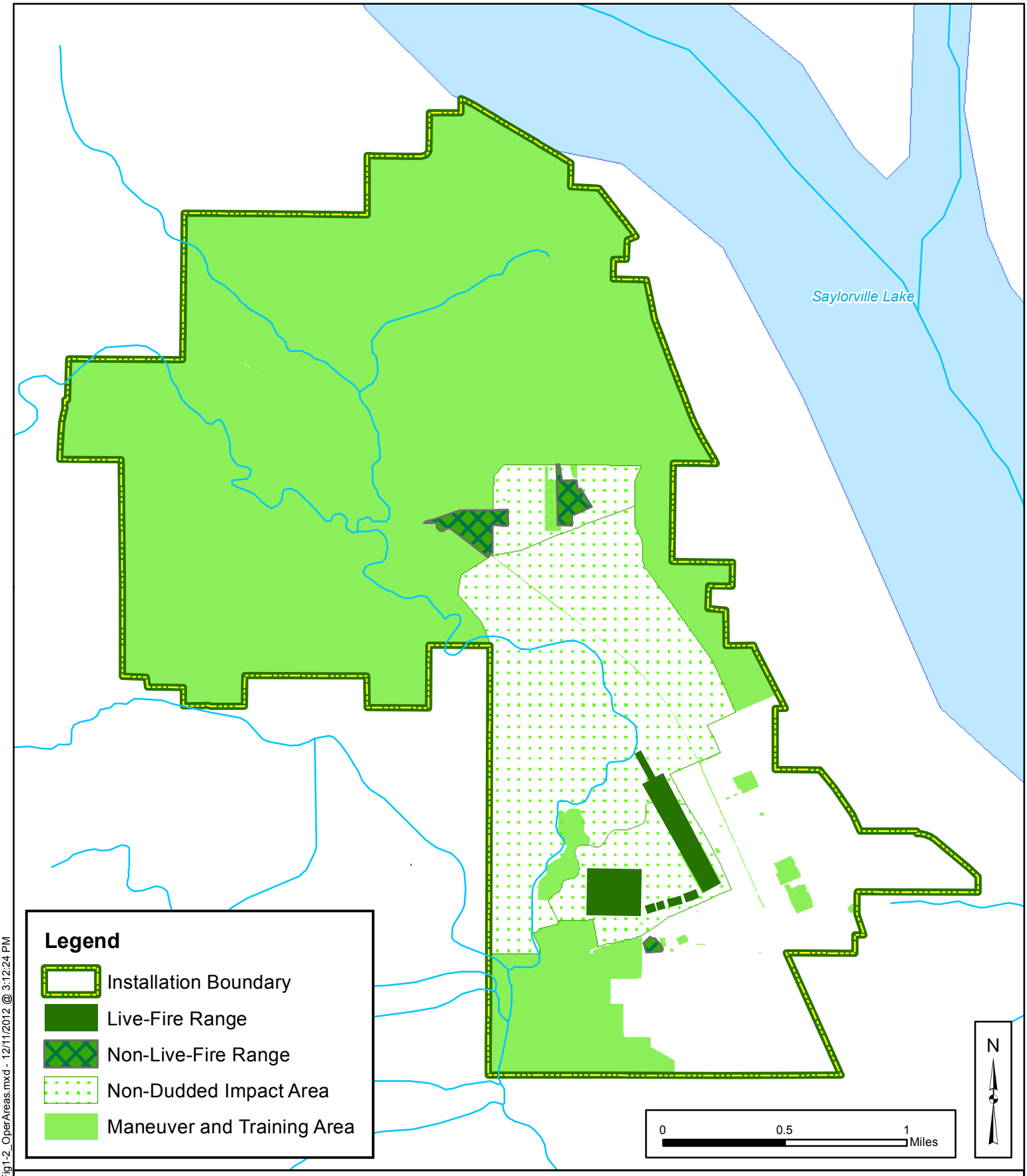

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Figure 1-2
Operational Areas
Operational Range Phase II Assessment
Camp Dodge, IA

Data Sources:
AEC, 2006
USACE, 2008
Imagery: USA Prime Imagery, ESRI
ArcGIS Online and data partners

Date.....December 2012
Prepared by.....URS Group, Inc.
Prepared for.....ARNG Directorate
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2 Camp Dodge Overview

2.1 Installation Background

Camp Dodge occupies approximately 4,400 acres of land in Polk County located in central Iowa (**Figure 1-1**). Of the 4,400 acres, 2,000 acres are federally owned and licensed to the IAARNG for training. The remaining 2,400 acres are owned by the State of Iowa (IAARNG, 2008). The City of Johnston abuts the installation on the southern border, and the City of Des Moines lies approximately five miles south of the boundary of Camp Dodge (USACE, 2008).

Training began at Camp Dodge in 1909, but the installation was not officially established until 1917. From 1917 to the present, the size and ownership of Camp Dodge changed to meet the needs of the mission. During World War I, Camp Dodge served as an Active Army induction center for mobilizing and training soldiers. Between World War I and World War II, ownership was transferred to the State of Iowa for National Guard training. During World War II, Camp Dodge was transferred back to federal ownership to serve as an induction center and provide minimal training for soldiers. Ownership was transferred back to the State of Iowa in 1955 for National Guard training. In 1965, a portion of Camp Dodge (872 acres) was transferred to the USACE for the Saylorville Dam Project. A large earthen dam was built and flooded the area east of present day Camp Dodge (USACE, 2008).

Today, Camp Dodge has the capacity to train 2,400 soldiers at one time and serves as the weekend training site for the IAARNG. Live-firing, equipment, urban, and vehicle training, and maneuver and training occur at Camp Dodge. The leased land to the east is used infrequently for light maneuver and amphibious training. The installation is also used by Air National Guard, Army Reserve, Marine Corps Reserve, and Reserve Officer's Training Corps for training purposes. Camp Dodge is used to train combat ready units, including the Cavalry, Infantry, Engineer, Transportation, Medical, Aviation, Maintenance and Quartermaster (IAARNG, 2008). Soldiers nationwide come to Camp Dodge to train since it is the site of the only National Maintenance Training Center in the United States. In addition, civilian agencies train at Camp Dodge, including the Iowa State Emergency Operations Center, the Midwest Counterdrug Training Center and the Iowa Law Enforcement Academy. The State Logistical Support Center is also based out of Camp Dodge and law enforcement training also takes place on the installation. Schools, business groups, not-for-profit groups, and the general public also use Camp Dodge facilities (USACE, 2008).

When combined with the Saylorville Training Area (TA) (**Figure 2-1**) (28,203 acres of USACE-owned land associated with Camp Dodge), Camp Dodge is reported as having a total of 32,641.45 noncontiguous acres in Army Range Inventory Database – Geodatabase (ARID-GEO) (2007). There is a total operational range area of 34,416.21 acres. In ARID-GEO (2007) several of the ranges overlap; hence the reported total operational range acreage is greater than the actual total operational use area. A total of 105 ranges exist within the combined operational area of Camp Dodge and Saylorville TA. The Saylorville TA is located east of Camp Dodge. The USACE-owned acreage was included with Camp Dodge in ARID-GEO (2007) because the land is used by IAARNG via a Memorandum of Agreement (MOA). For purposes of this report, the main training area (4,400 acres) will be referred to as Camp Dodge and the leased land will be referred to as such. The MOA produced by the USACE only recognizes the leased area as 26,000

acres. The leased land lies east of northwest Beaver Drive and spans 50 miles north and south, starting 30 miles northeast of Camp Dodge and ending seven miles southeast of Camp Dodge in the City of Des Moines. The largest city surrounding the leased land in the north is Boone City about one and one half miles east of the leased area. Polk City shares the eastern border of the leased land near Big Creek State Park. The remaining land west of northwest Beaver Drive is the main portion of Camp Dodge where all live-fire activity occurs and has been designated a Major Training Area. The leased area is used for infrequent light maneuver and amphibious training. Pyrotechnics/obscurants and blanks are authorized to be used on this land through special permission; however, Camp Dodge training personnel have no records of pyrotechnics/obscurants being used (USACE, 2008). During the ORA Phase I, Saylorville TA was identified as *Unlikely*.

These ranges cover approximately 34,416.21 operational acres.

2.2 Physical Description

2.2.1 Climate

Camp Dodge has a continental climate meaning hot, humid summers and extremely cold winters with possible heavy snowfall. Average monthly temperatures range from 11.3 to 85 degrees Fahrenheit (˚F) with a mean annual temperature of 48.6˚ F (9.2 degrees Celsius [˚ C]). January is usually the coldest month and thereafter temperatures gradually increase, peaking in July. December, January, and February have mean monthly temperatures below freezing. The growing period occurs approximately when temperatures rise above 50˚ F (10˚ C), from April to September (USACE, 2008).

The mean annual precipitation is 31.3 inches (796 millimeters), approximately 60 percent of this amount falling from May through September. The largest amounts of rainfall occur in May through June.

2.2.2 Topography

The topography of Camp Dodge is largely characterized by repeated glaciation over the past million years. Camp Dodge is located within the Cary drift region of the Des Moines lobe. Elevations on Camp Dodge range from 820 to 950 feet above mean sea level (amsl). The western and central portions of the installation are level at an elevation of approximately 850 feet amsl. The main training area and non-dudded impact area are located within this area of land. Beaver Creek ranges in elevation from about 820 to 850 feet amsl and runs north to south through the level western and middle areas of the Camp Dodge, bisecting the non-dudded impact area. Approximately three miles southeast of the Camp Dodge, Beaver Creek converges with the Des Moines River.

The elevation of the upland ridge along the eastern boundary of Camp Dodge is approximately 1,000 feet amsl. This ridge acts as a drainage divide for both surface water and groundwater flow; water east of the ridge flows toward Saylorville Lake, water west of the ridge flows west towards Beaver Creek. The area surrounding Camp Dodge is primarily terrace plain and used for agricultural purposes. Land west of Camp Dodge, the other side of the valley, reaches elevations of 950 to 1,000 feet amsl.

The leased area that borders the Des Moines River, and lies south of the main training area, averages 800 feet amsl in elevation throughout the installation boundary. The leased area that lies to the east and north of the main training area ranges in elevation between 820 and 950 feet amsl, with the average of 900 feet amsl on the installation boundary.

2.2.3 Soil

During glacial episodes that ended approximately 14,000 years ago, the Des Moines Lobe advanced into Iowa. Three ice surges extended into central Iowa during the most recent glaciation, each followed by stagnation of the glacier and slow decay of the ice sheet. The soil in central Iowa is characterized by the glacial melting that occurred. A mixture of soils are found below the non-contiguous sections of Camp Dodge.

There are four soil associations found at Camp Dodge: Clarion, Nicollet, and Webster; Clarion and Webster; Dickinson and Farrar; and Waukegan and Dickinson. The Clarion, Nicollet and Webster association are found within the upland region on the eastern boundary of Camp Dodge. Clarion soil is formed in till and is moderately permeable. The slope for this soil series is one to nine percent. Nicollet soil is formed from loamy till and has very poor permeability. The slope for this soil is zero to five percent. Webster soil can be formed from either till or alluvium and has poor to moderate permeability. The slope range is zero to three percent. In this soil series the surface drainage is not well developed and runoff is common (IAARNG, 2008).

The Dickinson and Farrar soil series is found on the slopes of Camp Dodge and also within the valley area. The Waukegan and Dickinson series can be found along Beaver Creek. Dickinson soil is formed from alluvial and glacial deposits and is very permeable. The slope of this soil series ranges from zero to 30 percent. Dickinson soil is prominent in the lower area of Camp Dodge along the western side of Beaver Creek, north of the non-dudded impact area, south central of Camp Dodge and east of the cantonment area. Farrar soil is comprised of sandy loam and is very permeable within the top section, but the lower portion is only moderately permeable. Slope range for this soil series is also zero to 30 percent. Waukegan soil is also very permeable and commonly found in valleys. It is comprised of silty glacial outwash and has a slope of zero to 12 percent (IAARNG, 2008; USACE, 2008).

The leased area that extends north and south of the main training area are mainly comprised of the same or similar soil associations and series. The leased land-installation boundary follows the flow of the Des Moines River, and as expected, the soils that are closest to the river are fine sandy loams. Closer to the installation boundary, the soil texture becomes finer and includes loams, clay loams and pockets of gravelly sandy loams and silty clay loams.

2.2.4 Geology

The northern portion of Polk County, including Camp Dodge, is characterized by Quaternary glacial and alluvial stratigraphy. The thickness of Quaternary deposits ranges from approximately 100 to 150 feet. The unconsolidated Quaternary deposits overlay Pennsylvanian bedrock in the area of Camp Dodge (USACE, 2008).

Camp Dodge is underlain by variable thicknesses of alluvial sand and silt associated with the modern Beaver Creek channel and overbank sedimentation. Approximately 15 feet of

supraglacial sand, silt and clay from the Morgan Member of the Dows Formation lies below the surficial alluvial sediments throughout the Beaver Creek Valley floodplain. The Morgan Member can also be found at the surface in upland regions. Below the Morgan Member is the subglacial Alden Member of the Dows Formation, composed of dense and relatively impermeable loam diamicton of variable thickness. The glacial sediments lie upon pre-glacial Quaternary alluvium that was deposited in a buried bedrock channel known as Beaver Channel (USACE, 2008).

Underlying the Quaternary unconsolidated deposits are approximately 200-250 feet of Pennsylvanian-age bedrock, approximately 100-150 feet below ground surface (bgs). The Pennsylvanian Cherokee Group underlies the site and is comprised of shales, siltstones, and sandstones. The Cherokee Group directly overlies Mississippian bedrock found at depths from approximately 300 to 400 feet bgs. Within the Des Moines area, Mississippian-aged bedrock is about 350 feet thick and is primarily comprised of limestones and dolomites (USACE, 2008).

The surficial geology of the leased area that lies north of the main installation area in Boone County is mainly comprised of Des Moines River Valley low, intermediate, and high terrace alluvial sediments from the Hudson Episode. These loam-rich units range in thickness from three to 21 feet and all overlie approximately 15 feet of glacial outwash, which in turn rest on the Pennsylvanian bedrock.

2.2.5 Hydrogeology

Underlying Polk County and the Camp Dodge area are two primary aquifer systems: an unconsolidated aquifer system and a bedrock aquifer. The unconsolidated aquifer system is composed of three aquifer groups. These include an uppermost aquifer found in the surficial alluvial deposits of the Beaver Creek Valley floodplain, a glacial drift aquifer found in the deposits of the Dows Formations, and a lower aquifer found in the buried bedrock channel deposits of Beaver Channel.

The alluvial aquifer is located within the stream valley areas of Camp Dodge. Depth to water in this aquifer is approximately five feet bgs. The alluvial aquifer consists of highly permeable sand and gravel. Groundwater flow generally mimics surface topography, discharging to Beaver Creek. The glacial drift aquifer (the Morgan Member of the Dows Formation) is found at the surface in upland areas and below the alluvial aquifer in the stream valley. Water within this aquifer is contained within localized lenses of sand and gravel, which are surrounded by low permeability till. The lenses are discontinuous and have the potential to be easily-impacted, making them an unsuitable potable water source. Recharge for both the surficial alluvial and the glacial drift aquifers occurs through infiltration.

The Alden Member of the Dows Formation acts as a semi-confining layer between the alluvial and glacial drift aquifers and the underlying Beaver Channel aquifer. The dense, clay-rich till of the Alden Member limits the hydraulic interaction between the upper aquifers and the Beaver Channel aquifer (USACE, 2008).

The Beaver Channel aquifer, located within the buried bedrock channel, is the primary source of drinking water for Camp Dodge. Based on information from the installation Wellhead Protection Plan, the aquifer is described as being covered by approximately 30 feet of confining materials. However, other references suggest this confining unit is leaky or discontinuous (IAARNG,

2008). Recharge to the Beaver Channel Aquifer is from up-gradient infiltration and possible percolation from the overlying aquifers (IAARNG, 2008). Water movement within the Beaver Channel aquifer is predominantly horizontal, to the south- southeast, as the channel sits on low permeability Pennsylvanian bedrock. The Beaver Channel Aquifer discharges into the Des Moines River approximately three miles south-southeast of Camp Dodge (USACE, 2008).

The shales of the Pennsylvanian Cherokee Group beneath Camp Dodge are considered a regional confining unit, hydraulically separating the unconsolidated aquifers from the deeper bedrock aquifers (IAARNG 2008). The Mississippian Aquifer directly underlies the Cherokee Group and is most heavily utilized by rural residents. It is comprised of limestones and dolomites, and supplies a moderate amount of water. Groundwater flow in the Mississippian aquifer is to the south where it eventually discharges into the Des Moines River (USACE, 2008).

2.2.6 Hydrology/Surface Water

Camp Dodge lies within the Des Moines River watershed. The primary surface water features found on Camp Dodge include Beaver Creek and Little Beaver Creek (which begin off installation), multiple ponds, and wetlands (**Figure 3-1**). Intermittent streams and a few ephemeral wetlands also exist on installation. Hillside wetlands exist within the slopes of the upland area on the eastern border of Camp Dodge; however there is no evidence of surface water drainage from these features. The pond located between Beaver Creek and the eastern boundary of the non-dudded impact area is not utilized for recreation; it is a holding pond for local runoff as well as effluent from the installation's waste water treatment lagoons (IAARNG, 2008).

Beaver Creek enters the installation on the northwest corner and flows southeast, turns west again and exits the installation on the southwest corner. While on Camp Dodge, Beaver Creek flows through the level western and middle areas, bisecting the non-dudded impact area. Beaver Creek is 13 miles long and converges with the Des Moines River about three miles south of the Camp Dodge. Shallow groundwater flows southwest through the impact area and discharges into Beaver Creek. The Des Moines public water supply intake is approximately 13 miles downstream from the range boundary. Water is supplied from both surface water and groundwater sources. Little Beaver Creek also enters the installation on the western boundary south of the non-dudded impact area and joins Beaver Creek. The intermittent water features on the installation flow into both the Beaver Creek and Little Beaver Creek.

Numerous types of wetlands exist throughout Camp Dodge. There are two hillside wetlands; one is located northeast of the non-dudded impact area along the eastern boundary and the other in the southern portion of the installation. Wetlands exist within the same footprint of Beaver Creek through the non-dudded impact area of Camp Dodge. The wetlands begin off installation on the western boundary and continue southeast until the eastern boundary of NW Beaver Drive is reached, then continue south into the southern portion of the installation. There are smaller wetlands located in the northeast corner of the installation as well. Wetlands also border Camp Dodge on the west and south sides. South of Camp Dodge small tributaries empty into Beaver Creek as it exits the installation before it joins the Des Moines River.

The largest surface water feature found on the leased training area east of Camp Dodge is Saylorville Lake (**Figure 3-1**). Saylorville Lake was created when the Des Moines River was dammed for flood control. The Des Moines River flows south through the northern 30 miles of

the leased area before it reaches Saylorville Lake. Within this 30 miles, many small tributaries flow into the Des Moines River. Big Creek converges with the Des Moines River within Saylorville Lake. The Des Moines River exits the dammed area and continues to flow south. Within the southern tip of the surface water on the western side of the leased land flows east into Saylorville Lake. The upland ridge on the eastern boundary of Camp Dodge creates a water divide, no surface water flows from Camp Dodge to the leased land. Surface water on the east side of the leased land flows southwest into Big Creek. Tributaries east of the leased land also flow within the boundaries of the leased land and into Big Creek. Big Creek Lake lies within the boundary of the leased land, northeast of Saylorville Lake.

Big Creek begins outside the range boundary north of Big Creek Lake, flows south into the range boundary, continues south exiting the range boundary, and once again reenters and flows into the Des Moines River within Saylorville Lake. Many small wetlands border the leased area along the length of its 50 mile boundary. Surface water features, including streams and their flow direction, lakes, watersheds, ponds, and wetlands, are shown in **Figure 3-1**.

2.3 Summary of Previous Investigations

2.3.1 Drinking Water Assessment

Drinking water at Camp Dodge was tested for lead and copper as mandated by Iowa Department of Natural Resources (IADNR). Historical sampling events from 1994 to 1998 resulted in detections of lead and copper above the IADNR Statewide Standards (SWS) of 0.015 and 1.3 milligrams per liter (mg/L), respectively. However, it was determined that the elevated levels were associated with the drinking water distribution system at Camp Dodge. Raw water tested from supply wells did not have elevated levels of lead or copper; and concentrations in water samples from random test points were above the MCL. The Camp Dodge water treatment plant began treating supplies with sodium hydroxide between 1997 and 1998. Recent sampling of supply wells at Camp Dodge in 2005, 2007, and 2008 have not detected concentrations of lead or copper above their respective MCLs (USACE, 2008).

2.3.2 Preliminary Assessment

Between July 1997 and November 1998 a Preliminary Assessment (PA) was completed for Camp Dodge as the first step in the site assessment process under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Sampling was conducted on twenty-one sites to test for potential contaminants such as hydrocarbons, metals, pesticides, volatile organic compounds (VOC), semi volatile organic compounds, and explosives. Results from the PA indicated that further investigation into the Former Demolition Pit was warranted. Six sites included lead analyses of groundwater, surface water, sediment, and soil samples. Lead testing was performed using EPA Method 6010 and 7000. Groundwater was sampled at Site 1 (Cemetery Landfill) and Site 2 (Scrap Iron Landfill). The detections ranged from 0.103 to 0.252 mg/L, in six samples. The detections of lead were all above the 0.015 mg/L IADNR SWS. Site 2 (Scrap Iron Landfill), Site 3 (Incinerator), and Site 4 (Range Dump) were sampled for lead in surface water. Upstream (reference) concentrations were 0.006, 0.011, and 0.006 mg/L for Sites 2, 3 and 4 respectively. Concentrations of lead in downstream surface water samples were below the analytical method detection limit of 0.005 mg/L. The Iowa Administrative Code Chapter 61 action level for surface water chronic exposure to lead is 0.08 mg/L and 0.75 mg/L for acute

exposure. Two sediment samples at Site 4 were also analyzed for lead. The concentration of lead in each sample was below the analytical method detection limit of 50 milligrams per kilogram (mg/kg). Soil samples were collected from Sites 2, 3, 5, and 7. Each sample was analyzed for lead and the results indicated that the lead concentrations in the soil at these sites were below the Industrial Preliminary Remediation Goal of 1,000 mg/kg and the IADNR standard and Residential Preliminary Remediation Goal of 400 mg/kg. In addition, the lead concentration in the majority of the samples was below the method detection limit of 50 mg/kg.

The PA identified that Site 6 (Former Demolition Pit) was the only site that could potentially be impacted by explosives. Groundwater samples were collected and tested for explosives at Site 6 using EPA Method 8330. Cyclotrimethylenetrinitramine (RDX) was detected in one of the two groundwater samples at 14 micrograms per liter (µg/L); all other compounds were at or below the analytical method detection limit (1 µg/L). The one detection of RDX is above the IADNR statewide standards (SWS) action level of 2 µg/L. In addition, two soil samples were also tested for explosives using EPA Method 8330 and all 13 compounds tested were not detected above the analytical method detection limit of 5 mg/kg. Follow on sampling was recommended under the CERCLA process for Site 6 due to the RDX detection (USACE, 2008).

2.3.3 Site Investigation

A Site Investigation (SI) was performed in 2001, and additional SI activities were performed in 2007. Soil sampling was not completed during the additional SI activities. During the SI, four monitoring wells were installed at the Former Demolition Pit. Groundwater samples were analyzed for dissolved Resource Conservation and Recovery Act metals, VOCs, and explosives using EPA Method 8330. With the exception of 2,4-and 2,6-DNT, all of the sampling results were below the IADNR SWS for protected groundwater and non-protected groundwater (USACE, 2008). The explosive compounds were detected at less than 0.001 µg/L which is above the protected groundwater SWS standard of 0.00026 µg/L, but below the non-protected groundwater SWS of 0.0051 µg/L. Further monitoring, as well as the clearing and decommissioning of the Former Demolition Pit, were recommended. In April 2007, prior to the clearing and excavation of the site, additional groundwater and soil sampling for explosives was conducted. There were no detections of explosives in groundwater; however, RDX was detected in one soil sample at 6.12 mg/kg, which is below the soil SWS of 22 mg/kg (USACE, 2008). In December of 2007 a no further action decision was passed for the Former Demolition Pit; the range has been cleared, seeded, graded, and closed.

2.3.4 Operational Range Assessment Phase I

The 10 ranges categorized during the Phase I as *Inconclusive* are small arms ranges and include firing of small caliber ammunitions. Potential MCOC source areas in the operational ranges (e.g., impact berms) may impact soil, by being released to shallow groundwater, surface water/sediment (downstream), or the food chain via a variety of release mechanisms. Release mechanisms for soil may include leaching from soil to groundwater or discharge/recharge to nearby streams and wetlands. Once potential MCOC are deposited in surface water/sediment, they have the potential to migrate downstream and/or be taken up by aquatic plants or animals. Release mechanisms for surface water/sediment are natural stream flow and sediment transport. Surface water drainage from the east and west of Camp Dodge is directed toward Beaver Creek which flows through the center of the installation. Beaver Creek then exits the installation and

joins the Des Moines River. Within the Saylorville area, Big Creek converges with the Des Moines River. Drainage flows from the west and east into the Des Moines River which flows through Saylorville Lake and exits the dammed area and continues to flow south. Within the southern tip of the leased land is where Beaver Creek converges with the Des Moines River and continues to flow south into the City of Des Moines.

2.4 Phase I Conceptual Site Model

The Phase I CSM provided the initial basis of the Phase II. The CSM identified pathways that could allow MCOC from an on-range source to interact with off-range receptors at concentrations that could pose a potential risk to human health or the environment.

The primary source areas at Camp Dodge are small arms ranges. The operational small arms ranges are a potential source of metals MCOC. These potential source areas are within the Live-fire ranges shown in **Figure 1-2**.

Potential pathways for the migration of MCOC off the operational footprint are limited to one perennial surface water body, Beaver Creek, which enters the installation on the northwest corner and flows southeast, turns west again and exits the installation on the southwest corner. Beaver Creek flows through the western and middle areas, bisecting the non-dudded impact area. Beaver Creek is 13 miles long and converges with the Des Moines River about three miles south of the Camp Dodge. Little Beaver Creek enters the installation on the western boundary south of the non-dudded impact area and joins Beaver Creek southwest of the *Inconclusive* areas. The intermittent water features on installation flow into both the Beaver Creek and Little Beaver Creek. Shallow groundwater flows southwest through the impact area and discharges into Beaver Creek. The Des Moines public water supply intake is approximately 13 miles downstream from the range boundary. Public water is supplied from both surface water and groundwater sources within four miles of the installation (USACE, 2008). Off-installation human receptors are sport fishers of downstream portions of both Beaver Creek and Des Moines River via ingestion of fish.

Potential ecological receptors on installation include the plains pocket mouse (Perognathus flavescens), spotted skunk (Spilogale putorious), and a number of rare and/or threatened amphibians, invertebrates, and plant species and it is reasonable to assume that these species and sensitive environments can also be found off-installation. The CSM was refined during the initial stages of the Phase II as described in **Section 3**.

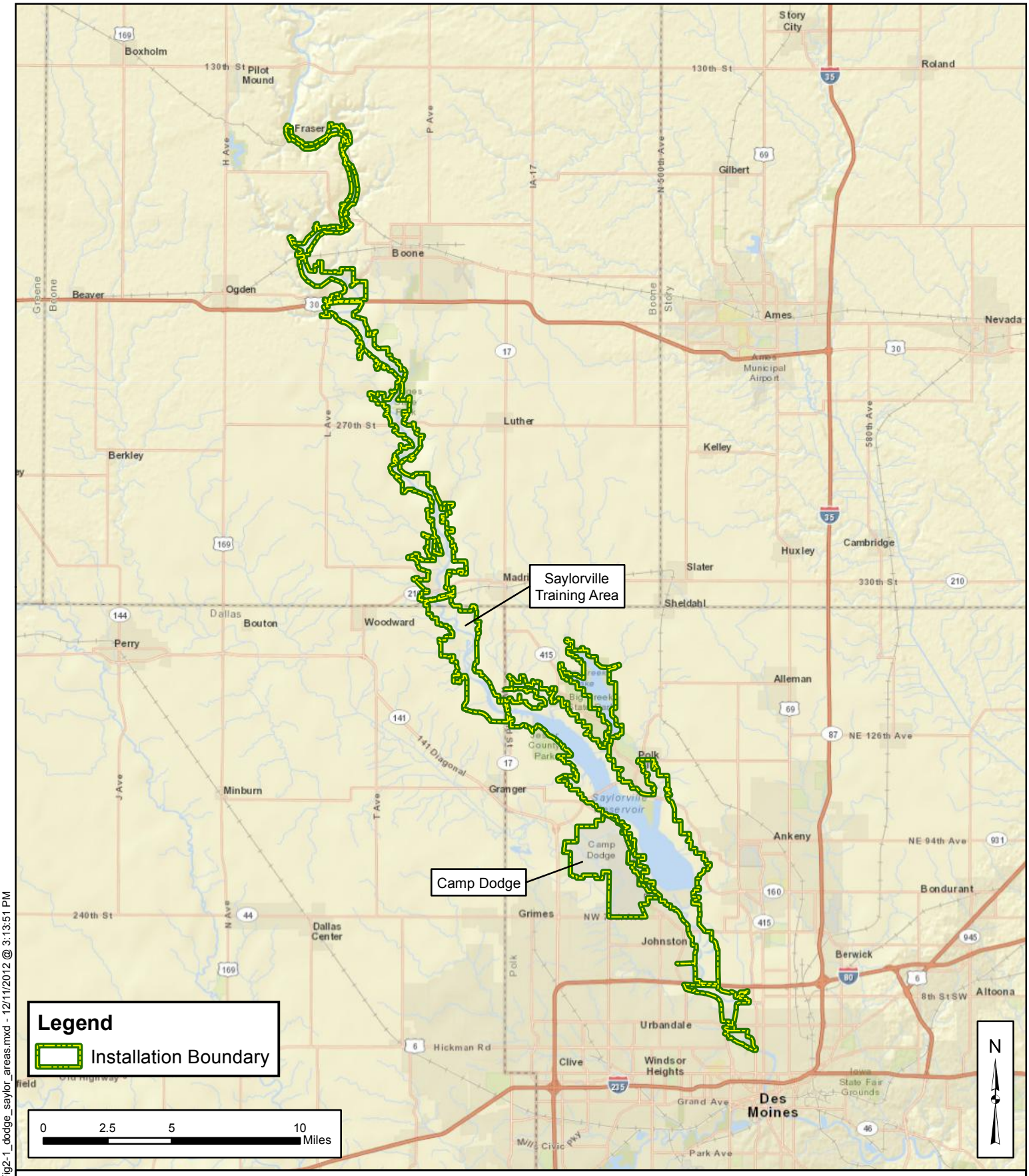

Figure 2-1
Camp Dodge/Saylorville Training Area
Operational Range Phase II Assessment
Camp Dodge, IA

Data Sources:
AEC, 2006
USACE, 2008
Imagery: USA Prime Imagery, ESRI
ArcGIS Online and data partners

Date.....December 2012
Prepared by.....URS Group, Inc.
Prepared for.....ARNG Directorate
Contract.....W912DR-09-D-0003 / 0008

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3 ORA Phase II

As described in **Section 1.5**, the strategy for conducting the Phase II was based on the USEPA systematic planning or DQO process. The DQO process provides an iterative sequence of seven logical steps to create a detailed technical approach. The preliminary CSM was developed during the Phase I (Step 1 of the DQO process) and updated during Phase II planning. The subsequent steps in the DQO process include the following:

- Identifying the goal of the Phase II (the "if-then" statements to determine whether surface water and groundwater pathways are present
- Identifying information inputs (media to be sampled and analytical methods)
- Defining the study boundaries (which waterways will be sampled depending on the pathways and receptors present)
- Developing the analytical approach (how the data will be analyzed)
- Specifying performance or acceptance criteria (i.e., project action limits [PALs])
- Developing the detailed plan for obtaining data (developing the detailed CSM and technical approach)

The following sections describe the major outputs of the site-specific application of the DQO process, including the updated CSM and the detailed technical approach developed for the Phase II.

3.1 Phase II Site Reconnaissance

Site visit activities at Camp Dodge during the Phase I (2008) included the collection of range-specific munitions use information and a visual survey of the range complex. The Phase II kick-off meeting and visual survey was used to determine whether changes to the firing ranges occurred since Phase I and to assess the topography and surface water conditions leading to off-range areas.

Observations made during the Phase II site visit (April 21, 2011) relevant to the development of the CSM and investigative approach are listed below. During the Phase II site visit, sampling locations were visually assessed, photographed, and GPS coordinates were recorded.

- Drinking water supply wells MW07 and MW08 are used on a rotating schedule with one well online for two months. Groundwater sampling will have to be scheduled to sample the well locations as one well is going offline and the other is coming online.
- Potential upgradient MCOC sources off installation were not identified.
- Beaver Creek is fast moving and deep in several areas; personal floatation devices will be required at all times during sampling activities.
- One surface water sample location was moved more downstream on Beaver Creek to measure potential MCOCs from ranges north of the small arms ranges and demolition range. Roadways provided limited access and sampling equipment will have to be hiked in to Beaver Creek.

- Although a majority of the sample locations are outside range safety arcs, all activities will have to be coordinated with Range Control.

3.2 Conceptual Site Model

The updated CSM for the *Inconclusive* areas is illustrated in **Figure 3-1** and summarized in the following sections. The CSM was not changed significantly from the Phase I CSM.

3.2.1 Primary Sources and MCOC

Current munitions use in the *Inconclusive* areas at Camp Dodge includes small arms. Potential MCOC include antimony, copper, lead, and zinc. These MCOC are associated with current and historical impact berms, historical firing points/lines, and soils surrounding targets and impact areas on at Camp Dodge.

3.2.2 Pathway Analysis

Beaver Creek represents a likely surface water migration pathway for potential contact with off-range human and/or ecological receptors. Rainfall from precipitation events can dissolve water-soluble MCOC in surface soils and infiltrate to groundwater or transport soils containing MCOCs to Beaver Creek. Surface water and groundwater movement may be physically retarded by low permeability silt and clay; dissolved metals may be immobilized via adsorption to the clay particles. There was no evidence of erosion observed at the operational ranges during the Phase II activities. Topography and vegetation within the range areas would likely inhibit runoff/overland flow.

3.2.3 Potential Source-Human Interaction Pathway Analysis

Potential MCOC could migrate into Beaver Creek, which converges with the Des Moines River three miles south of the installation. A surface water intake for the Des Moines Water Works lies within the Des Moines River, approximately 13 miles downstream from Camp Dodge. Fishing occurs within Beaver Creek and the Des Moines River, downstream from the Camp Dodge discharge point of Beaver Creek. A potential source-pathway-receptor interaction exists for public users of surface water, as well as those who consume fish from areas downstream of the potential source areas.

Groundwater supplies drawing from deep aquifers are not likely affected by potential MCOC due to the semi-confining nature of the glacial till that separates the shallow water-bearing units from deep aquifers. Specifically, the semi-confining unit limits the vertical migration from the shallow glacial drift and alluvial aquifers to the Beaver Channel and underlying bedrock aquifers. Additionally, the slow infiltration rate of potential MCOC through soil and underlying unconsolidated deposits makes it unlikely deep groundwater would be a pathway. However, shallow groundwater flow through the consolidated deposits has the potential to transport MCOC to Beaver Creek.

3.2.4 Potential Source-Ecological Interaction Pathway Analysis

Beaver Creek provides direct surface water pathways between operational areas at Camp Dodge and potential downstream ecological receptors. Those potential ecological receptors downstream that may be affected by MCOC transport downstream include wetlands and sensitive

environments (i.e., potential threatened and endangered species and/or habitats). Potential ecological receptors identified on installation (and likely to be found off- installation) include the plains pocket mouse (*Perognathus flavescens*), spotted skunk (*Spilogale putorious*), and a number of rare and/or threatened amphibians, invertebrates, and plant species.

3.3 ORA Phase II Technical Approach

As identified during the DQO process, the project goal for the Phase II was to determine whether MCOC are present in the groundwater and surface water system at concentrations that present an unacceptable risk to human health and/or the environment off installation. The Phase II was designed to gather data to quantitatively assess the drainage areas and answer the following questions:

- Are MCOC present in surface water and sediment where Beaver Creek flows off range?
- What are reference metals MCOC concentrations in surface water and sediment upstream of the ranges in Beaver Creek?
- Are MCOC in groundwater, surface water or sediment at concentrations that pose unacceptable risks to human or ecological receptors?

The Phase II answered the study goal through the analysis and screening of groundwater samples collected from installation water-supply wells and surface water and sediment samples collected downstream of the *Inconclusive* areas and from a reference location upstream of potential MCOC source areas.

Details of the sampling and analysis methodology are presented in **Sections 4**, **5**, and **6**, respectively. Details of the DQO planning process and the sampling and analysis methods can be found in the *Programmatic Quality Assurance Project Plan (PQAPP), Operational Range Phase II Assessments, Army National Guard Directorate* developed for the Phase II (URS/ARCADIS/Pirnie, 2011b), and the Work Plan/Installation-Specific QAPP (ISQAPP) prepared for the Phase II at Fort Dodge (URS, 2011c). The PQAPP provides general information programmatically applicable and is a companion to the ISQAPP that includes installation-specific details that are not in the PQAPP.

The QAPPs are based on procedures in the *USAIPH Army Operational Range Assessment Phase II Investigation Protocol* USACHPPM, 2009, the *ARNG ORA Focus for Technical Sampling* (ARNG, 2011), and the USEPA Guidance on Systematic Planning Using the DQO Process (USEPA, 2006). ISQAPP Worksheet #11 contains the planning process statements used to develop the technical approach, while ISQAPP Worksheet #17 documents the sampling design and rationale.

3.3.1 Surface Water

Surface water samples were collected at three locations on the installation (**Figure 3-2**):

- DG01, on Beaver Creek, upstream of operational ranges in the northwest portion of the installation.

- DG02, on Beaver Creek, downstream of the non-dudded impact areas and demolition range located on the western boundary toward the center of the installation.

- DG03, on Beaver Creek, downstream of the small arms ranges near the southwest corner of the installation.

Potential seasonal variations in water quality were evaluated by sampling during both dry and wet seasons. Twenty-four hour composite samples were collected to capture diurnal variations and 2-hour composite samples were collected to characterize potential migration during a storm event. Surface water samples at DG01, DG02, and DG03 were analyzed for dissolved metals (i.e., copper, lead, antimony, and zinc), hardness, Biotic Ligand Model (BLM) parameters, and water quality parameters. Locations DG02 and DG03 were also sampled for explosives. **Appendix A** presents photographs of each sampling location.

3.3.2 Sediment

Sediment samples were collected in triplicate as 30-point incremental composites from depositional areas associated with surface water sampling locations. Sediment samples were collected in triplicate and analyzed for metals (i.e., copper, lead, antimony, and zinc). Discrete sediment samples were collected and analyzed for acid volatile sulfide / simultaneously extracted metals (AVS/SEM), and total organic carbon (TOC). Sediment samples were not analyzed for explosives because they are highly soluble and not likely to be found in sediment.

3.3.3 Groundwater

The groundwater wells sampled during the Phase II are shown on **Figure 3-2**. The drinking water supply wells MW07 and MW08 are downgradient of the current active small arms ranges. Historically, elevated lead and copper concentrations at these well locations were attributed to the distribution system, not groundwater; therefore, metals were not sampled. Metals MCOC were not a concern in groundwater. A background groundwater study was not required.

Grab samples were collected from each well location, three times, two sampling events during the dry season and one during the wet season event. Groundwater samples were collected at the well heads and analyzed for explosives and water quality parameters. The drinking water supply wells are used on a rotating schedule. One drinking water supply well is online for two months, then shut down while the other well goes online for two months. Groundwater sampling events were scheduled to capture the online rotation of wells. Photographs of these wells are included in **Appendix A** of this report.

3.3.4 Reference

Reference location DG01 was upstream of the operational areas (**Figure 3-2**) and located in an area unlikely to provide sources of MCOC. Metals data from downstream locations of the operational areas were compared to results from the reference location to evaluate whether the operational areas are contributing metals MCOC at concentrations higher than reference levels.

3.3.5 Project Action Limits

Project Action Limits (PALs) for groundwater, surface water and sediment were established for the potential MCOC. Groundwater MCOC was explosives. Sediment MCOC were metals.

Surface water MCOC were metals and explosives. With the exception of copper, lead, and zinc in surface water, PALs are based on ORA Screening Values for freshwater ecological screening levels or human drinking water screening levels (USAIPH, 2012). As per the ISQAPP, PALs are the lower of state/local promulgated values or ORA Screening Values. ORA Screening Values are equal to or lower than the IADNR Water Quality Standards.

USEPA's formulas for correcting hardness-dependent screening criteria are most accurate for hardness values between 25 and 400 mg/L (40 CFR 131.36.C.4). Surface water PALs for lead, copper, and zinc were adjusted based on the lowest hardness value of 247 mg/L measured during both the dry and wet sampling events (**Table 3-1**). The project PALs are presented in **Table 3-2**.

Table 3-1 Surface Water Hardness

Sampling Event	Minimum (mg/L as $CaCO_3$)	Maximum (mg/L as $CaCO_3$)	Average[1]	%RSD
Dry Season	247	336	307	10
Wet Season	247	348	292	22

Notes:

[1] The average surface water hardness calculation is based on results from eight samples collected during the Dry Season Event and seven samples collected during the Wet Season Event.

$CaCO_3$ = calcium carbonate

mg/L= milligrams per liter

%RSD = percent relative standard deviation

Table 3-2 Project Action Limits

	Surface Water PALs (µg/L) Dry	Surface Water PALs (µg/L) Wet	Sediment PALs (mg/kg)	Groundwater PALs (µg/L)
Metals				
Antimony	15	15	12	NA
Copper[1]	19.4	19.4	34	NA
Lead[1]	6.6	6.6	47	NA
Zinc[1]	254	254	150	NA
Explosives				
HMX	150	150	NA	1800
RDX	0.61	0.61	NA	0.61
TNT	2.2	2.2	NA	2.2
NG	3.4	3.4	NA	3.4
DNT-mixture	0.099	0.099	NA	0.099
2,6-DNT	37	37	NA	37
2,4-DNT	44	44	NA	73
PETN	85,000	85,000	NA	NA

Notes:

[1] Project Action Limit surface water calculations for copper, lead, and zinc are hardness dependent. A hardness value of 247 mg/L was used to determine the Project Action Limit.

DNT = dinitrotoluene

HMX = cyclotetramethylenetetranitramine

mg/kg = milligrams per kilogram

mg/L = milligram per Liter

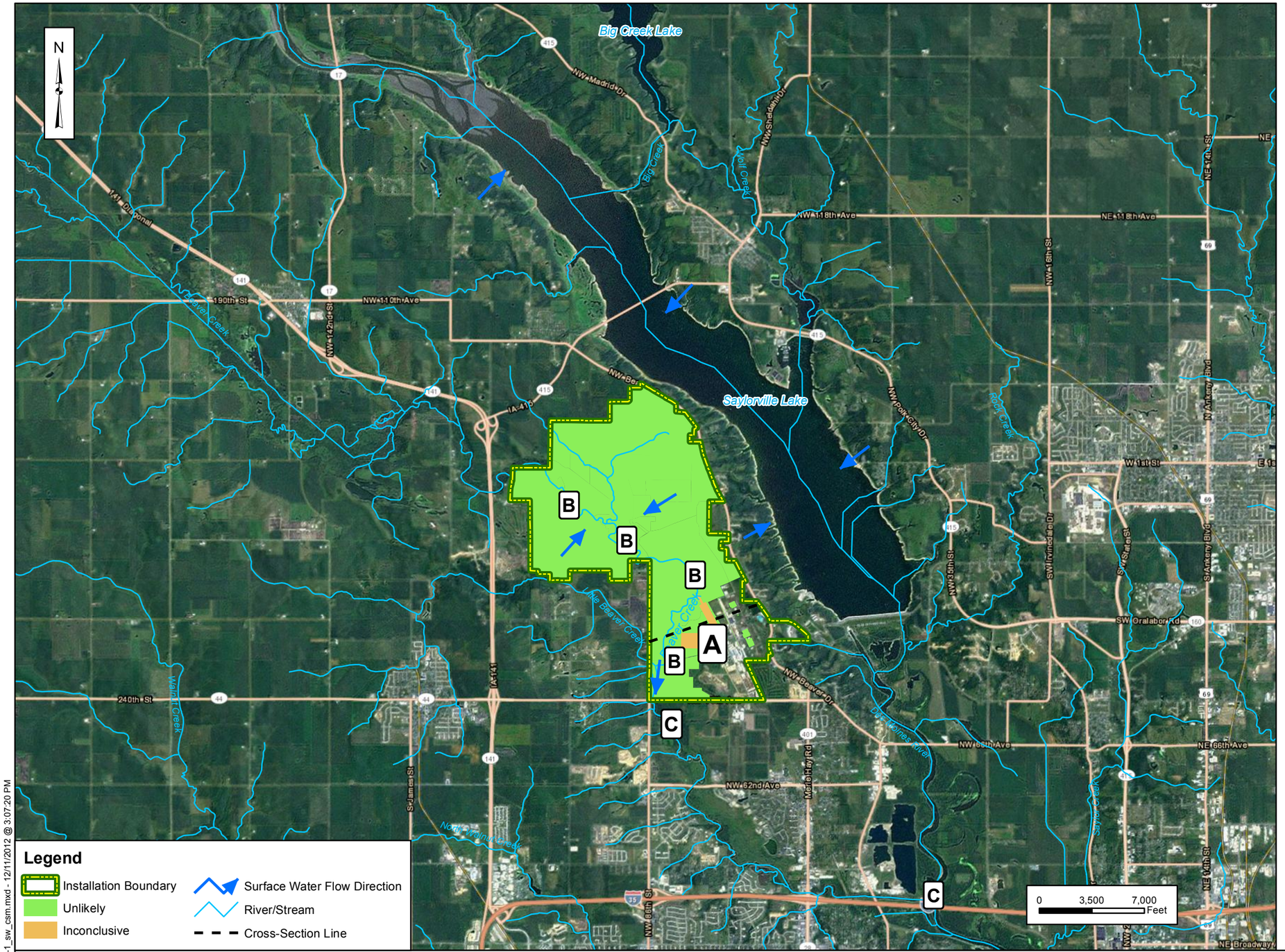
NA = Not Applicable

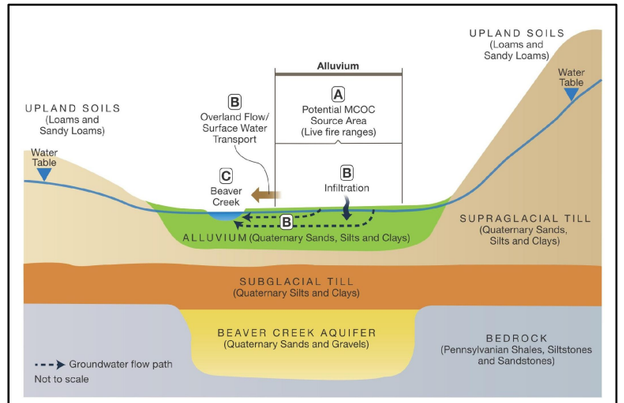
NG = nitroglycerin

PETN =pentaerythritol tetranitrate

RDX = cyclotrimethylenetrinitramine

TNT = trinitrotoluene





Pathway Cross-Section Schematic

B Pathway

Beaver Creek

MCOC have the potential to migrate off-range via surface water through erosion and runoff from the source area. Shallow groundwater flow through the consolidated deposits also has the potential to transport MCOC to Beaver Creek.

C Receptors

Plains Pocket Mouse

Potential ecological receptors include wetlands, fisheries, and threatened and endangered or protected species habitats along Beaver Creek and the Des Moines River.

Des Moines River

Human receptors include people swimming, fishing, or conducting other recreational activity in waterbodies such as Beaver Creek and the Des Moines River.

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Figure 3-1
Conceptual Site Model
Operational Range Phase II Assessment
Camp Dodge, IA

Data Sources:
U.S. Army Sustainable Range Program (SRP), 2009
Imagery: ESRI ArcGIS Online and data partners, including imagery from agencies supplied via the Content Sharing Program

Date..... December 2012
Prepared by.....URS Group, Inc.
Prepared for.....ARNG Directorate
Contract.....W912DR-09-D-0003 / 0008

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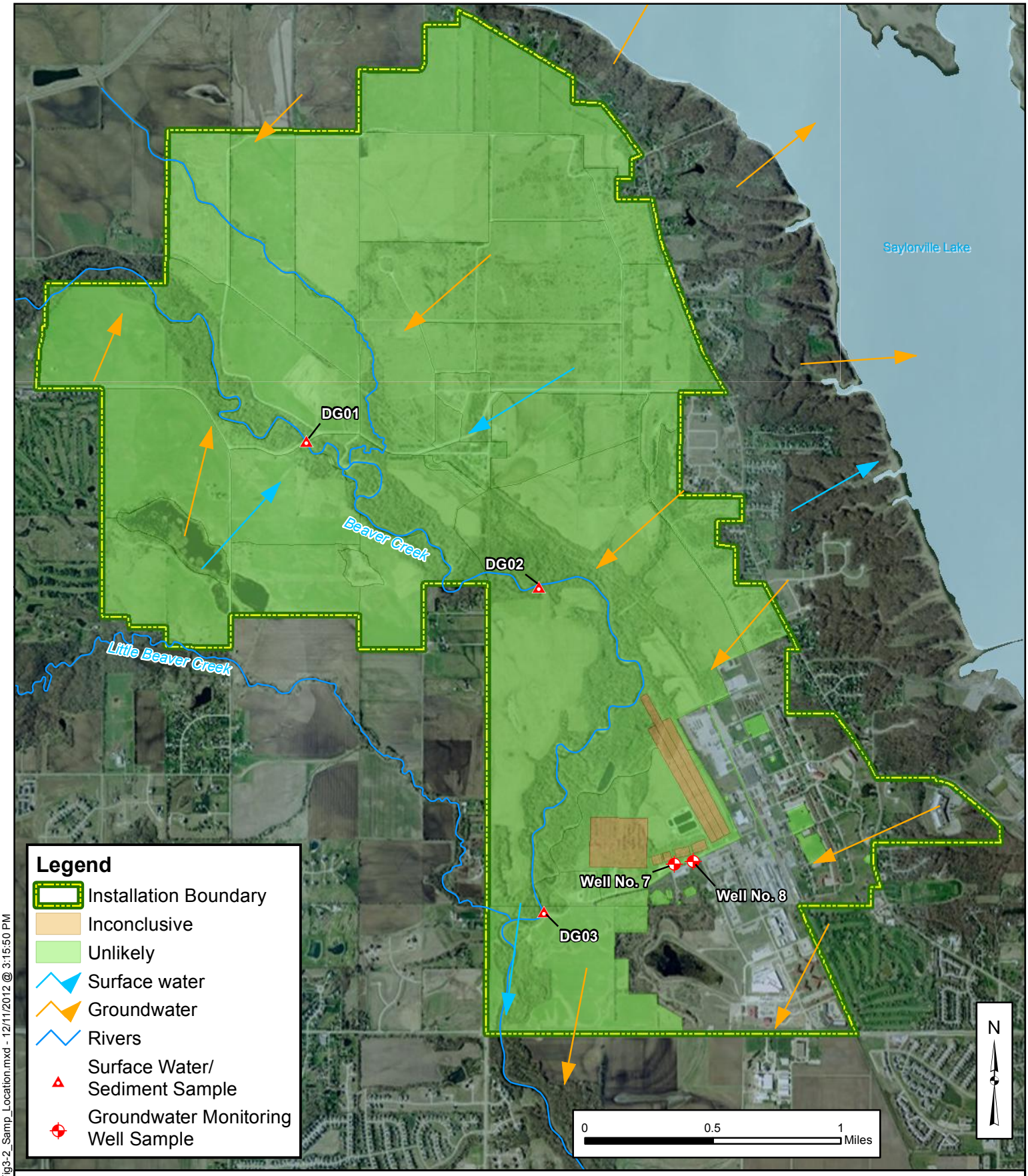

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Figure 3-2
Sampling Locations
Operational Range Phase II Assessment
Camp Dodge, IA

Data Sources:
AEC, 2006
USACE, 2008
Imagery: USA Prime Imagery, ESRI
ArcGIS Online and data partners

Date.....December 2012
Prepared by.....URS Group, Inc.
Prepared for.....ARNG Directorate
Contract.....W912DR-09-D-0003 / 0008

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4 Methodology

Details on the sampling and analytical procedures, along with health and safety plans, are included in the PQAPP (URS/ARCADIS/Pirnie, 2011b); Camp Dodge Work Plan/ISQAPP (URS/ARCADIS/Pirnie, 2011c); and Accident Prevention Plan (APP) (URS/ARCADIS/Pirnie, 2011a). Field activities were conducted in accordance with the ISQAPP, including the Standard Operating Procedures (SOPs) contained in Appendix A of the ISQAPP. Safety procedures used during sampling activities were in accordance with the APP.

4.1 Field Methods

The following field method SOPs, detailed in the Camp Dodge ISQAPP, were used for the surface water, sediment and groundwater sample collection:

- S-2 Surface Water Sampling – Composite (describes 24-hour composites)
- S-3 Surface Water Sampling – Clean Hands (describes all special handling)
- S-4 Sediment Sampling (describes collecting 30-point incremental composite samples in triplicate)
- S-7 Collection of Monitoring Well Samples (describes groundwater collection)
- S-9 Sediment Sampling for AVS/SEM Analysis (describes grab sampling methods for these parameters)

Any modification to field procedures potentially affecting surface water/sediment data usability or quality required same-day approval from the Team Leader, the Project Manager, and the Project Quality Assurance (QA) Manager. All such modifications were then documented in a NCR detailing the modification. Modifications to the ISQAPP requiring approval from USACE and ARNG Directorate were secured by the Project Manager.

4.2 Sampling Methods

The ISQAPP included dry season, wet season, and storm water sampling to evaluate stream conditions under different seasonal influences (**Figure 3-2**). Wet and dry seasons were defined by readily available annual precipitation data and stream flow conditions. USEPA's Methods for Collection, Storage and Manipulation of Sediments for Chemical and Toxicological Analyses (USEPA, 2001) was used as guidance for the selection of the appropriate sampler/sampling technique. Sampling procedures and analysis were completed in accordance with the Work Plan/ISQAPP (URS/ARCADIS/Pirnie, 2011c).

Each sample was appropriately labeled using indelible ink and secured. Each sample was entered on the COC form with the required analyses. The COC forms are included in **Appendix B**. Each cooler was sealed with the COC inside; custody seals were signed, dated, and placed on opposite corners of the cooler, and the coolers were shipped overnight to the analytical laboratories. **Appendix A** provides photographs of each sampling location.

Table 4-1 below, indicates when each sampling event occurred, which locations where sampled, and why type of samples were collected.

4.2.1 Surface Water Sampling

Surface water samples were collected as indicated in **Table 4-1**. Each composite sample was collected using a composite sampler, which was programmed to collect 96 discrete samples over a 24-hour period. The composite samples at location DGSW01 and DGSW02 were contained in 4-liter laboratory-certified clean carboys. The composite sample at location DGSW03 (matrix spike/matrix spike duplicate [MS/MSD] sample chosen location) was contained in a 10-liter laboratory-certified clean carboy with the extra volume required for the explosives MS/MSD. All carboys were kept on ice to maintain a temperature of 4°C, plus or minus 2°C, during sampling and until transfer to laboratory-cleaned sampling containers. The field team filtered and collected the samples from each carboy within 48 hours of the start of sample collection. Field measurements of pH, temperature, dissolved oxygen, turbidity, and specific conductivity were made following each sampling event. The composite samplers were placed at different locations during the dry and wet season sampling events. The surface water level in Beaver Creek was higher during the wet season sampling event. Surface water sampling locations were moved to the safest and most accessible dry bank (DGSW02 and DGSW03) or bridge (DGSW01) to accommodate the high creek stage. Surface water sampling locations are shown on **Figures 4-1, 4-2,** and **4-3**. A summary of field parameters is included in **Appendix B**.

4.2.2 Incremental Sediment Sampling

Thirty-part composite sediment samples were collected in triplicate during sunny conditions in the dry season. The sediment samples were co-located with the surface water samples (**Figure 3-2** and **Appendix A**).

To prevent disturbance of sediments that may affect surface water samples, surface water samples were collected before sediment sampling. Both incremental sediment samples and samples for AVS/SEM analysis were collected at each location. Incremental sediment samples were collected in triplicate along a reach of the stream that characterized the sampling area. The length of the reach in which samples were collected depended on the characteristics of the water body and was generally 5 times the average width of the stream (as determined bankfull to bankfull). Primary transects were spaced parallel to each other, and the duplicate and triplicate sample transects were spaced at random distances upstream from the primary transect. This pattern was repeated throughout the length of the reach; transects were marked using different colored survey flags. A total of thirty sediment grab samples were composited from primary transect set, duplicate transect set, and triplicate transect set.

Along each transect, a calculated number of incremental samples were collected with an even space between each sample. Samples were collected using a decontaminated, reusable sediment sampling device designed to obtain a fixed volume per increment and achieve the desired sample mass. The samplers ensured that sufficient volume was collected to achieve a total of 1 kilogram of dried sediment for analysis (approximately 2 liters of saturated muddy sediment). Materials that were 50 millimeters in diameter or larger were avoided during collection. Sediment sampling areas and transects are shown in **Figures 4-1, Figure 4-2,** and **Figure 4-3**.

Sampling began from the downstream end of the reach and continued upstream with teams taking care to minimize disturbance of the streambed material. Each incremental sample

collected was handled carefully during collection to avoid loss of liquid that could contain fine particles of suspended sediment.

The samples from the primary, duplicate, and triplicate transects were collected into a corresponding 5-gallon bucket lined with two polyethylene sample collection bags, where the samples were labeled. The samples were then packed and shipped under COC to the analytical laboratory.

Discrete grab samples were collected for AVS/SEM analysis from an area or areas (for sufficient sample volume) identified on the stream where fine sediment had accumulated and that may have constituted an adequate ecological habitat. Each sample was collected from an undisturbed portion of the stream in water shallower than knee-deep and was collected directly into the sampling containers. Using clean Nitrile gloves, the sampler slowly advanced the open sample jar through the water to the top of the sediment. A very slow push and twist method was used to advance the sample jar through the sediment approximately 2 inches and no more than 3 inches. The method was repeated until the sample jar was full. Taking care to minimize loss of sediment and pore water while removing the jar from the water, the sampler sealed the jar to minimize headspace to reduce exposure to oxygen. All sample jars were labeled, stored on ice, and shipped to the laboratory.

4.2.3 Groundwater Sampling

Two drinking water supply wells (Well Numbers 7 and 8) were sampled from the wellheads for explosives MCOC once during three separate sampling events. Historically, elevated lead and copper concentrations were attributed to the distribution system, not groundwater; therefore, samples were not analyzed for metals MCOC. No background groundwater studies were conducted because metals MCOC were not a concern in the supply wells.

Samples for explosives MCOC were collected from each sampling location as summarized in **Table 4-2**. In situ water quality parameters (turbidity, pH, temperature, conductivity, and dissolved oxygen) were also recorded during each sampling event. Groundwater samples were then sent to Agriculture & Priority Pollutants Laboratories, Inc. (APPL) for analysis. No groundwater samples were collected turbid, above 10 NTUs (Nephelometric Turbidity Units), in accordance with the ISQAPP.

4.3 Quality Assurance / Quality Control

QA/QC samples were collected to evaluate the field collection methods and the laboratory analytical techniques for surface water samples, sediment samples, and groundwater samples. The QA/QC samples consisted of duplicate samples, MS/MSD samples, and equipment blanks.

Adherence to protocols and methods regarding sampling collection, documentation, and sample shipments, as detailed in the Work Plan/ISQAPP (URS, 2011), was documented through field technical systems audits performed by the designee of the Project QA Manager.

4.3.1 Duplicates

Duplicate samples were collected at a rate of at least 1 per 10 samples with at least 1 duplicate per mobilization. Duplicate samples were collected simultaneously from the same source under

identical conditions and submitted to the laboratory as indistinguishable samples and labeled accordingly.

Surface water duplicates during the wet season and dry season were considered co-located samples from two side-by-side composite samplers and carboy setups. The sample collection tubes from both samplers were attached to a single wooden stake in the center of the stream channel. Because sediment samples were collected in triplicate, "duplicate" QA/QC samples were unnecessary.

4.3.2 MS/MSD

Additional water volume was not needed for metals and hardness MS/MSD analysis in surface water. Sub-samples were pulled from the parent sample by the analytical laboratory. Separate sample containers for MS/MSD analyses were only necessary for explosives. For sediment samples, sub-samples were pulled from the primary sample for MS/MSD analysis. MS/MSD samples were collected at a rate of 5 percent for surface water and sediment.

4.3.3 Equipment Blanks

Equipment blanks were collected at least once per mobilization and at a minimum rate of 5 percent for surface water and sediment. For surface water, the equipment blank was collected using the entire sampler and carboy sampling train and the entire peristaltic pump sample collection train. Prior to setting up the composite sampler and placing the tubing into the stream channel, transfer pump, tubes, and filters were set up as if a sample was going to be collected from the carboy. Approximately 4 liters of clean deionized (DI) water was pumped through the system and into the carboy. Approximately 100 milliliters of DI water was then pumped from the carboy to purge the transfer pump tubing and 0.45-micron filter. Once the transfer tubing and filter were purged, the equipment blank was collected. For sediment, the equipment blank was collected by passing analyte-free DI water over a decontaminated sediment sampler into the sampling containers.

4.4 Investigation-Derived Waste

No hazardous or otherwise contaminated wastes were derived from the sampling activities.

4.5 Sample Identification

Samples collected at Camp Dodge were identified using the procedures detailed in the PQAPP. Each sample was labeled with a seven-character identification that consisted of a two-character installation identifier, two-character matrix code, two-character location code, and a one-character sampling event code. Each component of the sample identification is described in the two examples (DGSW01WA and DGSD02DA) presented in **Table 4-3**.

Unique sequential sample numbers began with 01. QC samples (e.g., duplicates, MS/MSDs, blanks) received unique sequential sample numbers and were not identified as QC samples on the laboratory COC. The identification for sediment triplicates ended with "-01," "-02," and "-03." The samples collected at Camp Dodge used the unique sequential sample numbers shown in **Table 4-3**.

4.6 Unexploded Ordnance Avoidance

For the Phase II, access to sampling areas was coordinated and approved by Range Control. An unexploded ordnance technician performed a visual and instrument-assisted (e.g., Schonstedt) survey of access pathways to sample locations prior to the start of field work. Access routes deemed safe for travel were clearly communicated to field teams, and any located anomalies were avoided. A survey of sediment sampling locations was performed by the unexploded ordnance technician prior to the start of sediment sampling. This survey was performed in such a manner that it prevented disturbance of sediments prior to sampling.

Table 4-1 Surface Water and Sediment Sampling Summary

Sample Matrix	Dry Season (Oct 31, 2011 through Nov 4, 2011)			Wet Season (May 7, 2012 through May 11, 2012)		
Surface Water	Location	DA; 24-hour Composite	DB; 2-hour Storm	Location	WA; 24-hour composite	WB; 24-hour composite
	DGSW01	11/04/11	11/03/11	DGSW01	05/09/12	05/10/12
	DGSW02	11/01/11	11/02/11	DGSW02	05/10/12	05/11/12
	DGSW03	11/01/11	11/02/11	DGSW03	05/09/12	05/10/12
Sediment	Location	Incremental Samples Triplicate (30 Increments)		No sediment samples collected during wet season sampling event.		
	DGSD01	11/04/12				
	DGSD02	11/04/12				
	DGSD03	11/03/11				

Notes:
DA = Dry "A" Event
DB = Dry "B" Event
WA = Wet "A" Event
WB =Wet "B" Event

- Surface water samples were analyzed for explosives and metals MCOC (antimony, copper, lead, and zinc), hardness, calcium, magnesium, potassium, sodium, dissolved organic carbon, and sulfide.
- Water quality parameters were recorded at each location during sampling activities and included conductivity, pH, turbidity, and temperature.
- Sediment samples were analyzed for metals, AVS/SEM, grain size, and TOC.

Table 4-2 Groundwater Sampling Summary

Sample Media	Well Location	Sampling Event A November 3, 2011	Sampling Event B January 6, 2012	Sampling Event C May 8, 2012
Groundwater	MW07	Explosives	Explosives	Explosives
	MW08	Explosives	Explosives	Explosives

Table 4-3 Naming Convention for QC Sample Identification

Sampling Code	Identification Number	Quality Control Sample
DGSW01DA/WA-	01	Parent Sample
	02	Duplicate Sample
	03	Equipment Blank
DGSD02DA/WA-	01	Parent Sample
	02	Duplicate Sample
	03	Triplicate Sample
	04	Equipment Blank

Notes:
= Two-character location number
A or B = Sampling event
D = Dry season mobilization
DG = Two-character installation identifier for Camp Dodge
SD = Two character matrix code for sediment
SW = Two-character matrix code for surface water
W = Wet season mobilization

Figure 4-1 DGSD01 Sediment Sampling Location Diagram

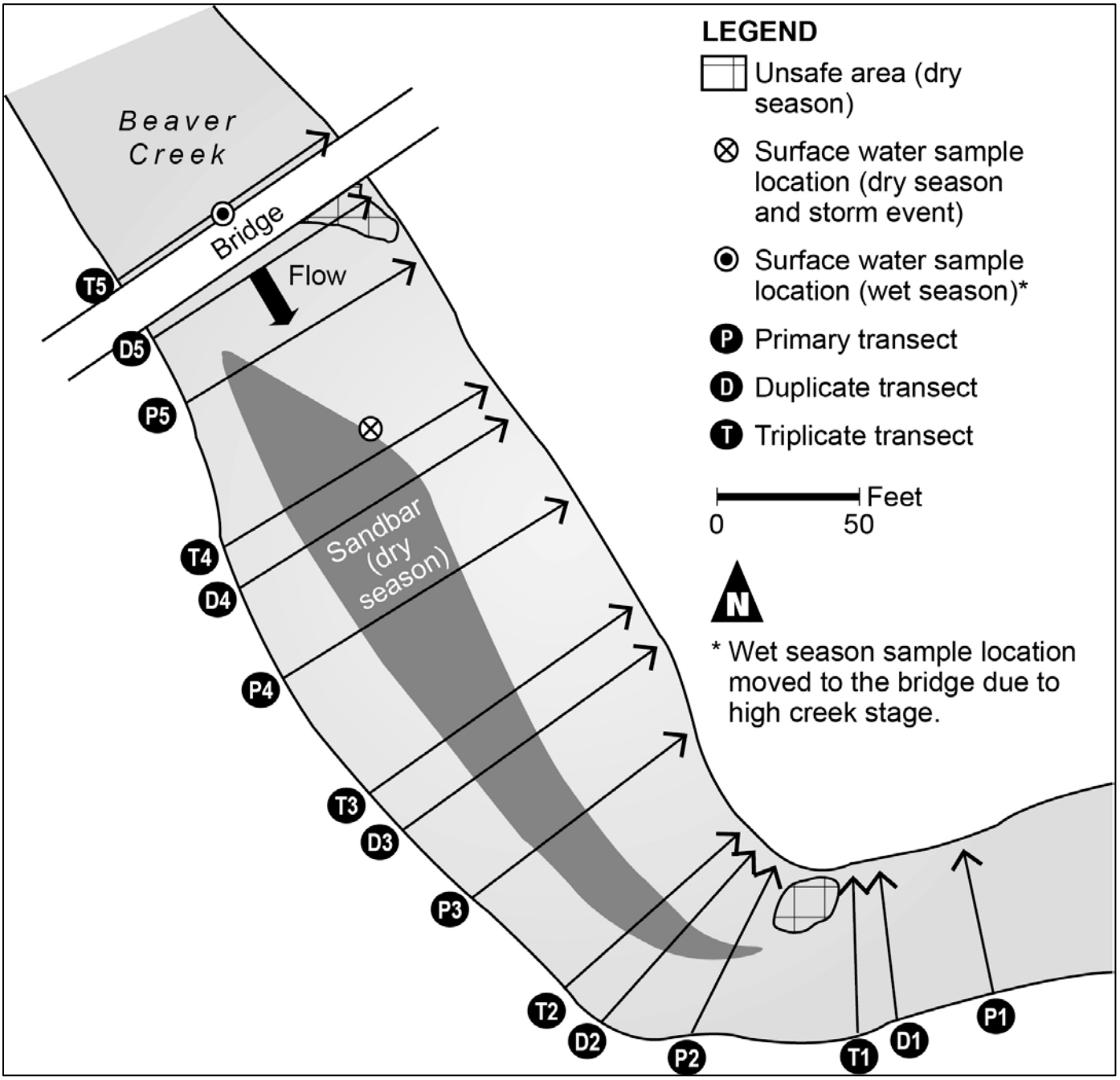

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Figure 4-2 DGSD02 Sediment Sampling Location Diagram

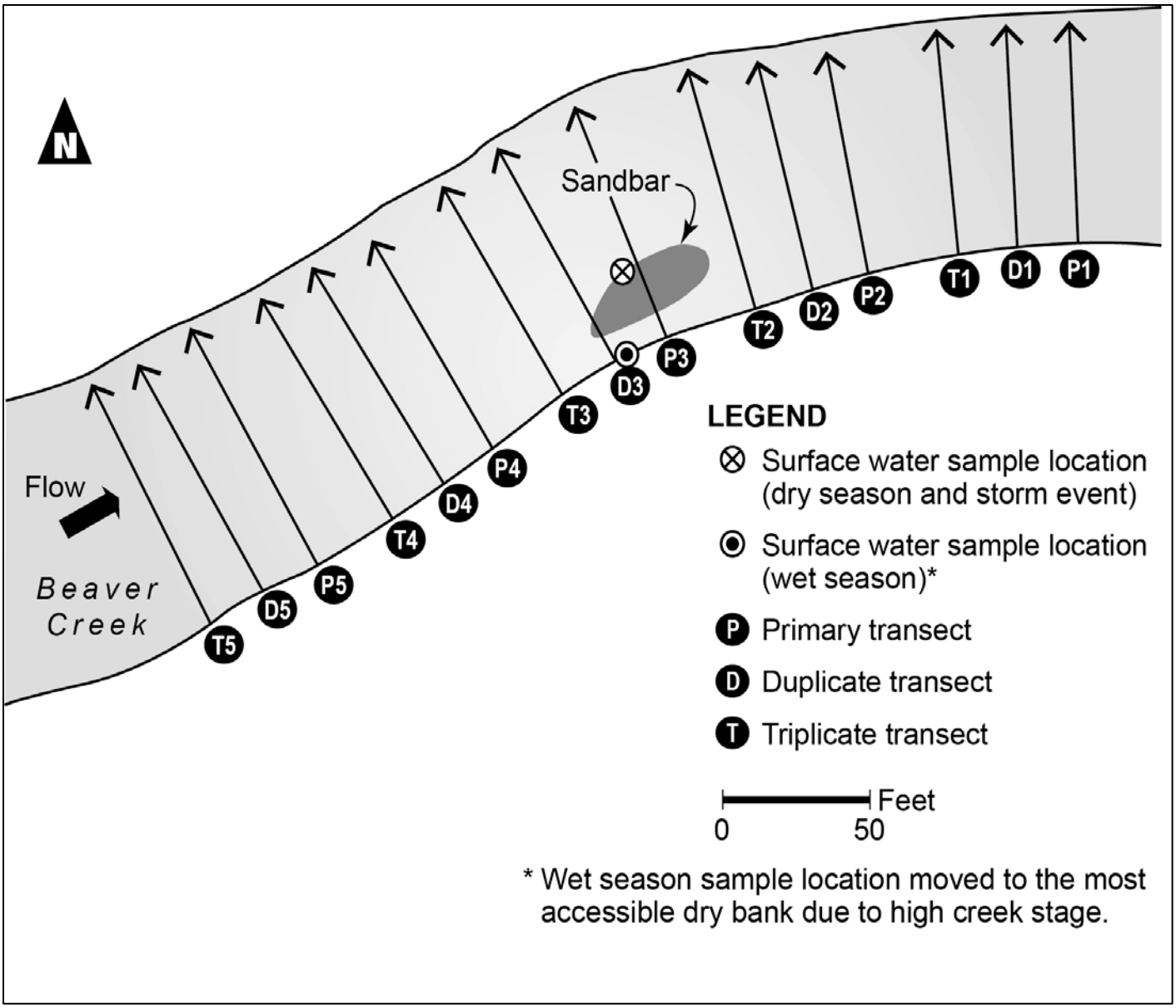

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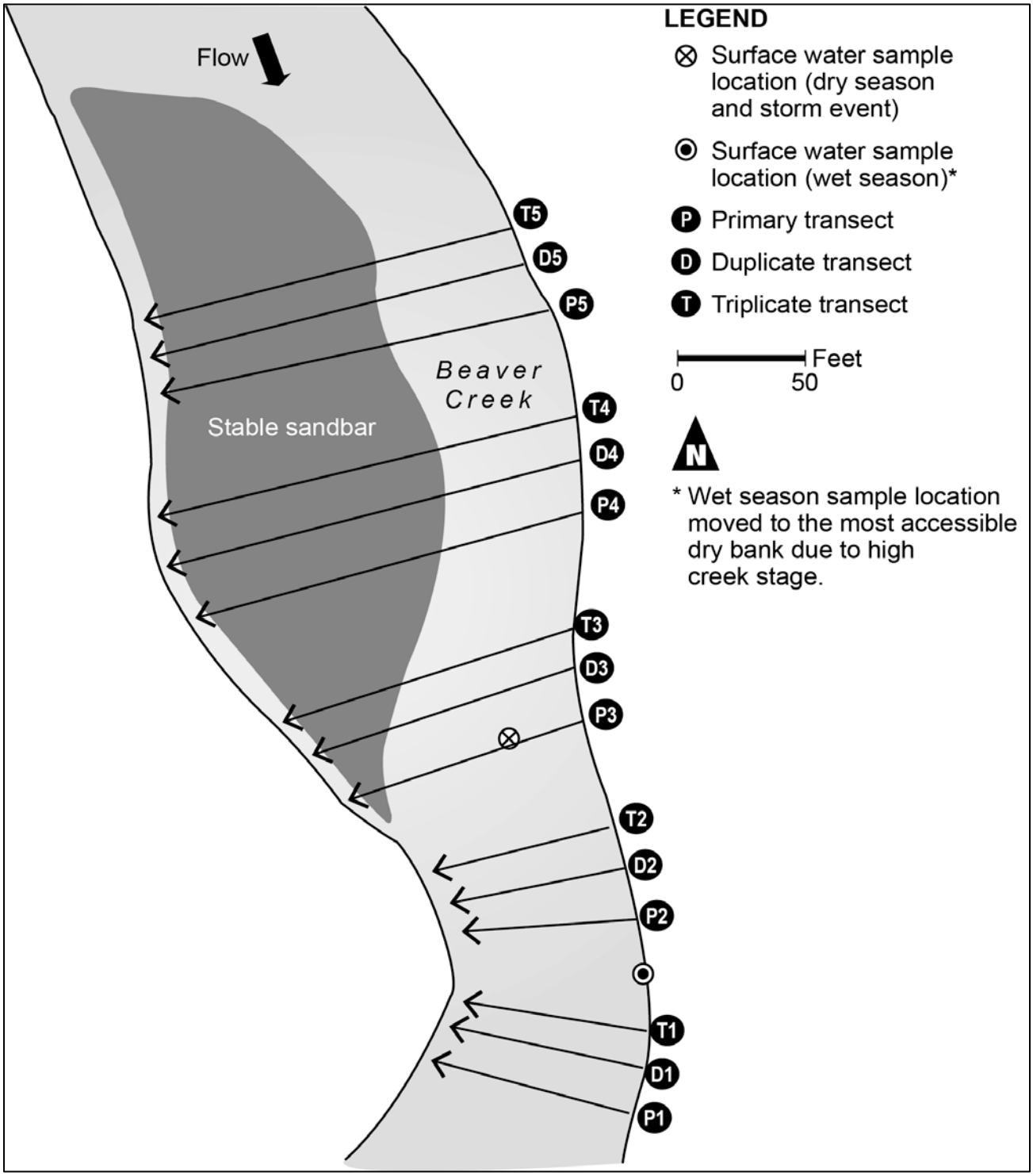
Figure 4-3 DGSD03 Sediment Sampling Location Diagram



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5 Data Analyses

5.1 Laboratory Analytical Methods

Surface water, sediment, and groundwater samples were submitted to DoD Environmental Laboratory Approval Program-certified laboratories (Accutest, APPL, and TerraSense Laboratories) for analysis. The following analytical methods were used for media-specific analysis.

Surface water was analyzed for:

- Munitions-related dissolved metals by USEPA Method 6020A plus hardness metals SM2340B [APPL]
- Dissolved metals for BLM* by USEPA Method 6010B [Accutest]
- Explosive MCOC by USEPA Method 8330B [APPL]
- Anions (sulfate and chloride) for BLM* by USEPA Method 300.0 [Accutest]
- Alkalinity for BLM* by Standard Method 2320B [Accutest]
- Hardness by Standard Method 2340A [Accutest]

*The BLM is a calculation of water quality criteria for copper and lead that accounts for these various water quality parameters.

Sediment was analyzed for:

- Munitions-related metals by USEPA Method 6020A [APPL]
- Total organic carbon by Lloyd Kahn 1988 [Accutest]
- AVS/SEM by USEPA Method 821/R-91-100 [Accutest]
- Grain size by ASTM D-422 [Accutest]
- Coarse fraction metals analysis by SOP #TP-105 [TerraSense]

Groundwater was analyzed for:

- Explosive MCOC by USEPA Method 8330B [APPL]

These analytical methods for MCOC achieve the project quantitation limits of at least one-third and in most cases one-tenth the PALs. Therefore, in the evaluation of analytical data in **Section 6**, statements about “non-detect” results mean that a chemical was not detected above the laboratory detection limit. Tabulated results for all analyses appear in **Appendix C**.

5.2 Data Validation

A Tier III Data Validation Report was prepared for each Sample Delivery Group as assigned by the laboratory and is included in **Appendix D** of this report. The procedure used information from the PQAPP, ISQAPP, and DoD Quality Systems Manual to define the method quality

objectives. The outlier data were qualified according to protocols defined in the National Functional Guidelines for Organic (June 2008) and Inorganic (January 2010).

Issues identified during the data validation resulted in the application of letter qualifiers to the data. These qualifiers were added to concentrations, when appropriate, to ensure reported concentrations were accurately represented. Inclusion or exclusion of data for further analysis was based on review of analytical qualifiers and performed in accordance with National Functional Guidelines for Organic (June 2008) and Inorganic (January 2010):

- Analytical results bearing the U qualifier (indicating that the analyte was not detected at the given reporting limit) were retained in the data set and considered non-detects. U qualifiers were also assigned to sample concentrations less than five times the concentrations observed in associated laboratory and field blanks. When samples were U qualified based on blank contamination and the concentration was less than the Limit of Detection (LOD), the detected concentration was elevated to the LOD. When samples were U qualified based on blank contamination and the detected concentration was greater than the LOD, the detected concentration became the new LOD. If the LOD was elevated above the Limit of Quantitation (LOQ), the LOQ was also elevated.
- Analytical results bearing the J qualifier (indicating that the reported value was estimated because of minor anomalies with the method quality objectives) were retained at the measured concentration.
- Analytical results bearing a UJ qualifier indicate that the analyte was not detected at a level greater than or equal to the adjusted CRQL. However, the reported adjusted CRQL is approximate and may be inaccurate or imprecise.
- Analytical results bearing a J+ qualifier indicate that the result is an estimated quantity, but the result may be biased high.
- Analytical results bearing a J- qualifier indicate that the result is an estimated quantity, but the result may be biased low.

5.3 Data Analysis

Each sample result was compared directly to the PAL for all MCOC parameters examined. The weight-of-evidence approach used in the assessment helped control decision errors. MCOC concentrations from all sample results, general water quality parameters, and site conditions were taken into account to ensure that additional information did not provide indications that MCOC conclusions may be in error.

6 Data Results

6.1 Surface Water

Surface water MCOC results are summarized in **Tables 6-1** through **6-6** and on **Figure 6-1**. Complete surface water analytical summary tables are provided in **Appendix C**. Data usability reports are in **Appendix D.**

Dissolved metals in surface water samples collected during the wet and dry season sampling events were below PALs (**Tables 6-1** through **6-6**). Explosives were not detected in surface water samples during the wet and dry season sampling events (**Tables 6-3** through **6-6**). The reference sample (DGSW01) was used to establish metal concentrations that may be naturally occurring or influenced by non-operational or off-installation activities. MCOC metal concentrations detected in the reference sample were compared to results from surface water samples collected further downstream (DGSW02 and DGSW03) for both the dry and wet season sampling events. MCOC metal concentrations were comparable in all surface water samples with slightly higher concentrations of antimony, copper, and lead further downstream. All metal concentrations were reported well below their respective PALs. In addition, range areas are well maintained with vegetation at impact areas and at the range boundaries, mitigating overland flow to adjacent water bodies. Although these observations suggest that MCOC transport is possible, there is little direct evidence that transport is occurring. None of the surface water data suggest migration of MCOC from the operational range footprint at concentrations that pose a risk.

Water quality parameters (e.g., pH, temperature) measured in the field are summarized in **Appendix B**. These data were generally consistent between samples and sampling events. Dissolved oxygen was somewhat elevated during the Wet "B" Event, which was likely influenced by the rain that fell during that time. **Appendix C** contains the water quality parameters measured in the laboratory that are needed for the BLM: alkalinity, calcium, magnesium, potassium, sodium, chloride, sulfate, and dissolved organic carbon. Because metals MCOC do not appear to be migrating from the operational range footprint at levels above reference and/or PALs, running the BLM was not necessary. Minor detections of copper, lead, and/or zinc occurred in the equipment blanks collected during the project. Detections in surface water samples were slightly affected by these blank detections and the results were qualified during data review. Usability, however, was not adversely affected.

6.2 Sediment

Sediment samples were analyzed only for metals MCOC and other parameters including AVS/SEM, TOC, and grain size. In addition to the standard sediment metals analyses, the larger coarse fraction sediments (greater than 2 millimeters) were evaluated for metal content. All analytical results are tabulated in **Appendix C** with data usability reports in **Appendix D**. MCOC summary tables are presented below in the discussion of sediment results.

Metals concentrations in sediment were well below PALs (**Tables 6-7** through **6-9** and on **Figure 6-1**).

AVS was reported as below detection limits in all samples with one exception (**Table 6-10**). This indicates that metals are not likely to partition to insoluble sulfide complexes and are, therefore,

bioavailable to organisms. TOC can reduce the toxicity potential of divalent metals. Sediment samples collected at DGSD02 and DGSD03 had higher concentrations of TOC than the reference sample (DGSD01). The creek bottom had greater amounts of organic matter at DGSD02 and DGSD03; with cleaner sandy sediments at DGSD01. Since metal MCOC concentrations are below associated PALs, bioavailability is not a concern.

Sediment fractions greater than 2 millimeters were evaluated for lead. This was done by first separating metal and non-metal fractions. Metal fractions were further separated into magnetic and non-magnetic fractions; the non-magnetic fractions were then separated into lead and non-lead. No coarse lead fragments were identified in the sediment samples (**Table 6-11**). A summary of the grain size analysis is presented in **Table 6-12**.

None of the sediment data suggest migration of MCOC from the operational footprint. The reference sample (DGSD01) was used to establish metal concentrations that may be naturally occurring or influenced by non-operational or off-installation activities. MCOC metals detected in the reference sample were compared to results from sediment samples collected further downstream (DGSD02 and DGSD03). The MCOC metals detected in the reference sample had higher concentrations than the sediment samples collected further downstream. All metal concentrations were reported well below their respective PALs. In addition, range areas are well maintained with vegetation at impact areas and at the range boundaries, mitigating overland flow to adjacent water bodies. Although these observations suggest that MCOC transport is possible, there is little direct evidence that transport is occurring. None of the sediment data suggest migration of MCOC from the operational footprint at concentrations that pose a risk. Minor detections of copper and lead occurred in the equipment blank collected during the project. Detections in sediment samples were not affected.

6.3 Groundwater

Groundwater samples collected from wells MW07 and MW08 were analyzed for explosive MCOC during three independent sampling events. Duplicate samples were collected during the A, B, and C events. All explosive results were reported as non-detect (**Table 6-13** and **Figure 6-1**) in both parent and duplicate samples for all sampling events. Complete groundwater analytical summary tables are provided in **Appendix C**. Analytical data usability reports are in **Appendix D**.

6.4 Uncertainty

Several factors may contribute to the uncertainty of our data evaluation. Because the Phase II investigation focused on only two seasonal events, one wet season mobilization and one dry season mobilization, the findings of this Phase II are based on a limited amount of data and do not represent a complete annual cycle of conditions. However, by selecting two seasonal extremes, the data collected are considered to be representative of the range of surface water system conditions.

The uncertainty for groundwater data was minimized by collecting groundwater samples during independent sampling events covering a range of seasons (spring and fall). The groundwater data collected represents a complete annual cycle of conditions and are considered more representative of the groundwater conditions downgradient of the potential source areas.

Table 6-1
Surface Water Sampling Results for DGSW01 (Dry Season/Storm Event)

Sample ID		DGSW01DA01				DGSW01DB01				DGSW01DB02			
Sample Date		11/4/2011				11/3/2011				11/3/2011			
Metals (µg/L)	**PAL**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**
Antimony (Dissolved)	15	0.20	U	U	z	0.20	U	U	z	0.20	U	U	o
Copper (Dissolved)	19.4	0.76	U	U	x	0.93	U	U	x	1.0		J-	m
Lead (Dissolved)	6.6	0.39	U	U	x	0.18	U	U	x	0.22	U	U	x
Zinc (Dissolved)	254	5.0	U	U	x	5.0	U	U	x	5.0	U	U	x
General Chemistry (mg/L)		**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**
Hardness (Dissolved)		285		J	q	305		J	q	300		J	q

Notes:

µg/L = micrograms per liter

DA/DB = Dry Season/Storm Event

ID = identification

mg/L = milligrams per liter

SW = surface water

Laboratory Qualifiers Used

U =Not detected

Data Validation Flags Used

J- = Inorganic analyte present. Reported value may not be accurate or precise, but the result may be biased low.

J = Analyte present. Reported value may not be accurate or precise.

U = Not detected substantially above the level reported in laboratory or field blanks.

Reason Codes Used

m = MS/MSD recovery failure

o = Calibration blank contamination

q = Concentration exceeded the linear range

x = Field blank contamination

z = Preparation/Method blank contamination

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Table 6-2
Surface Water Sampling Results for DGSW01 (Wet Season)

Sample ID		DGSW01WA01				DGSW01WB01			
Sample Date		5/9/2012				5/10/2012			
Metals (µg/L)	**PAL**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**
Antimony (Dissolved)	15	0.20		J-	o	0.10	J	J-	o
Copper (Dissolved)	19.4	0.77	U	U	x	0.76	U	U	x
Lead (Dissolved)	6.6	0.15	U			0.13	J		
Zinc (Dissolved)	254	2.9	U	U	x	9.5	U	U	x
General Chemistry (mg/L)		**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**
Hardness (Dissolved)		314		J	q	337		J	q

Notes:

µg/L = micrograms per liter

ID = identification

mg/L = milligrams per liter

SW = surface water

WA/WB = 1st 24 Hour Composite/2nd 24 Hour Composite

Laboratory Qualifiers Used

J = Estimated value

U = Not detected

Data Validation Flags Used

J- = Inorganic analyte present. Reported value may not be accurate or precise, but the result may be biased low.

J = Analyte present. Reported value may not be accurate or precise.

U = Not detected substantially above the level reported in laboratory or field blanks.

Reason Codes Used

o = Calibration Blank detection

q = Analyte exceeded the linear range of the instrument

x = Field blank detection

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Table 6-3
Surface Water Sampling Results for DGSW02 (Dry Season/Storm Event)

Sample ID		DGSW02DA01				DGSW02DB01			
Sample Date		11/1/2011				11/2/2011			
Explosives		**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**
All Compounds Nondetect									
Metals (µg/L)	**PAL**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**
Antimony (Dissolved)	15	0.29		J+	n	0.25		J+	n
Copper (Dissolved)	19.4	0.84	U	U	x	0.95		J+	n
Lead (Dissolved)	6.6	0.15	U	U	x	0.15	U	UJ	z
Zinc (Dissolved)	254	5.0	U	U	x	5.1	U	U	x
General Chemistry (mg/L)		**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**
Hardness (Dissolved)		336		J	q	322		J	q

Notes:

µg/L = micrograms per liter

DA/DB = Dry Season/Storm Event

ID = identification

mg/L = milligrams per liter

SW = surface water

Laboratory Qualifiers Used

U =Not detected

Data Validation Flags Used

J+ = Inorganic analyte present. Reported value may not be accurate or precise, but the result may be biased high.

J = Analyte present. Reported value may not be accurate or precise.

U = Not detected substantially above the level reported in laboratory or field blanks.

UJ = Not detected substantially above the level reported in laboratory or field blanks, reported value may not be accurate or precise.

Reason Codes Used

n = ICS failure

q = Concentration exceeded the linear range

x = Field blank contamination

z = Preparation/Method blank contamination

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Table 6-4
Surface Water Sampling Results for DGSW02 (Wet Season)

Sample ID		DGSW02WA01				DGSW02WB01			
Sample Date		5/10/2012				5/11/2012			
Explosives		**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**
All Compounds Nondetect									
Metals (µg/L)	**PAL**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**
Antimony (Dissolved)	15	0.15	J	J-	o	0.59		J+	o
Copper (Dissolved)	19.4	1.1	U	U	x	0.94	U	U	x
Lead (Dissolved)	6.6	0.68				0.15	U		
Zinc (Dissolved)	254	7.7	U	U	x	8.1	U	U	x
General Chemistry (mg/L)		**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**
Hardness (Dissolved)		335		J	q	348			

Notes:

µg/L = micrograms per liter

ID = identification

mg/L = milligrams per liter

SW = surface water

WA/WB = 1st 24 Hour Composite/2nd 24 Hour Composite

Laboratory Qualifiers Used

J = Estimated value

U = Not detected

Data Validation Flags Used

J+ = Inorganic analyte present. Reported value may not be accurate or precise, but the result may be biased high.

J- = Inorganic analyte present. Reported value may not be accurate or precise, but the result may be biased low.

J = Analyte present. Reported value may not be accurate or precise.

U = Not detected substantially above the level reported in laboratory or field blanks.

Reason Codes Used

o = Calibration Blank detection

q = Analyte exceeded the linear range of the instrument

x = Field blank detection

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Table 6-5
Surface Water Sampling Results for DGSW03 (Dry Season/Storm Event)

Sample ID		DGSW03DA01				DGSW03DA02				DGSW03DB01			
Sample Date		11/1/2011				11/1/2011				11/2/2011			
Explosives		**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**
All Compoumds Nonsetect													
Metals (µg/L)	**PAL**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**
Antimony (Dissolved)	15	0.20	U	U	o	0.65		J+	n	0.27		J+	n
Copper (Dissolved)	19.4	1.1		J+	n	0.99		J+	n	1.2		J+	n
Lead (Dissolved)	6.6	0.89		J-	z	0.24	U	U	x	0.53	U	U	x
Zinc (Dissolved)	254	5.4	U	U	x	5.4	U	U	x	7.3	U	U	x
General Chemistry (mg/L)		**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**
Hardness (Dissolved)		330		J	q	334		J	q	247		J	q

Notes:

µg/L = micrograms per liter

DA/DB = Dry Season/Storm Event

ID = identification

mg/L = milligrams per liter

SW = surface water

Laboratory Qualifiers Used

U =Not detected

Data Validation Flags Used

J+ = Inorganic analyte present. Reported value may not be accurate or precise, but the result may be biased high.

J- = Inorganic analyte present. Reported value may not be accurate or precise, but the result may be biased low.

J = Analyte present. Reported value may not be accurate or precise.

U = Not detected substantially above the level reported in laboratory or field blanks.

Reason Codes Used

n = ICS failure

o = Calibration blank contamination

q = Concentration exceeded the linear range

x = Field blank contamination

z = Preparation/Method blank contamination

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Table 6-6
Surface Water Sampling Results for DGSW03 (Wet Season)

Sample ID		DGSW03WA01				DGSW03WB01				DGSW03WB02			
Sample Date		5/9/2012				5/10/2012				5/10/2012			
Explosives		**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**
All Compounds Nondetect													
Metals (µg/L)	**PAL**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**
Antimony (Dissolved)	15	0.12	J	J-	o	0.16	J	J-	o	0.17	J	J-	o
Copper (Dissolved)	19.4	1.7	U	U	x	0.95	U	U	x	0.86	U	U	x
Lead (Dissolved)	6.6	0.32	J			0.15	U			0.19	J		
Zinc (Dissolved)	254	17.9	U	U	x	14	U	U	x	20.1	U	U	x
General Chemistry (mg/L)		**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**
Hardness (Dissolved)		319		J	q	337		J	q	336		J	q

Notes:

µg/L = micrograms per liter

ID = identification

mg/L = milligrams per liter

SW = surface water

WA/WB = 1st 24 Hour Composite/2nd 24 Hour Composite

Laboratory Qualifiers Used

J = Estimated value

U = Not detected

Data Validation Flags Used

J+ = Inorganic analyte present. Reported value may not be accurate or precise, but the result may be biased high.

J- = Inorganic analyte present. Reported value may not be accurate or precise, but the result may be biased low.

J = Analyte present. Reported value may not be accurate or precise.

U = Not detected substantially above the level reported in laboratory or field blanks.

Reason Codes Used

o = Calibration Blank detection

q = Analyte exceeded the linear range of the instrument

x = Field blank detection

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Table 6-7
Sediment Sampling Results for DGSD01 (Dry Season)

Sample ID		DGSD01DA01				DGSD01DA02				DGSD01DA03			
Sample Date		11/4/2011				11/4/2011				11/4/2011			
Metals (mg/Kg)	PAL	Result	Laboratory Qualifier	Data Validation Flag	Reason Code	Result	Laboratory Qualifier	Data Validation Flag	Reason Code	Result	Laboratory Qualifier	Data Validation Flag	Reason Code
Antimony	12	0.089	U	U	z	0.086	U	U	z	0.076	U	U	z
Copper	34	2.8		J	s	2.5		J	s	2.3		J	s
Lead	47	3.3				3.1				2.9			
Zinc	150	13.9		J	s	13.1		J	s	12.4		J	s

Notes:

DA = Dry Season

ID = identification

mg/kg = milligram per kilogram

SD = sediment

Laboratory Qualifiers Used

U =Not detected

Data Validation Flags Used

J = Analyte present. Reported value may not be accurate or precise.

U = Not detected substantially above the level reported in laboratory or field blanks.

Reason Codes Used

s = Serial dilution failure

z = Preparation/Method blank contamination

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Table 6-8
Sediment Sampling Results for DGSD02 (Dry Season)

Sample ID		DGSD02DA01				DGSD02DA02				DGSD02DA03			
Sample Date		11/4/2011				11/4/2011				11/4/2011			
Metals (mg/Kg)	PAL	Result	Laboratory Qualifier	Data Validation Flag	Reason Code	Result	Laboratory Qualifier	Data Validation Flag	Reason Code	Result	Laboratory Qualifier	Data Validation Flag	Reason Code
Antimony	12	0.068	U	U	z	0.070	U	U	z	0.057	U	U	z
Copper	34	1.8		J	s	1.9		J	s	1.5		J	s
Lead	47	2.8				2.7				2.3			
Zinc	150	10.4		J	s	10.8		J	s	9.1		J	s

Notes:

DA = Dry Season

ID = identification

mg/kg = milligram per kilogram

SD = sediment

Laboratory Qualifiers Used

U =Not detected

Data Validation Flags Used

J = Analyte present. Reported value may not be accurate or precise.

U = Not detected substantially above the level reported in laboratory or field blanks.

Reason Codes Used

s = Serial dilution failure

z = Preparation/Method blank contamination

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Table 6-9
Sediment Sampling Results for DGSD03 (Dry Season)

Sample ID		DGSD03DA01				DGSD03DA02				DGSD03DA03			
Sample Date		11/3/2011				11/3/2011				11/3/2011			
Metals (mg/Kg)	PAL	Result	Laboratory Qualifier	Data Validation Flag	Reason Code	Result	Laboratory Qualifier	Data Validation Flag	Reason Code	Result	Laboratory Qualifier	Data Validation Flag	Reason Code
Antimony	12	0.085	U	U	z	0.075	U	U	z	0.084	U	U	z
Copper	34	2.2		J	s	2.2		J	s	2.4		J	s
Lead	47	2.9				2.8				3.0			
Zinc	150	12.1		J	s	11.7		J	s	12.4		J	s

Notes:

DA = Dry Season

ID = identification

mg/kg = milligram per kilogram

SD = sediment

Laboratory Qualifiers Used

U =Not detected

Data Validation Flags Used

J = Analyte present. Reported value may not be accurate or precise.

U = Not detected substantially above the level reported in laboratory or field blanks.

Reason Codes Used

s = Serial dilution failure

z = Preparation/Method blank contamination

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Table 6-10
Sediment SEM, AVS, and TOC Analysis (Dry Season)

Sample ID	DGSD01DA01		DGSD01DA02		DGSD01DA03		DGSD02DA01		DGSD02DA02		DGSD02DA03		DGSD03DA01		DGSD03DA02		DGSD03DA03	
Date	11/4/2011		11/4/2011		11/4/2011		11/4/2011		11/4/2011		11/4/2011		11/4/2011		11/4/2011		11/4/2011	
	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
[1]Σ SEM - µmol/g	0.1495	*	0.1403	*	0.1697	*	0.1833	*	0.2133	*	0.3102	*	0.3072	*	0.6424	*	0.3681	*
Acid Volatile Sulfide -µmol/g_{sed}	0.062	U	0.067	U	0.075	U	0.066	U	0.073	U	0.069	U	0.071	U	0.13		0.072	U
[1]Σ SEM/AVS	2.411		2.095		2.263		2.778		2.922		4.495		4.327		4.942		5.113	
TOC - mg/kg	808		718		4,300		595		766		1,120		5,340		11,100		2,040	

Notes:

* = Sum of SEM metals was not reported by the laboratory. Therefore, no qualifier is provided by the laboratory. Although, individual metals may have been qualified.

[1] = When the laboratory reported a non-detect value for an SEM metal or AVS, the MDL concentration was used.

µmol/g = micromole per gram

AVS = acid volitel sulfide

DA = Dry Season

ID = indentification

mg/kg = milligram per kilogram

SEM = simultaneoously extracted metals

SD = sediment

TOC = total organic carbon

Data Validation Flags Used

J = Analyte present. Reported value may not be accurate or precise.

U = Not detected substantially above the level reported in laboratory or field blanks.

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Table 6-11
Course Fraction (Dry Season)

Sample Location	Sample Identification	Metal					
		Magnetic		Non-Magnetic			
				Lead		Non Lead	
		Weight (g)	#Parts	Weight (g)	#Parts	Weight (g)	#Parts
DGSD01	DGSD01DA01	0.00	0	0.00	0	0.00	0
	DGSD01DA02	0.00	0	0.00	0	0.00	0
	DGSD01DA03	0.00	0	0.00	0	0.00	0
DGSD02	DGSD02DA01	0.00	0	0.00	0	4.02	1
	DGSD02DA02	0.00	0	0.00	0	0.00	0
	DGSD02DA03	0.00	0	0.00	0	0.00	0
DGSD03	DGSD03DA01	0.00	0	0.00	0	0.00	0
	DGSD03DA02	0.00	0	0.00	0	0.00	0
	DGSD03DA03	0.00	0	0.00	0	0.00	0

Notes:

= number

DA = Dry Season

g = gram

SD = sediment

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Table 6-12
Grain Size (Dry Season)

Sample ID	DGSD01DA01	DGSD02DA01	DGSD03DA01
Date	11/4/2011	11/4/2011	11/4/2011
	Result	Result	Result
% Gravel ≥ 4.75 mm	35	0.47	52.4
% Sand 0.076 mm - 4.74 mm	62.8	97.2	23.1
% Silt, Clay, Colloids <0.075 mm	2.2	2.4	24.5

Notes:
# = number
DA = Dry Season
g = gram
SD = sediment

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Table 6-13
Groundwater Sampling Results for DGMW07 and DGMW08

	Sample ID	DGGW07DA01				DGGW07DA02				DGGW07DB01			
	Sample Date	11/3/2011				11/3/2011				1/6/2012			
Explosives	Units	Result	Laboratory Qualifier	Data Validation Flag	Reason Code	Result	Laboratory Qualifier	Data Validation Flag	Reason Code	Result	Laboratory Qualifier	Data Validation Flag	Reason Code
Explosives	µg/L	All Compounds Nondetect				All Compounds Nondetect				All Compounds Nondetect			

	Sample ID	DGGW07DB02				DGGW07WC01				DGGW07WC02			
	Sample Date	1/6/2012				5/8/2012				5/8/2012			
Explosives	Units	Result	Laboratory Qualifier	Data Validation Flag	Reason Code	Result	Laboratory Qualifier	Data Validation Flag	Reason Code	Result	Laboratory Qualifier	Data Validation Flag	Reason Code
Explosives	µg/L	All Compounds Nondetect				All Compounds Nondetect				All Compounds Nondetect			

	Sample ID	DGGW08DA01				DGGW08DB01				DGGW08WC01			
	Sample Date	11/3/2011				1/6/2012				5/8/2012			
Explosives	Units	Result	Laboratory Qualifier	Data Validation Flag	Reason Code	Result	Laboratory Qualifier	Data Validation Flag	Reason Code	Result	Laboratory Qualifier	Data Validation Flag	Reason Code
Explosives	µg/L	All Compounds Nondetect				All Compounds Nondetect				All Compounds Nondetect			

Notes:

µg/L = micrograms per liter

DA = First Sampling Event/

DB = Second Sampling Event

DC = Third Sampling Event

GW = groundwater

ID = identification

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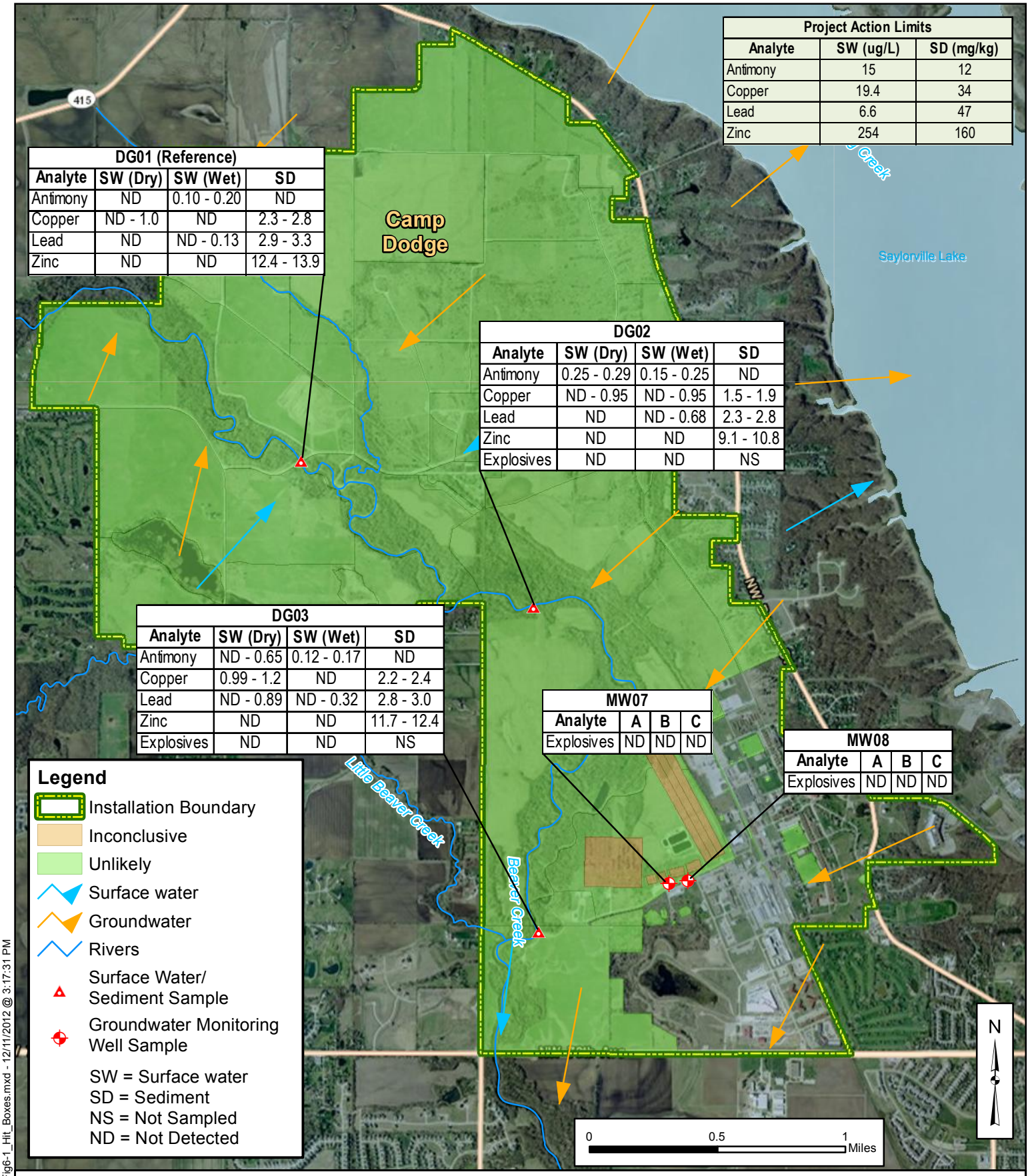

Project Action Limits		
Analyte	SW (ug/L)	SD (mg/kg)
Antimony	15	12
Copper	19.4	34
Lead	6.6	47
Zinc	254	160

DG01 (Reference)			
Analyte	SW (Dry)	SW (Wet)	SD
Antimony	ND	0.10 - 0.20	ND
Copper	ND - 1.0	ND	2.3 - 2.8
Lead	ND	ND - 0.13	2.9 - 3.3
Zinc	ND	ND	12.4 - 13.9

DG02			
Analyte	SW (Dry)	SW (Wet)	SD
Antimony	0.25 - 0.29	0.15 - 0.25	ND
Copper	ND - 0.95	ND - 0.95	1.5 - 1.9
Lead	ND	ND - 0.68	2.3 - 2.8
Zinc	ND	ND	9.1 - 10.8
Explosives	ND	ND	NS

DG03			
Analyte	SW (Dry)	SW (Wet)	SD
Antimony	ND - 0.65	0.12 - 0.17	ND
Copper	0.99 - 1.2	ND	2.2 - 2.4
Lead	ND - 0.89	ND - 0.32	2.8 - 3.0
Zinc	ND	ND	11.7 - 12.4
Explosives	ND	ND	NS

MW07			
Analyte	A	B	C
Explosives	ND	ND	ND

MW08			
Analyte	A	B	C
Explosives	ND	ND	ND

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Figure 6-1
Phase II Assessment Findings
Operational Range Phase II Assessment
Camp Dodge, IA

Data Sources:
AEC, 2006
USACE, 2008
Imagery: USA Prime Imagery, ESRI
ArcGIS Online and data partners

Date.....December 2012
Prepared by.....URS Group, Inc.
Prepared for.....ARNG Directorate
Contract.....W912DR-09-D-0003 / 0008

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7 Weight-of-Evidence Evaluation and Conclusions

7.1 Weight-of-Evidence Evaluation

The Phase II analytical data and supporting observations indicate that explosives and metals MCOC are not migrating from Camp Dodge operational range areas off installation via surface water, sediment, or groundwater pathways at concentrations that pose an unacceptable risk to human or ecological receptors. The discussion below summarizes and relatively weighs the information used to make this determination. The data that indicate a source-receptor connection may exist are presented first and followed by the stronger evidence that a complete pathway is not present.

The Phase II CSM indicated that there may be migration to off-range receptors for the following reasons:

- Ranges at Camp Dodge are heavily used throughout the year, and have a long history of being heavily used for live fire training.
- The distance from impact berms to surface water bodies can be less than a mile.
- Some of the longer ranges had relatively low berms, suggesting that overshot may occur.
- Groundwater in close proximity to the ranges is used for human consumption.
- Nearby surface water bodies support an ecological habitat.

Although these observations suggest that MCOC transport is possible, there is little direct evidence that transport is occurring. The following evidence indicates that MCOC are not migrating:

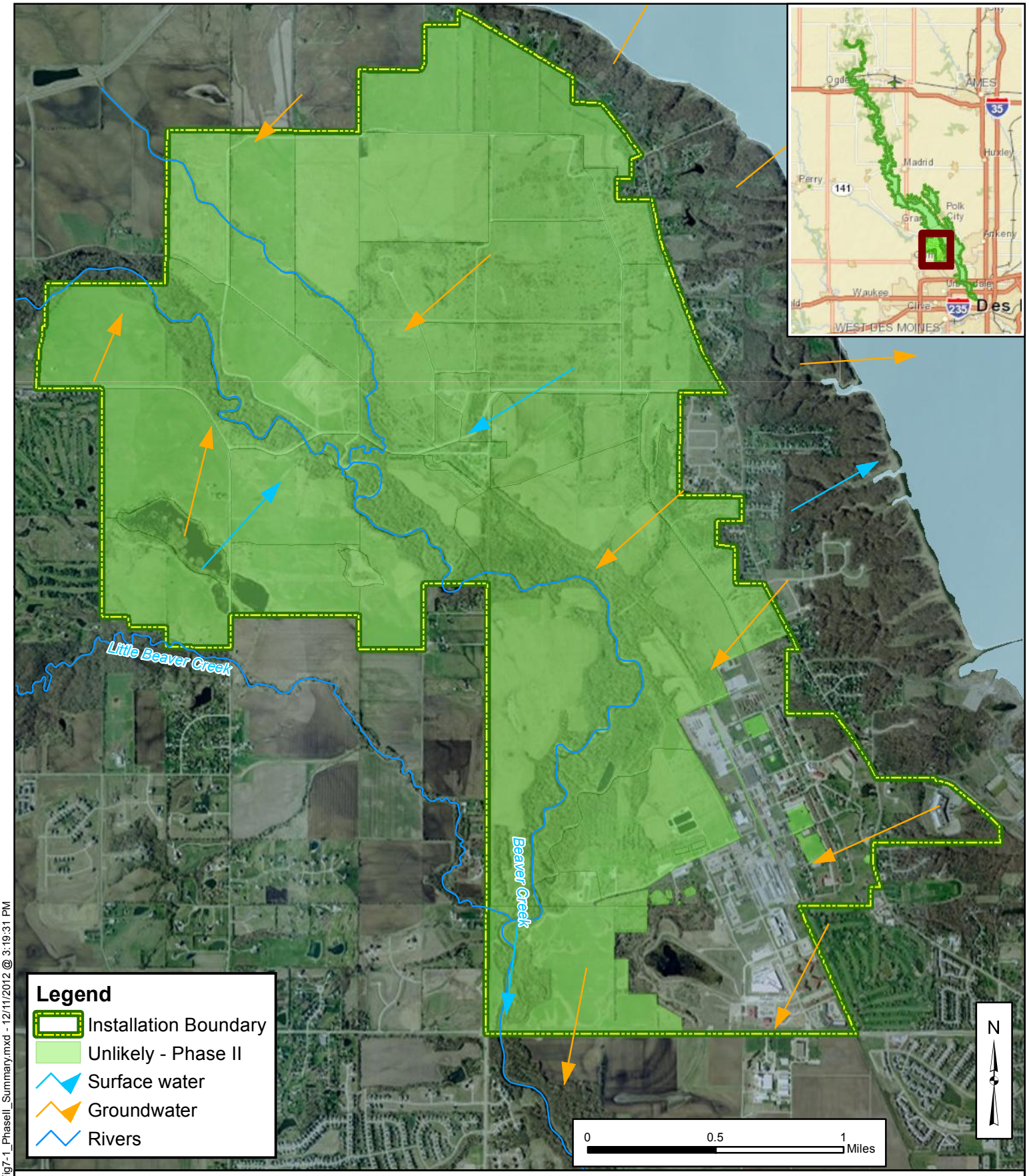
- Range areas are well maintained with vegetation at the impact areas and at range boundaries, thereby limiting the potential for solid MCOC migration via soil erosion and overland flow to adjacent surface water bodies.
- Movement of metals MCOC particles from ranges through the vadose zone and into groundwater may be physically retarded by low permeability silt and clay. Dissolved metals MCOC may be immobilized via adsorption to clay particles.
- The average surface water hardness concentrations were greater than 250 mg/L, thereby limiting the potential solubility of metals in local surface water.
- Explosives MCOCs were not detected in surface water or groundwater.
- Metals MCOC were detected in surface water at concentrations below their PALs.

- Metals MCOC were detected in sediment samples at concentrations below their PALs. In addition, the close similarity in comparison of results in the sediment samples that were collected in triplicate.

Given the absence of explosives in surface water and groundwater and the low levels of metals detected in sediments and multiple rounds of surface water samples, it is concluded that MCOC are not migrating off-range at levels that pose an unacceptable risk to human or ecological receptors. This conclusion is supported by the repeatability of data demonstrated by the multiple sampling events in different seasons and the inherent conservativeness of the PALs established for this project, and the observed site conditions that naturally mitigate MCOC migration.

7.2 Conclusions

Potential MCOC source-receptor pathways are currently incomplete at Camp Dodge. There is no unacceptable risk to off-range human or ecological receptors from potential sources associated with the *Inconclusive* areas at the Camp Dodge. Operational areas are placed into a review cycle to periodically evaluate whether future changes in conditions pose unacceptable risk to off-range human or ecological receptors (**Figure 7-1**). Proper best management practices to be implemented will reasonably ensure no future MCOC migration from the potential sources associated with the operational range footprint at Camp Dodge.



Z:\Camp_Dodge\figures\PhaseII\Fig7-1_PhaseII_Summary.mxd - 12/11/2012 @ 3:19:31 PM

Figure 7-1
Phase II Assessment Summary
Operational Range Phase II Assessment
Camp Dodge, IA

Data Sources:
AEC, 2006
USACE, 2008
Imagery: USA Prime Imagery, ESRI
ArcGIS Online and data partners

Date.....December 2012
Prepared by.....URS Group, Inc.
Prepared for.....ARNG Directorate
Contract.....W912DR-09-D-0003 / 0008

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8 References

Army National Guard (ARNG). 2011. *ARNG ORA Focus for Technical Sampling* (ARNG ORA FY12).

Army Range Inventory Database-Geodatabase (ARID-GEO). 2007. Army Operational Range Inventory Sustainment FY06: Final packet for Camp Dodge, Iowa.

Department of Defense (DoD), 2004. Department of Defense Directive (DoDD) 4715.11 *Environmental and Explosive Safety Management on Operational Ranges Within the United States*.

DoD, 2005. Department of Defense Instruction (DoDI) 4715.14, *Operational Range Assessments*.

Iowa Army National Guard (IAARNG), 2008. *Camp Dodge Training Site, Integrated Natural Resources Management Plan*. March 2008

United States Army Corps of Engineers (USACE), 2008. *Draft Final Operational Range Assessment Program, Phase I Qualitative Assessment Report, Camp Dodge, Iowa*. Prepared by Earth Resources Technology, Inc. for USACE Baltimore District, October 2008.

United States Army Environmental Command. 2009. *Procedure for Choosing Screening Values for Operational Range Assessments*. Appendix B. Final Version 5.

United States Army Center for Health Promotion and Preventive Medicine (USACHPPM), 2009. *Army ORA Phase II Investigation Protocol*. July 2009.

United States Environmental Protection Agency (USEPA), 2006. *Guidance on Systematic Planning Using the Data Quality Objectives Process*, EPA QA/G-4.

USEPA. 2001. M*ethods for Collection, Storage and Manipulation of Sediments for Chemical and Toxicological Analyses: Technical Manual.* Available at http://water.epa.gov/polwaste/sediments/cs/upload/collectionmanual.pdf.

USEPA, 1996. *Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels.*

USEPA. 1994. USEPA Region III Modifications to the National Functional Guidelines for Organic (September 1994) and Inorganic (April 1993) Data Review

URS Group, Inc. (URS) /ARCADIS/Pirnie (ARCADIS/Malcolm Pirnie) 2011a. *Accident Prevention Plan, Operational Range Phase II Assessment, Camp Dodge, Iowa Army National Guard.* Submitted by URS October 2011.

URS/ARCADIS/Pirnie, 2011b. *Army ORA Phase II Programmatic Quality Assurance Project Plan.* April 2011.

URS/ARCADIS/Pirnie, 2011c. *Work Plan/Installation-Specific QAPP, Operational Range Phase II Assessment, Camp Dodge, Iowa Army National Guard*, Submitted by URS October 2011.

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APPENDIX A
PHOTOGRAPH LOG

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PHOTOGRAPHIC LOG – *Camp Dodge, Johnston, Iowa*

Client Name: USACE – Baltimore District; Contract W912DR-09-D-0003 / 0008	Site Location: Sampling Location 01	Project No. 15302625

Photo No. 1	Date: 11-4-11

Event: Dry Season

Task: Surface Water Sampling DGSW01

The ISCO unit was positioned to collect surface water from an area with major flow in Beaver Creek.

Photo No. 2	Date: 11-4-11

Event: Dry Season

Task: Sediment Sampling DGSD01

Measuring the width of the stream in 3 places to determine the average stream width.

PHOTOGRAPHIC LOG – *Camp Dodge, Johnston, Iowa*

Client Name: USACE – Baltimore District; Contract W912DR-09-D-0003 / 0008	Site Location: Sampling Location 01	Project No. 15302625

Photo No. 3	Date: 11-4-11

Event: Dry Season

Task: Sediment Sampling DGSD01

Measuring the width of the stream in 3 places to determine the average stream width.

Photo No. 4	Date: 11-4-11

Event: Dry Season

Task: Sediment Sampling DGSD01

Measuring the width of the stream in 3 places to determine the average stream width.

PHOTOGRAPHIC LOG – *Camp Dodge, Johnston, Iowa*

Client Name: USACE – Baltimore District; Contract W912DR-09-D-0003 / 0008	Site Location: Sampling Location 01	Project No. 15302625

Photo No. 5	Date: 11-4-11

Event: Dry Season

Task: Sediment Sampling DGSD01

Collecting sediment samples along a predetermined transect, already cleared by the UXO technician.

Photo No. 6	Date: 5-8-11

Event: Wet Season

Task: Surface Water Sampling DGSW01

Picture taken from the bridge looking East where sediment samples were collected during the dry, low-flow season.

PHOTOGRAPHIC LOG – *Camp Dodge, Johnston, Iowa*

Client Name: USACE – Baltimore District; Contract W912DR-09-D-0003 / 0008	Site Location: Sampling Location 01	Project No. 15302625

Photo No. 7	Date: 5-8-11

Event: Wet Season

Task: Surface Water Sampling DGSW01

Picture taken looking West from the DGSW01 location.

Photo No. 8	Date: 5-8-11

Event: Wet Season

Task: Surface Water Sampling DGSW01

Picture taken from the bridge looking South along the area where sediment samples were collected during the dry, low-flow season.

PHOTOGRAPHIC LOG – *Camp Dodge, Johnston, Iowa*

Client Name: USACE – Baltimore District; Contract W912DR-09-D-0003 / 0008	Site Location: Sampling Location 01	Project No. 15302625

Photo No. 9	Date: 5-8-11

Event: Wet Season

Task: Surface Water Sampling DGSW01

The ISCO unit was positioned up on the bridge. Collection tubing was stabilized and kept under water with PVC. The PVC with tubing was placed into Beaver Creek.

Photo No. 10	Date: 5-8-11

Event: Wet Season Surface Water Sampling

Task: Surface Water Sampling DGSW01

The PVC with tubing was positioned to collect surface water from an area in Beaver Creek with major flow.

PHOTOGRAPHIC LOG – *Camp Dodge, Johnston, Iowa*

Client Name: USACE – Baltimore District; Contract W912DR-09-D-0003 / 0008	Site Location: Sampling Location 01	Project No. 15302625

Photo No. 11	Date: 5-8-11

Event: Wet Season

Task: Surface Water Sampling DGSW01

The ISCO unit set up on the bridge.

PHOTOGRAPHIC LOG – *Camp Dodge, Johnston, Iowa*

Client Name: USACE – Baltimore District; Contract W912DR-09-D-0003 / 0008	Site Location: Sampling Location 02	Project No. 15302625

Photo No. 12	Date: 11-4-11

Event: Dry Season

Task: Sediment Sampling DGSD02

Measuring the width of the stream in 3 places to determine the average stream width.

Photo No. 13	Date: 11-4-11

Event: Dry Season

Task: Sediment Sampling DGSD02

Measuring the width of the stream in 3 places to determine the average stream width.

PHOTOGRAPHIC LOG – *Camp Dodge, Johnston, Iowa*

Client Name: USACE – Baltimore District; Contract W912DR-09-D-0003 / 0008	Site Location: Sampling Location 02	Project No. 15302625

Photo No. 14	Date: 11-4-11

Event: Dry Season

Task: Sediment Sampling DGSD02

After determining the average stream width, steaks and pin flags were placed to mark the different sets of sampling transects (primary, duplicate, and triplicate).

Photo No. 15	Date: 11-4-11

Event: Dry Season

Task: Sediment Sampling DGSD02

Collecting a sediment sample within the banks of the stream.

PHOTOGRAPHIC LOG – *Camp Dodge, Johnston, Iowa*

Client Name: USACE – Baltimore District; Contract W912DR-09-D-0003 / 0008	Site Location: Sampling Location 02	Project No. 15302625

Photo No. 16	Date: 11-4-11

Event: Dry Season

Task: Sediment Sampling DGSD02

Collecting sediment samples along a predetermined transect, already cleared by the UXO technician. During the wet, high-flow season, this area was under water.

Photo No. 17	Date: 5-8-11

Event: Wet Season

Task: Surface Water Sampling DGSW02

Picture taken from the DGSW02 location looking East where sediment samples were collected during the dry, low-flow season.

PHOTOGRAPHIC LOG – *Camp Dodge, Johnston, Iowa*

Client Name: USACE – Baltimore District; Contract W912DR-09-D-0003 / 0008	Site Location: Sampling Location 02	Project No. 15302625

Photo No. 18	Date: 5-8-11

Event: Wet Season

Task: Surface Water Sampling DGSW02

Picture taken looking West from the DGSW02 location.

Photo No. 19	Date: 5-8-11

Event: Wet Season

Task: Surface Water Sampling DGSW02

The ISCO unit was tethered to a tree and the collection tubing was stabilized and kept under water by placing the tubing through a section of PVC. The PVC was extended into Beaver Creek so the sample was collected from an area with major flow.

PHOTOGRAPHIC LOG – *Camp Dodge, Johnston, Iowa*

Client Name: USACE – Baltimore District; Contract W912DR-09-D-0003 / 0008	Site Location: Sampling Location 02	Project No. 15302625

Photo No. 20	Date: 5-8-11

Event: Wet Season

Task: Surface Water Sampling DGSW02

The ISCO unit set up at DGSW02 location.

Photo No. 21	Date: 5-8-11

Event:

Left - Dry Season
Right - Wet Season

Task: Surface Water Sampling DGSW02

Pictures taken from the DGSW02 sampling location, displays the difference in water flow in Beaver Creek from the dry, low-flow season to the wet, high- flow season.

PHOTOGRAPHIC LOG – *Camp Dodge, Johnston, Iowa*

Client Name: USACE – Baltimore District; Contract W912DR-09-D-0003 / 0008	Site Location: Sampling Location 03	Project No. 15302625

Photo No. 22	Date: 5-8-11

Event: Wet Season

Task: Surface Water Sampling DGSW03

Picture taken from the wet event DGSW03 sampling location looking northeast where sediment sampling occurred during the dry, low-flow season.

Photo No. 23	Date: 5-8-11

Event: Wet Season

Task: Surface Water Sampling DGSW03

Picture taken from the wet event DGSW03 sampling location looking north where sediment sampling occurred during the dry, low-flow season.

PHOTOGRAPHIC LOG – *Camp Dodge, Johnston, Iowa*

Client Name: USACE – Baltimore District; Contract W912DR-09-D-0003 / 0008	Site Location: Sampling Location 03	Project No. 15302625

Photo No. 24	Date: 5-8-11

Event: Wet Season

Task: Surface Water Sampling DGSW03

Picture taken from the wet event DGSW03 sampling location looking west where sediment sampling occurred during the dry, low-flow season.

Photo No. 25	Date: 5-8-11

Event: Wet Season

Task: Surface Water Sampling DGSW03

Installing the collection tubing train into the ISCO at the DGSW03 location.

PHOTOGRAPHIC LOG – *Camp Dodge, Johnston, Iowa*

Client Name: USACE – Baltimore District; Contract W912DR-09-D-0003 / 0008	Site Location: Sampling Location 03	Project No. 15302625

Photo No. 26	Date: 5-8-11

Event: Wet Season

Task: Surface Water Sampling DGSW03

ISCO sampler setup at the DGSW03 location.

Photo No. 27	Date: 5-8-11

Event: Wet Season

Task: Surface Water Sampling DGSW03

ISCO sampler setup at the wet season SW03 location. The collection tubing was stabilized and kept under water by placing the tubing through a section of PVC. The PVC was extended into Beaver Creek so the sample was collected from an area with major flow.

APPENDIX B
FIELD FORMS

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B-1 Groundwater Sampling Forms

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URS

Sample ID DGGW07DA01
Sample Time 0735

Groundwater Sample Collection Log

Project Name Camp Dodge Project OPA Cost Code 15302625 Date 11-3-11
Well ID DGMW07 Personnel J. Herrington, J. Allen Start Time 0712 End Time 0735

Air Monitoring
Equipment Used (Make/Model/Serial #) N/A
Calibration Information N/A
Ambient Air Reading — ppm Well Headspace Reading — ppm

Well Data/Integrity
Well Locked ✓ Yes __ No
Protective Casing Secure ✓ Yes __ No
Concrete Collar Intact ✓ Yes __ No
Other MW07 is a tap locked in a secure pump house
Protective Casing Stick-Up (ft) —
Casing/Well Difference (ft) —

Well Material __ PVC __ SS Other _____
Well Diameter __2" __4" __6" Other _____
Water Level Equipment __ Elect. Cond. Probe
__ Interface Probe
__ Press Transducer
Other _____

Water Level Data – Measured from top of riser

Depth to Bottom	—	ft
Depth to Water	—	ft
Water Column Height	—	ft
1 Well Volume, Calc.	—	ft
Depth to LNAPL/DNAPL	—	ft

Screen Length	—	ft
Depth to Center of Screened Interval	—	ft
Depth of Screened Interval	—	ft
After purge Depth to Water	—	ft

Purge Data Sample Collected Using: ___ Pump ___ Disposable Bailer Other (from top)

Parameter (Units)	Initial	Volume (gallons)	Volume	Volume	Volume	Volume	Volume	
~~ml/min~~ 0.65 gal/min		3	5	7	8	9	11	15
Time	0712	0718	0720	0722	0725	0728	0731	0735
Temperature (C)	10.76	10.90	11.52	11.97	11.65	11.72	11.60	11.68
pH (SU)	8.72	8.19	7.95	7.80	7.69	7.54	7.52	7.50
ORP/Eh (MV)	71.0	-62.8	-94.9	-104.5	-109.2	-107.5	-106.9	-105.2
Spec. Conductance (mS/cm)	0.830	0.834	0.811	0.835	0.834	0.831	0.835	0.835
Dissolved Oxygen (mg/L)	43.0%	34.8%	35.0%	31.0%	30.5%	3.58	3.44	3.40
Turbidity (NTUs)	—	1.00	0.34	0.00	0.00	0.00	0.00	—
Water Level (feet from TOC)	—	—	—	—	—	—	—	

Sample Collection (Parameters and Volume required)

Notes: Collected MS/MSD and DGGW07DA02 (Dup) @ false time 0800 (explosives only)

URS

Sample ID DGGW08D401
Sample Time 0838

Groundwater Sample Collection Log

Project Name Camp Dodge Project ORA Cost Code 15302625 Date 11-3-11
Well ID DGMW08 Personnel J. Harrington, J. Allen Start Time 0813 End Time 0838

Air Monitoring
Equipment Used (Make/Model/Serial #) N/A
Calibration Information N/A
Ambient Air Reading — ppm Well Headspace Reading — ppm

Well Data/Integrity
Well Locked ✓ Yes __ No
Protective Casing Secure ✓ Yes __ No
Concrete Collar Intact ✓ Yes __ No
Other MW08 is a tap, located in a secure pump house
Protective Casing Stick-Up (ft) —
Casing/Well Difference (ft) —

Well Material __ PVC __ SS Other _____
Well Diameter __2" __4" __6" Other _____
Water Level Equipment __ Elect. Cond. Probe
__ Interface Probe
__ Press Transducer
Other _____

Water Level Data – Measured from top of riser

Depth to Bottom	—	ft
Depth to Water	—	ft
Water Column Height	—	ft
1 Well Volume, Calc.	—	ft
Depth to LNAPL/DNAPL	—	ft

Screen Length	—	ft
Depth to Center of Screened Interval	—	ft
Depth of Screened Interval	—	ft
After purge Depth to Water	—	ft

Purge Data Sample Collected Using: — Pump — Disposable Bailer Other from tap

Parameter (Units)	Initial	Volume (Gallons)	Volume	Volume	Volume	Volume	Volume	
~~ml/min~~ 0.36 gal/min	1	2	3	4	5	6	7	8
Time	0816	0819	0822	0826	0829	0833	0835	0838
Temperature (C)	11.46	11.67	11.85	11.81	11.69	11.72	11.74	11.79
pH (SU)	6.59	6.67	6.81	6.94	7.02	7.05	7.07	7.10
ORP/Eh (MV)	71.0	-62.8	-94.9	-104.5	-109.2	-107.5	-106.9	-105.2
Spec. Conductance (mS/cm)	0.904	0.882	0.873	0.871	0.864	0.864	0.863	0.861
Dissolved Oxygen (mg/L)	7.11	4.92	5.78	6.01	5.88	6.00	6.05	6.08
Turbidity (NTUs)	—	1.1	1.1	1.1	1.1	—	—	—
Water Level (feet from TOC)	—	—	—	—	—	—	—	—

Sample Collection (Parameters and Volume required)

Notes: (explosives only)

URS

Sample ID DGGW07DB01 MS/MSD
Sample Time 1045

Groundwater Sample Collection Log

Project Name Camp Dodge Project ORA Cost Code 15302625.30000 Date 1/6/12
Well ID MW07 Personnel JA, KK Start Time 1025 End Time 1045

Air Monitoring
Equipment Used (Make/Model/Serial #) N/A
Calibration Information N/A
Ambient Air Reading N/A ppm Well Headspace Reading N/A ppm

Well Data/Integrity
Well Locked ✓ Yes __ No
Protective Casing Secure __ Yes __ No
Concrete Collar Intact __ Yes __ No
Other well located in pump house
Protective Casing Stick-Up (ft) _____
Casing/Well Difference (ft) _____

Well Material __ PVC __ SS Other faucet
Well Diameter __2" __4" __6" Other _____
Water Level Equipment __ Elect. Cond. Probe
__ Interface Probe
__ Press Transducer
Other no water leve taken

Water Level Data – Measured from top of riser Water taken from system, not MW

Depth to Bottom	ft	Screen Length	ft
Depth to Water	ft	Depth to Center of Screened Interval	ft
Water Column Height	ft	Depth of Screened Interval	ft
1 Well Volume, Calc.	ft		
Depth to LNAPL/DNAPL	ft	After purge Depth to Water	ft

Purge Data Sample Collected Using: ___ Pump ___ Disposable Bailer Other _____

Parameter (Units)	Initial	Volume	Volume	Volume	Volume	Volume	Volume
ml/min	0.5/min	1	2.5	4.5	6.5	8.5	
Time	1025	1027	1030	1034	1038	1042	
Temperature (C)	12.16	12.31	12.17	12.33	12.54	12.43	
pH (SU)	7.62	7.38	7.27	7.15	7.22	7.21	
ORP/Eh (MV)	-95.4	-114.3	-117.6	-119.3	-121.6	-118.8	
Spec. Conductance (mS/cm)	0.508	0.478	0.473	0.476	0.477	0.478	
Dissolved Oxygen (mg/L)	5.60	5.52	4.30	3.89	3.85	3.87	
Turbidity (NTUs)	26.8	23.5	11.1	43.3	5.88	9.64	
Water Level (feet from TOC)	—	—	—	—	—	—	

Sample Collection (Parameters and Volume required)
DGGW07DB01 MS/MSD: (6) 1-Liter Ambers for Explosives (8330B)
Dupe: DGGW07DB02: (2) 1-Liter Ambers for Explosives (8330B)

Notes:

URS

Sample ID DGGW08DB01
Sample Time 1115

Groundwater Sample Collection Log

Project Name Camp Dodge Project ORA Cost Code 15302625 30000 Date 1/6/12
Well ID MW08 Personnel JA, KK Start Time 1105 End Time 1115

Air Monitoring
Equipment Used (Make/Model/Serial #) N/A
Calibration Information N/A
Ambient Air Reading N/A ppm Well Headspace Reading N/A ppm

Well Data/Integrity
Well Locked ✓ Yes __ No
Protective Casing Secure __ Yes __ No
Concrete Collar Intact __ Yes __ No
Other Well located in Pump house
Protective Casing Stick-Up (ft) _____
Casing/Well Difference (ft) _____

Well Material __ PVC __ SS Other faucet
~~Well Diameter~~ __ 2" __ 4" __ 6" Other _____
Water Level Equipment __ Elect. Cond. Probe
__ ~~Interface Probe~~
__ Press Transducer
Other _____

Water Level Data – Measured from top of riser Sample taken from faucet

Depth to Bottom	ft	Screen Length	ft
Depth to Water	ft	Depth to Center of Screened Interval	ft
Water Column Height	ft	Depth of Screened Interval	ft
1 Well Volume, Calc.	ft		
Depth to LNAPL/DNAPL	ft	After purge Depth to Water	ft

Purge Data Sample Collected Using: ___ Pump ___ Disposable Bailer Other _____

Parameter (Units)	Initial	Volume	Volume	Volume	Volume	Volume	Volume
ml/min	0.5 gal/min	1	2	3	4	5	
Time	1105	1107	1109	1111	1113	1115	
Temperature (C)	12.38	12.21	12.19	12.13	12.19	12.16	
pH (SU)	7.20	7.20	7.20	7.20	7.21	7.21	
ORP/Eh (MV)	0.506	0.504	0.503	0.502	0.504	0.504	
Spec. Conductance (mS/cm)	-107.1	-109.6	-120.9	-119.8	-122.3	-123.4	
Dissolved Oxygen (mg/L)	3.68	3.90	3.51	3.45	3.50	3.49	
Turbidity (NTUs)	0.34	1.24	1.27	1.29	1.97	1.56	
Water Level (feet from TOC)							

Sample Collection (Parameters and Volume required)
DGGW08DB01 : (2) 1-Liter Ambers for Explosives (8330B)

Notes:

URS

Sample ID DGGW07WC01 MS/MSD
Sample Time 1341

Groundwater Sample Collection Log

Project Name CAMP DODGE Project 15302625 Cost Code 30000 Date 5-8-12
Well ID MW07 Personnel J. Allen, A. Sheridan Start Time 1322 End Time 1341

Air Monitoring
Equipment Used (Make/Model/Serial #) N/A
Calibration Information N/A
Ambient Air Reading — ppm Well Headspace Reading — ppm

Well Data/Integrity
Well Locked ✓Yes __ No
Protective Casing Secure ✓Yes __ No
Concrete Collar Intact ✓Yes __ No
Other
Protective Casing Stick-Up (ft) N/A
Casing/Well Difference (ft) N/A

Well Material __ PVC __ SS Other
Well Diameter __ 2" __ 4" __ 6" Other
Water Level Equipment __ Elect. Cond. Probe
__ Interface Probe
__ Press Transducer
Other

GW taken from the system inside the Pump House

~~*Water Level Data – Measured from top of riser*~~

Depth to Bottom	ft	Screen Length	ft
Depth to Water	ft	Depth to Center of Screened Interval	ft
Water Column Height	ft	Depth of Screened Interval	ft
1 Well Volume, Calc.	ft		
Depth to LNAPL/DNAPL	ft	After purge Depth to Water	ft

Purge Data Sample Collected Using: ___ Pump ___ Disposable Bailer Other Valve

Parameter (Units)	Initial	Volume	Volume	Volume	Volume	Volume	Volume
ml/min		1.0	2	3	4	5	6
Time	1322	1327	1329	1332	1334	1337	1340
Temperature (C)	14.50	12.65	12.54	12.60	12.61	12.54	12.42
pH (SU)	6.31	6.21	6.10	5.93	5.97	6.08	6.12
ORP/Eh (MV)	-171.5	-152.5	-140.0	-138.0	-144.8	-146.0	-143.0
Spec. Conductance (mS/cm)	0.708	0.688	0.683	0.681	0.681	0.681	0.680
Dissolved Oxygen (mg/L)	7.04	4.63	5.27	5.50	5.68	5.24	5.78
Turbidity (NTUs)	0.78	12.2	8.2	2.44	0.92	<1	<1
Water Level (feet from TOC)	—	—	—	—	—	—	—

Sample Collection (Parameters and Volume required)
GW analyzed for Explosives 8330B, 6-1 Liters Ambers collected for ms/msd

Notes: DGGW07WC02 (duplicate) taken @ false time 0800 for explosives.

URS

Sample ID DGGW08WC01
Sample Time 1413

Groundwater Sample Collection Log

Project Name CAMP DODGE Project 15302625 Cost Code 30000 Date 5-8-12
Well ID MW08 Personnel J. Allen, A. Sheridan Start Time 1355 End Time 1413

Air Monitoring
Equipment Used (Make/Model/Serial #) N/A
Calibration Information N/A
Ambient Air Reading — ppm Well Headspace Reading — ppm

Well Data/Integrity
Well Locked ✓Yes __ No
Protective Casing Secure ✓Yes __ No
Concrete Collar Intact ✓Yes __ No
Other
Protective Casing Stick-Up (ft) N/A
Casing/Well Difference (ft) N/A

Well Material __ PVC __ SS Other
Well Diameter __ 2" __ 4" __ 6" Other
Water Level Equipment __ Elect. Cond. Probe
__ Interface Probe
__ Press Transducer
Other

GW taken from system inside the pump house

~~Water Level Data~~ – Measured from top of riser

Depth to Bottom	ft	Screen Length	ft
Depth to Water	ft	Depth to Center of Screened Interval	ft
Water Column Height	ft	Depth of Screened Interval	ft
1 Well Volume, Calc.	ft		
Depth to LNAPL/DNAPL	ft	After purge Depth to Water	ft

Purge Data Sample Collected Using: ___ Pump ___ Disposable Bailer Other

Parameter (Units)	Initial	Volume	Volume	Volume	Volume	Volume	Volume
ml/min		1 gal	2	3	4	5	
Time	1355	1400	1402	1405	1407	1410	
Temperature (C)	12.90	12.61	12.45	12.35	12.36	12.30	
pH (SU)	0.72	4.78	6.13	7.18	7.13	6.47	
ORP/Eh (MV)	-129.3	-187.3	-177.0	-194.4	-197.7	-193.1	
Spec. Conductance (mS/cm)	0.719	0.716	0.717	0.717	0.715	0.717	
Dissolved Oxygen (mg/L)	4.70	5.18	5.11	6.30	5.47	4.85	
Turbidity (NTUs)	1.57	<1	<1	1.46	1.31	1.56	
Water Level (feet from TOC)	—	—	—	—	—	—	

Sample Collection (Parameters and Volume required)

DGGW08WC01 collected for explosives

Notes:

B-2 Sediment Sampling Forms

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URS

(where SW01 was collected).

Site ID: DGSW01
Arrival Time: 1120
Departure Time: 1300

Sediment Sample Collection Log

Installation Name: Camp Dodge Date: 11-4-11
On-Site Personnel: J. Harrington, J. Allen, A. Perkins
Log Preparer: J. Allen
Site Location: N: _____ E: _____

Downstream Primary Transect Location N: _____ E: _____
Upstream Triplicate Transect Location N: _____ E: _____

Sample Collection Verification

Average Stream Width: 107 ft # of Primary Transects: 5
Random # Selection for Duplicate Transect Location: 35
Random # Selection for Triplicate Transect Location: 50

Primary Transect Identifier	Length (Feet)	# of Increments to be Collected on Transect
P_{T1} (downstream)	112	6
P_{T2}	110	6
P_{T3}	99	5
P_{T4}	112	7
P_{T5}	100	6
P_{T6}	–	–
P_{T7}	–	–
P_{T8}	–	–
P_{T9}	–	–
P_{T10}	–	–
P_{T11}	–	–
P_{T12}	–	–

Total Primary Transect Length = 533 ft
Increment Spacing (Total Transect Length/30) = 17.7 ft
Sampling Reach Length: 17.7

General Substrate Characterization

Substrate Type	Est Percentage of Reach
Silt/Clay (<0.06 mm)	30%
Sand (0.06 – 2 mm)	60%
Gravel (2.64 mm)	9%
Cobble (64 – 256 mm)	1%
Boulders (> 256 mm)	–
Bedrock	–

Sample Types
X Incremental (always taken Triplicate) Discrete: X AVS/SEM X TOC

Additional Quality Control Samples

Samples

Additional Site Notes:

11-4-11 @ 1300
DGSD01DA01 Primary
DGSD01DA02 Duplicate
DGSD01DA03 Triplicate

11-4-11 @ 1500
DGSD01DA04 EQB, water collected after pouring over sampler (metals/hardness)

URS

(where SW02 was collected)

Site ID: DGSW02
Arrival Time: 0830
Departure Time: 1015

Sediment Sample Collection Log

Installation Name: Camp Dodge Date: 11-4-11
On-Site Personnel: J. Hemington, J. Allen, A. Perkins
Log Preparer: J. Allen
Site Location: N: _____ E: _____

Downstream Primary Transect Location N: _____ E: _____
Upstream Triplicate Transect Location N: _____ E: _____

Sample Collection Verification

Average Stream Width: 77.6 ft # of Primary Transects: 5
Random # Selection for Duplicate Transect Location: 20
Random # Selection for Triplicate Transect Location: 40

Primary Transect Identifier	Length (Feet)	# of Increments to be Collected on Transect
P_{T1} (downstream)	77	6
P_{T2}	77	6
P_{T3}	77	6
P_{T4}	78	6
P_{T5}	78	6
P_{T6}	—	—
P_{T7}	—	—
P_{T8}	—	—
P_{T9}	—	—
P_{T10}	—	—
P_{T11}	—	—
P_{T12}	—	—

Total Primary Transect Length = 387 ft
Increment Spacing (Total Transect Length/30) = 12.9
Sampling Reach Length: 13 ft

General Substrate Characterization

Substrate Type	Est Percentage of Reach
Silt/Clay (<0.06 mm)	30%
Sand (0.06 – 2 mm)	60%
Gravel (2.64 mm)	8%
Cobble (64 – 256 mm)	2%
Boulders (> 256 mm)	—
Bedrock	—

Sample Types
☒ Incremental (always taken Triplicate) Discrete: ☒ AVS/SEM ☒ TOC

Additional Quality Control Samples

Additional Site Notes:

Samples: DGSD02DA01, DGSD02DA02, DGSD02DA03 } 11-4-11 @ 0958

URS

(where SW03 was collected)

Site ID: DGSW03
Arrival Time: 1200
Departure Time: 1500

Sediment Sample Collection Log

Installation Name: Camp Dodge Date: 11-3-11
On-Site Personnel: J. Herrington, J. Allen, A. Perkins
Log Preparer: J. Allen
Site Location: N: _____ E: _____

Downstream Primary Transect Location N: _____ E: _____
Upstream Triplicate Transect Location N: _____ E: _____

Sample Collection Verification

Average Stream Width: 80.3 ft # of Primary Transects: 5
Random # Selection for Duplicate Transect Location: 21
Random # Selection for Triplicate Transect Location: 37

Primary Transect Identifier	Length (Feet)	# of Increments to be Collected on Transect
P_{T1} (downstream)	72	5
P_{T2}	72	6
P_{T3}	92	7
P_{T4}	77	6
P_{T5}	88	6
P_{T6}	—	—
P_{T7}	—	—
P_{T8}	—	—
P_{T9}	—	—
P_{T10}	—	—
P_{T11}	—	—
P_{T12}	—	—

Total Primary Transect Length = 400 ft
Increment Spacing (Total Transect Length/30) = 13.3
Sampling Reach Length: 13.3 ft

General Substrate Characterization

Substrate Type	Est Percentage of Reach
Silt/Clay (<0.06 mm)	40%
Sand (0.06 – 2 mm)	43%
Gravel (2.64 mm)	15%
Cobble (64 – 256 mm)	2%
Boulders (> 256 mm)	—
Bedrock	—

Sample Types
X Incremental (always taken Triplicate) Discrete: X AVS/SEM X TOC

Additional Quality Control Samples
Craig Johnson (URS) Observed & Audited this sample

Additional Site Notes:
Samples: DGSD03DA01 - Primary
DGSD03DA02 - Duplicate
DGSD03DA03 - Triplicate
1442 on 11-3-11

B-3 Surface Water Sampling Forms

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URS

Event DA

Site ID: DGSW01
~~Arrival Time:~~ ISCO Start time: 1117
~~Departure Time:~~ Collect on 11-3-11
Carboy @ 1150 on 11-4-11

Surface Water Sample Collection Log

Installation Name: Camp Dodge Date: 11-3-11
On-Site Personnel: J. Harrington, J. Allen, A. Perkins
Log Preparer: J. Allen
Site Location: N: 41°43' 18.5747" W: 93°45' 00.3840" W

Observations

Stream Flow: Low High Normal Water Color: Slightly murky Odor: none

Post Storm @ location (Johnston, IA)

Field Measurements

Multi-Parameter Probe (Make/Model/#): YSI/556 MPS/11E101030

Temp: _____°C SpC: _____µs/cm pH: _____ DO: _____mg/L
%Sat: _____ Turbidity: _____NTU

Water Quality Sample Collection Verification

Composite Sampler (Make/Model/#): ISCO/6712

Sample ID: DGSWDA01 field filter (sample time): 1230 on 11-4-11

Analytical Group

- [x] Explosives
- [ ] Perchlorate
- [x] Dissolved Metals (EPA 6020A) plus Hardness
- [x] Dissolved Organic Carbon
- [ ] Dissolved Metals (EPA 1638M) plus Hardness
- [x] Alkalinity
- [x] Sulfate, Chloride

Quality Control Samples

- [ ] Duplicate
- [ ] MS/MSDs
- [ ] Field Blank
- [ ] Equipment Blank

Notes:

- 24-hr sample (40mL x 96 samples = 3840 mL)
- Samples collected every 15 min
- 4-liter carboy (4L/4L recovered)

URS

Event DB (storm event)

Site ID: DGSW01
~~Arrival Time:~~ ISCO Start time: 1622 on 11-3-11
~~Departure Time:~~ Collect Carboy: 1815 on 11-3-11

Surface Water Sample Collection Log

Installation Name: Camp Dodge Date: 11-3-11
On-Site Personnel: J. Harrington, J. Allen, A. Perkins
Log Preparer: J. Allen
Site Location: N: 41°43' 18.574" W: 93°45' 00.3840" W

Observations

Stream Flow: Low/High/Normal (Storm event sample) Water Color: Slightly murky Odor: none

Field Measurements

Multi-Parameter Probe (Make/Model/#): YSI / 556 MPS / 11E101030

Temp: _____°C SpC: _____µs/cm pH: _____ DO: _____mg/L
%Sat: _____ Turbidity: _____NTU

Water Quality Sample Collection Verification

Composite Sampler (Make/Model/#): ISCO / 6712

Sample ID: DGSW01DB01 field filter (sample time) = 1830 on 11-3-11

Analytical Group

- [x] Explosives
- [ ] Perchlorate
- [x] Dissolved Metals (EPA 6020A) plus Hardness
- [x] Dissolved Organic Carbon
- [ ] Dissolved Metals (EPA 1638M) plus Hardness
- [x] Alkalinity
- [x] Sulfate, Chloride

Quality Control Samples

- [x] Duplicate
- [ ] MS/MSDs
- [ ] Field Blank
- [ ] Equipment Blank

DGSW01DB02 @ false time 1700

Notes:

- 2-hr storm event sample (160 mL x 24 samples = 3840 mL)
- Samples collected every 5 min
- 4 liter carboy (4 liter / 4 liter retrieved)

URS

Event DA

Site ID: DGSW02
~~Arrival Time:~~ ISCO Start time: 1610 on 10/31
~~Departure Time:~~ Collected Carboy @ 1720 on 11/1/11

Surface Water Sample Collection Log

Installation Name: Camp Dodge Date: 11-01-11
On-Site Personnel: J. Harrington, J. Allen, A. Perkins
Log Preparer: J. Allen
Site Location: N: ~~41° 41' 42.8655"~~ W: ~~93° 43' 55.3031"~~

Observations

Stream Flow: Low/High/Normal Water Color: Clear Odor: none

Field Measurements

Multi-Parameter Probe (Make/Model/#): YSI/556 MPS/11E101030

Temp: 9.78 °C SpC: 0.722 µs/cm pH: 7.48 DO: 88.1 ~~mg/L~~ %
~~%Sat:~~ 172.3 ORP Turbidity: 22.4 NTU

Water Quality Sample Collection Verification

Composite Sampler (Make/Model/#): ISCO/6712

Sample ID: DGSW02DA01 (field filter) Sample time: 1806 on 11-01-11

Analytical Group
☒ Explosives ☐ Perchlorate ☒ Dissolved Metals (EPA 6020A) plus Hardness
☒ Dissolved Organic Carbon ☐ Dissolved Metals (EPA 1638M) plus Hardness
☒ Alkalinity ☒ Sulfate, Chloride

Quality Control Samples
☐ Duplicate ☐ MS/MSDs ☐ Field Blank ☐ Equipment Blank

Notes:
- 24 hr sample (40 mL x 96 samples = 3840 mL)
- Samples collected every 15 min
- 4 Liter Carboy → only apx 3 Liters recovered after the 24 hrs

URS

Event DB (storm event)

Site ID: DGSW02
~~Arrival Time:~~ ISCO Start Time: 1452 on 11-2-11
Departure Time: Collect Carboy @1652 on 11-2-11

Surface Water Sample Collection Log

Installation Name: Camp Dodge Date: 11-02-11
On-Site Personnel: J. Harrington, J. Allen, A. Perking
Log Preparer: J. Allen
Site Location: N: 41°41'42.8665" ~~E~~ W: 93°43'55.3031

Observations

Stream Flow: Low/High/Normal (Storm event sample) Water Color: Slightly murky Odor: none

Field Measurements

Multi-Parameter Probe (Make/Model/#): YSI / 556 MPS / 11E101038

Temp: 7.45 °C SpC: 0.871 µs/cm pH: 6.12 DO: 90.4 ~~mg/L~~ %
~~%Sat:~~ 246.0 ORP Turbidity: 83.2 NTU

Water Quality Sample Collection Verification

Composite Sampler (Make/Model/#): ISCO / 6712

Sample ID: DGSW02DB01 Field filter (sample time): 1817 on 11-2-11

Analytical Group
- [x] Explosives
- [ ] Perchlorate
- [x] Dissolved Metals (EPA 6020A) plus Hardness
- [x] Dissolved Organic Carbon
- [ ] Dissolved Metals (EPA 1638M) plus Hardness
- [x] Alkalinity
- [x] Sulfate, Chloride

Quality Control Samples
- [ ] Duplicate
- [ ] MS/MSDs
- [ ] Field Blank
- [ ] Equipment Blank

Notes:
- 2 hr Storm event sample (160 mL x 24 samples = 3840 mL)
- Samples collected every 5 min
- 4-Liter Carboy (4L/4L collected)

URS

Event DA

Site ID: DGSW03
~~Arrival Time:~~ ISCO Start time @ 1430 on 10/31
Departure Time: Collected carboy @ 1430 on 11/1

Surface Water Sample Collection Log

Installation Name: Camp Dodge Date: 11-01-11
On-Site Personnel: J. Harrington, J. Allen, A. Perkins
Log Preparer: J. Allen
Site Location: N: 41° 41' 42.8655" W: 93° 43' 30.3031"

Observations

Stream Flow: Low/High/Normal Water Color: Clear Odor: None

Field Measurements

Multi-Parameter Probe (Make/Model/#): YSI / 556 MPS / 11E100030

Temp: 9.89 °C SpC: 0.712 µs/cm pH: 6.44 DO: 95 ~~mg/L~~ %
~~%Sat:~~ 718.6 Turbidity: 6.44 NTU
ORP:

Water Quality Sample Collection Verification

Composite Sampler (Make/Model/#): ISCO / 6712

Sample ID: DGSW03DA01 (field filter) Sample time: 1540 on 11-1-11

Analytical Group
- [x] Explosives
- [ ] Perchlorate
- [x] Dissolved Metals (EPA 6020A) plus Hardness
- [x] Dissolved Organic Carbon
- [ ] Dissolved Metals (EPA 1638M) plus Hardness
- [x] Alkalinity
- [x] Sulfate, Chloride

Quality Control Samples
- [x] Duplicate @ false time 0800
- [x] MS/MSDs
- [ ] Field Blank
- [x] Equipment Blank

Notes:
- 24 hr sample (100 ml x 96 samples = 9600 ml)
- Samples collected every 15 min
- 10L Carboy – only Appx 6 Liters was collected by ISCO after the 24 hrs

URS

Event DB (Storm event)

Site ID: DG-SW03
~~Arrival Time:~~ ISCO Start time: 1622 on 11-2-11
~~Departure Time:~~ Collect Carboy @ 1622 on 11-2-11

Surface Water Sample Collection Log

Installation Name: Camp Dodge Date: 11-2-11
On-Site Personnel: J. Harrington, J. Allen, A. Perkins
Log Preparer: J. Allen
Site Location: N: 41°41' 42.8655" W: 93°43' 30.3031"

Observations Storm event sample

Stream Flow: Low/High/Normal Water Color: Slightly murky Odor: none

Field Measurements

Multi-Parameter Probe (Make/Model/#): YSI/556 MPS/11E101030

Temp: 8.05 °C SpC: 0.63 µs/cm pH: 7.07 DO: 74.1 ~~mg/L~~ %
~~%Sat:~~ 186.5 ORP Turbidity: 116 NTU

Water Quality Sample Collection Verification

Composite Sampler (Make/Model/#): ISCO/6712

Sample ID: DG-SW03DB01 field filter (sample time): 1835 on 11/2/11

Analytical Group
- [x] Explosives
- [ ] Perchlorate
- [x] Dissolved Metals (EPA 6020A) plus Hardness
- [x] Dissolved Organic Carbon
- [ ] Dissolved Metals (EPA 1638M) plus Hardness
- [x] Alkalinity
- [x] Sulfate, Chloride

Quality Control Samples
- [ ] Duplicate
- [ ] MS/MSDs
- [ ] Field Blank
- [ ] Equipment Blank

Notes:
- 2 hr storm event sample (160 mL x 24 samples = 3840 mL)
- Samples collected every 5 min
- 4 liter carboy (Recovered 4L/4L)

URS

Site ID: SW01 (Event WA)
Arrival Time: May 8th @ 1235
Departure Time: May 9th @ 1235

Surface Water Sample Collection Log

Installation Name: CAMP DODGE Date: May 9th, 2012
On-Site Personnel: J. Harrington, J. Allen, R. Herold, A. Sheridan
Log Preparer: J. Allen
Site Location: N: 41°43" 18.574" 9.345' 00.38.40"W

Observations

Stream Flow: Low/(High)/Normal Water Color: light brown Odor: none

Field Measurements

Multi-Parameter Probe (Make/Model/#): ~~ISCO~~ YSI 556 multi-meter

Temp: 14.76°C SpC: 0.673 µs/cm pH: 7.90 DO: 10.42 mg/L
~~%Sat:~~ Turbidity: _____ NTU

Water Quality Sample Collection Verification

Composite Sampler (Make/Model/#): ISCO

Sample ID: DGSW01WA01

Analytical Group
☐ Explosives ☐ Perchlorate ☒ Dissolved Metals (EPA 6020A) plus Hardness
☒ Dissolved Organic Carbon ~~☒ Dissolved Metals (EPA 1638M) plus Hardness~~ JJA
☒ Alkalinity ☒ Sulfate, Chloride

Quality Control Samples
☐ Duplicate ☐ MS/MSDs ☐ Field Blank ☐ Equipment Blank

Notes: 24-hr composite sample

URS

Site ID: SW01 (Event WB)
Arrival Time: 1315 on 5-9-12
Departure Time: 1420 on 5-10-12

Surface Water Sample Collection Log

Installation Name: CAMP DODGE Date: May 10th, 2012
On-Site Personnel: J. Harrington, J. Allen, R. Herold, A. Sheridan
Log Preparer: J. Allen
Site Location: N: 41°43' 18.574" 9345' 00.3840" W

Observations

Stream Flow: Low High Normal Water Color: light brown Odor: none

Field Measurements

Multi-Parameter Probe (Make/Model/#): YSI 556 multimeter

Temp: 16.15°C SpC: 0.647 µs/cm pH: 7.82 DO: 10.48 mg/L
~~%Sat.~~ Turbidity: 51.1 NTU

Water Quality Sample Collection Verification

Composite Sampler (Make/Model/#): ISCO

Sample ID: DGSW01WB01

Analytical Group
☐ Explosives ☐ Perchlorate ☒ Dissolved Metals (EPA 6020A) plus Hardness
☒ Dissolved Organic Carbon ☐ Dissolved Metals (EPA 1638M) plus Hardness
☒ Alkalinity ☒ Sulfate, Chloride

Quality Control Samples
☐ Duplicate ☐ MS/MSDs ☐ Field Blank ☐ Equipment Blank

Notes:

URS

Site ID: SW02 (Event WA)
Arrival Time: 1115 on 5/8/12
Departure Time: 1341 on 5/10/12

Surface Water Sample Collection Log

Installation Name: CAMP DODGE Date: May 10th 2012
On-Site Personnel: J. Harrington, R. Herold, J. Allen, A. Sheridan
Log Preparer: J. Allen
Site Location: N: _____ E: _____

Observations

Stream Flow: Low (High) Normal Water Color: light brown Odor: none

Field Measurements

Multi-Parameter Probe (Make/Model/#): YSI 556 multi meter

Temp: 16.1 °C SpC: 0.681 µs/cm pH: 7.99 DO: 11.4 mg/L
%Sat: 119.3 Turbidity: 417 NTU

Water Quality Sample Collection Verification

Composite Sampler (Make/Model/#): Isco

Sample ID: DGSW02WA01

Analytical Group
☒ Explosives ☐ Perchlorate ☒ Dissolved Metals (EPA 6020A) plus Hardness
☒ Dissolved Organic Carbon ☐ Dissolved Metals (EPA 1638M) plus Hardness
☒ Alkalinity ☒ Sulfate, Chloride

Quality Control Samples
☐ Duplicate ☐ MS/MSDs ☐ Field Blank ☐ Equipment Blank

Notes: The battery on the Isco died during the 1st attempted sample collection & there was not enough volume when we picked it up on 5/9/12 to field filter. The Isco was restarted with a new battery & the 24-hr sample was successful.

URS

Site ID: SW02 (Event WB)
Arrival Time: May 10th @ 1341
Departure Time: May 11th @ 1235

Surface Water Sample Collection Log

Installation Name: CAMP DODGE Date: May 11th, 2012
On-Site Personnel: J. Herrington, R. Herold, J. Allen
Log Preparer: J. Allen
Site Location: N: _____ E: _____

Observations

Stream Flow: Low/(High)/Normal Water Color: light brown Odor: _____

Field Measurements

Multi-Parameter Probe (Make/Model/#): YSI 556 multimeter

Temp: 17.84°C SpC: 0.694 µs/cm pH: 7.53 DO: 9.96 mg/L
~~%Sat:~~ ____ Turbidity: 23.2 NTU

Water Quality Sample Collection Verification

Composite Sampler (Make/Model/#): ISCO

Sample ID: DGSW02WB01

Analytical Group
☒ Explosives ☐ Perchlorate ☒ Dissolved Metals (EPA 6020A) plus Hardness
☒ Dissolved Organic Carbon ☐ Dissolved Metals (EPA 1638M) plus Hardness
☒ Alkalinity ☒ Sulfate, Chloride

Quality Control Samples
☐ Duplicate ☐ MS/MSDs ☐ Field Blank ☐ Equipment Blank

Notes: Sample was taken apx 1-hr early due to the Range control not being available after 1300. The carboy was 90% full with enough volume to take all of the samples.

URS

Site ID: SW03 (Event WA)
Arrival Time: May 8th @ 1000
Departure Time: May 9th @ 1000

Surface Water Sample Collection Log

Installation Name: CAMP DODGE Date: May 9th, 2012
On-Site Personnel: J. Herrington, J. Allen, R. Herold, A. Sheridan
Log Preparer: J. Allen
Site Location: N: 41°41'.42.8655" W 93°43'55.3031 W

Observations

Stream Flow: Low/(High)/Normal Water Color: light brown Odor: _____

Field Measurements

Multi-Parameter Probe (Make/Model/#): YSI 556 multi meter

Temp: 14.74 °C SpC: 0.670 µs/cm pH: 7.87 DO: 10.42 mg/L
~~%Sat:~~ _____ Turbidity: 54.5 NTU

Water Quality Sample Collection Verification

Composite Sampler (Make/Model/#): ISCO

Sample ID: DGSW03WA01 MS/MSD

Analytical Group
☒ Explosives ☐ Perchlorate ☒ Dissolved Metals (EPA 6020A) plus Hardness
☒ Dissolved Organic Carbon ~~☒ Dissolved Metals (EPA 1638M) plus Hardness~~ 7/20
☒ Alkalinity ☒ Sulfate, Chloride

Quality Control Samples
☐ Duplicate ☒ MS/MSDs ☐ Field Blank ☐ Equipment Blank

Notes: 24-hr composite sample

URS

Site ID: SW03 (Event WB)
Arrival Time: May 9th @ 1035
Departure Time: May 10th @ 1035

Surface Water Sample Collection Log

Installation Name: CAMP DODGE Date:
On-Site Personnel: J. Harrington, R. Herold, J. Allen, A. Sheridan
Log Preparer: J. Allen
Site Location: N: 41°41'42.8655" W: 93°43'55.3031 W

Observations

Stream Flow: Low/High/Normal Water Color: light brown Odor: none

Field Measurements

Multi-Parameter Probe (Make/Model/#): YSI 556 multi meter

Temp: 15.11 °C SpC: 0.709 µs/cm pH: 7.44 DO: 10.15 mg/L
~~%Sat:~~ Turbidity: 30.5 NTU

Water Quality Sample Collection Verification

Composite Sampler (Make/Model/#): ISCO

Sample ID: DGSW03WB01

Analytical Group
X Explosives ☐ Perchlorate X Dissolved Metals (EPA 6020A) plus Hardness
X Dissolved Organic Carbon ☐ Dissolved Metals (EPA 1638M) plus Hardness
X Alkalinity X Sulfate, Chloride

Quality Control Samples
X Duplicate ☐ MS/MSDs ☐ Field Blank X Equipment Blank

Notes: Also taken: Dupe DGSW03WB02 @ false time 0800
EQB DGSW03WB03 @ 1100

B-4 Chain of Custody

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URS Corporation

12120 Shamrock Plaza Suite 300, Omaha, NE 68154 (402) 334-8181 Fax (402) 334-1984

CHAIN OF CUSTODY RECORD

Project Name: CAMP DODGE ORA phase II

Project No.: 15302625.30000

Project Location: Johnston, Iowa

Project Manager: J. Herrington

Sampler(s): J. Herrington, J. Allen

Analytical Parameters: Dissolved metals for BLM (6010B); DOC for BLM (9060M); Dissolved Alkalinity for BLM; Dissolved Sulfide, Chloride for BLM

Sample Date	Sample Time	Type Comp.	Type Grab	Sample Identification	Matrix	Containers No.	Containers Type	Dissolved metals for BLM (6010B)	DOC for BLM (9060M)	Dissolved Alkalinity for BLM	Dissolved Sulfide, Chloride for BLM	Remarks
11/01/11	1500	X		DGSW03DA03	AQ	1	500 mL	X				4°C, HNO3
						2	60 mL glass		X			HCL
						1	250 mL			X		
						1	250 mL				X	
	1540			DGSW03DA01 MS/MSD		1	500 mL	X				HNO3
						2	60 mL glass		X			HCL
						1	250 mL			X		
						1	250 mL				X	
	0800			DGSW03DA02		1	500 mL	X				HNO3
						2	60 mL glass		X			HCL
						1	250 mL			X		
						1	250 mL				X	

Signatures	Date	Time
Relinquished by:	11/2/11	1300
Received by:		
Relinquished by:		
Received for Laboratory by:		

Shipping Details

Method of Shipment: FED EX

Airbill No.: 898611423967 ~~[illegible]~~

Lab Address: ACCUTEST LABS, 2235 US Highway 130, Dayton, NJ 08810

Special Instructions

Samples were filtered with a 0.45 µm filter.

Custody.frm/jdg 3-09-92

White copy - Laboratory Yellow copy - Laboratory Pink copy - WCC

125889

URS Corporation

12120 Shamrock Plaza Suite 300, Omaha, NE 68154 (402) 334-8181 Fax (402) 334-1984

CHAIN OF CUSTODY RECORD

Project Name: CAMP DODGE	Project No.: 15302625.30000
Project Location: JOHNSTON, IA	Project Manager: J. Harrington
Sampler(s): J. Harrington, J. Allen	

Analytical Parameters: Dissolved Metals for BLM (6010B); DOC for BLM (9060m); Dissolved Alkalinity for BLM (SM20 2320); Dissolved Sulfate, Chloride for BLM (EPA 821/B 91-100); AVS/SEM (EPA 821); TOC (Lloyd Kahn); Grain Size (ASTM D-4422)

Sample Date	Sample Time	Type Comp.	Type Grab	Sample Identification	Matrix	Containers No.	Containers Type	Dissolved Metals for BLM (6010B)	DOC for BLM (9060m)	Dissolved Alkalinity for BLM (SM20 2320)	Dissolved Sulfate, Chloride for BLM (EPA 821/B 91-100)	AVS/SEM (EPA 821)	TOC (Lloyd Kahn)	Grain Size (ASTM D-4422)				Remarks
11-2-11	1817	X		DGSW02DB01	Aq	1	500 mL	X										HNO_3, 4°C
						2	60 mL glass		X									HCL,
						1	250 mL			X								
						1	250 mL				X							
	1835			DGSW03DB01		1	500 mL	X										HNO_3,
						2	60 mL glass		X									HCL,
						1	250 mL			X								
						1	250 mL				X							
11-3-11	1442			DGSD03DA01	Sediment	1	8-oz glass					X						4°C
						1	2-oz jar						X					
						1	950 mL glass							X				
				DGSD03DA02		1	8-oz glass					X						
						1	2-oz jar						X					

Signatures	Date	Time	Shipping Details	Special Instructions
Relinquished by: [signature]	11/3/11	1800	Method of Shipment: Fed EX	All samples were field filtered using a 0.45µm filter (Except sediment samples)
Received by:			Airbill No.: 8682 91 61 6747	
Relinquished by:			Lab Address: ACCUTEST 2235 US Highway 130 Dayton, NJ 08810	
Received for Laboratory by:				

Custody.frm/jdg 3-09-92

White copy - Laboratory Yellow copy - Laboratory Pink copy - WCC

125892

URS Corporation

12120 Shamrock Plaza Suite 300, Omaha, NE 68154 (402) 334-8181 Fax (402) 334-1984

CHAIN OF CUSTODY RECORD

Project Name: CAMP DODGE

Project No.: 15302625.30000

Project Location: JOHNSTON, IA

Project Manager: J. Harrington

Sampler(s): J. Allen, J. Harrington

Analytical Parameters: AVS/SEM (EPA 821-R-91-100), TOC (Lloyd Kahn), Grain Size (ASTM D-422)

Sample Date	Sample Time	Type Comp.	Type Grab	Sample Identification	Matrix	Containers No.	Containers Type	AVS/SEM		TOC	Grain Size								Remarks
11/4/11	0958	X		DGSD02DA01	Sediment	1	8 oz glass	X											4°C
							2 oz glass		X										
							950 ml glass			X									
				DGSD02DA02			8 oz glass	X											
							2 oz glass		X										
				DGSD02DA03			8 oz glass	X											
							2 oz glass		X										
	1300			DGSD01DA01			8 oz glass	X											
							2 oz glass		X										
							950 ml glass			X									
				DGSD01DA02			8 oz glass	X											
							2 oz glass		X										
				DGSD01DA03			8 oz glass	X											
							2 oz glass		X										

Signatures	Date	Time	Shipping Details	Special Instructions
Relinquished by: [signature]	11/4/11	1600	Method of Shipment: Fed Ex	
Received by:			Airbill No.: 898611420328	
Relinquished by:			Lab Address: ACCUTEST 2235 US Highway 130 Dayton, NJ 08810	
Received for Laboratory by:				

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125903

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CHAIN OF CUSTODY RECORD

Project Name: CAMP DODGE

Project No.: 15302625.30000

Project Location: JOHNSTON, IA

Project Manager: J. Harrington

Sampler(s): J. Allen, J. Harrington

Sample Date	Sample Time	Type Comp.	Type Grab	Sample Identification	Matrix	Containers No.	Containers Type	Analytical Parameters: AUS/SEM	Analytical Parameters: TOC									Remarks
11-3-11	1042	X		DGSD03DA03	Sediment	1	8 oz Jar	X										4°C
↓	↓	↓		↓	↓	1	2 oz Jar		X									↓

Signatures	Date	Time	Shipping Details	Special Instructions
Relinquished by:	11/3/11	1800	Method of Shipment: FED EX	
Received by:			Airbill No.: 8682 9161 6747	
Relinquished by:			Lab Address: ACCUTEST 2235 US Highway 130 Dayton, NJ 08810	
Received for Laboratory by:				

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CHAIN OF CUSTODY RECORD

Project Name: CAMP DODGE

Project No.: 15302625.30000

Project Location: JOHNSTON, IA

Project Manager: J. Harrington

Sampler(s): J. Allen, J. Harrington

Sample Date	Sample Time	Type Comp.	Type Grab	Sample Identification	Matrix	Containers No.	Containers Type	Analytical Parameters: Metals 6010A										Remarks
11/4/11	1300	X		DGTSD01DA01	Sediment	1	Large Bag	X										4°C
				DGTSD01DA02				X										
				DGSD01DA03				X										

Signatures	Date	Time	Shipping Details	Special Instructions
Relinquished by:	11/4/11	1600	Method of Shipment: Fed Ex	
Received by:			Airbill No.: [illegible]	
Relinquished by:			Lab Address: APPL, 908 N Temperance Ave, Clovis, CA 93611	
Received for Laboratory by:				

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125904

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CHAIN OF CUSTODY RECORD

Project Name: CAMP DODGE	Project No.: 15302625.30000
Project Location: JOHNSTON, IA	Project Manager: J. Harrington
Sampler(s): J. Allen, J. Harrington	

Analytical Parameters: Metals 6080A

Sample Date	Sample Time	Type Comp.	Type Grab	Sample Identification	Matrix	Containers No.	Containers Type	Metals 6080A										Remarks
11/4/11	1958	X		DGSD02DA01	Sediment	1	Large Bag	X										4°C
↓	↓	X		DGSD02DA02	↓	↓	↓	X										↓
↓	↓	X		DGSD02DA03	↓	↓	↓	X										↓

Signatures	Date	Time	Shipping Details	Special Instructions
Relinquished by: [signature]	11/4/11	1600	Method of Shipment: FedEX	
Received by:			Airbill No.: 8682 [illegible] ~~15302625.30~~	
Relinquished by:			Lab Address: APPL 908 N Temperance AVE Clovis, CA 93611	
Received for Laboratory by:				

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125906

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CHAIN OF CUSTODY RECORD

Project Name: CAMP DODGE ORD phase II

Project No.: 15302625.30000

Project Location: Johnston, Iowa

Project Manager: J. Harrington

Sampler(s): J. Harrington, J. Allen

Sample Date	Sample Time	Type Comp.	Type Grab	Sample Identification	Matrix	Containers No.	Containers Type	Dissolved Metals for BLM (6010B)	DOC for BLM (9060 mod)	Dissolved Alkalinity for BLM	Dissolved Sulfate, Chloride for BLM	Remarks
11/01/11	1806	X		DG-SW02DA01	Aq	1	500 mL	X				4°C, HNO_3
↓	↓	↓		↓	↓	2	60 mL glass		X			HCL
						1	250 mL glass			X		
						1	250 mL				X	

Signatures	Date	Time	Shipping Details	Special Instructions
Relinquished by:	11/02/11	1300	Method of Shipment: Fed Ex	All samples were field filtered with a 0.45 µm filter
Received by:			Airbill No. 898611423967	
Relinquished by:			Lab Address: ACCUTEST 2235 US Highway 130 Dayton, NJ 08810	
Received for Laboratory by:				

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CHAIN OF CUSTODY RECORD

Project Name: CAMP DODGE ORA phase II	Project No.: 15302625.30000
Project Location: Johnston, Iowa	Project Manager: J. Harrington
Sampler(s): J. Harrington, J. Allen	

Analytical Parameters: metals/hardness (6020A + SM2340B); Explosives (8330B)

Sample Date	Sample Time	Type Comp.	Type Grab	Sample Identification	Matrix	Containers No.	Containers Type	metals/hardness (6020A + SM2340B)	Explosives (8330B)	Remarks
11/01/11	1500	X		DGSW03DA03	AQ	1	500mL HDPE	X		4°C, HNO_3
	↓			↓		2	1-Liter Amber		X	
	1540			DGSW03DA01 MS/MSD		1	500mL HDPE	X		HNO_3
	↓			↓		2	1-Liter Amber		X	MS/MSD
	0800			DGSW03DA02		1	500mL HDPE	X		HNO_3
	↓			↓		1	1-Liter Amber		X	
	1806			DGSW02DA01		1	500mL HDPE	X		HNO_3
↓	↓	↓		↓	↓	1	1-Liter Amber		X	↓

Signatures	Date	Time	Shipping Details	Special Instructions
Relinquished by: [signature]	11/02/11	1300	Method of Shipment: FEDEX	metals/hardness filtered with 0.45 µm filter
Received by:			Airbill No.: 8682 9161 6552	
Relinquished by:			Lab Address: APPL 908 N Temperance Ave Clovis, CA 93611	
Received for Laboratory by:				

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CHAIN OF CUSTODY RECORD

Project Name: CAMP DODGE	Project No.: 15302625.30000
Project Location: JOHNSTON, IA	Project Manager: J. Harrington
Sampler(s): J. Allen, J. Harrington	

Analytical Parameters: Dissolved Metals for BLM 6010; DOC for BLM 9060 M; Dissolved Alkalinity for BLM; Dissolved Sulfate, chloride for BLM

Sample Date	Sample Time	Type Comp.	Type Grab	Sample Identification	Matrix	Containers No.	Containers Type	Dissolved Metals for BLM 6010	DOC for BLM 9060 M	Dissolved Alkalinity for BLM	Dissolved Sulfate, chloride for BLM							Remarks
11/3/11	1700	X		DGSW01DB02	Aq	1	500 mL	X										HNO_3 4°C
						2	60 mL glass		X									HCL
						1	250 mL			X								
						1	250 mL				X							
	1830			DGSW01DB01		1	500 mL	X										HNO_3
						2	60 mL glass		X									HCL
						1	250 mL			X								
						1	250 mL				X							
11/4/11	1230			DGSW01DA01		1	500 mL	X										HNO_3
						2	60 mL glass		X									HCL
						1	250 mL			X								
						1	250 mL				X							

Signatures	Date	Time	Shipping Details	Special Instructions
Relinquished by: [signature]	11/4/11	1600	Method of Shipment: Fed EX	All samples field filtered with a 0.45 µm filter
Received by:			Airbill No.: 898611420328	
Relinquished by:			Lab Address: ACCUTEST 2235 US Highway 130 Dayton, NJ 08810	
Received for Laboratory by:				

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125902

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CHAIN OF CUSTODY RECORD

Project Name: CAMP DODGE

Project No.: ~~16170~~ 15302625.30000

Project Location: Johnston, IA

Project Manager: J. Harrington

Sampler(s): J. Allen, J. Harrington

Analytical Parameters: Metals 6020A; Metals/Hardness 6020A

Sample Date	Sample Time	Type Comp.	Type Grab	Sample Identification	Matrix	Containers No.	Containers Type	Metals 6020A	Metals/Hardness 6020A	Remarks
11/3/11	1442	X		DGSD03DA01	Sediment	1	1 Large Bag	X		4°C
		X		DGSD03DA02				X		
		X		DGSD03DA03				X		
	1830	X		DGSW01DB01	Aq	1	500 ml Poly		X	HNO_3
	1700	X		DGSW01DB02					X	
11/4/11	~~0930~~ 1130	X		DGSW01DA01					X	
	1500	X		DGSD01DA04					X	

Signatures	Date	Time	Shipping Details	Special Instructions
Relinquished by: [signature]	11/4/11	1600	Method of Shipment: Fed EX	metals/hardness 6020A samples are filtered with 0.45 µm filter
Received by:			Airbill No.: 8688 1616 103	
Relinquished by:			Lab Address: APPL, 908 N. Temperance AVE, Clovis, CA 93611	
Received for Laboratory by:				

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125907

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CHAIN OF CUSTODY RECORD

Project Name: Camp Dodge

Project No.: 15302625.30000

Project Location: Johnston, IA

Project Manager: J. Harrington

Sampler(s): J. Harrington, J. Allen

Analytical Parameters: Metals/Hardness (6020A + SM2340B); Explosives (8330B)

Sample Date	Sample Time	Type Comp.	Type Grab	Sample Identification	Matrix	Containers No.	Containers Type	Metals/Hardness (6020A + SM2340B)	Explosives (8330B)	Remarks
11-02-11	1817	X		DGSW02DB01	Ag	1	500mL HDPE	X		4°C, HNO3
↓	↓	↓		↓	↓	2	1-liter Amber		X	↓
↓	1835	↓		DGSW03DB01	↓	1	500mL HDPE	X		HNO3
↓	↓	↓		↓	↓	2	1-liter Amber		X	↓

Signatures	Date	Time	Shipping Details	Special Instructions
Relinquished by:	11-03-11	1730	Method of Shipment: Fed EX	Metals/Hardness - WPS field filtered → 0.45 µm
Received by:			Airbill No.: 8682 1161 6725	
Relinquished by:			Lab Address: APPL, 908 N. Temperance Ave, Clovis CA, 93611	
Received for Laboratory by:				

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125890

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CHAIN OF CUSTODY RECORD

Project Name: Camp Dodge

Project No.: 15302625.30000

Project Location: Johnston, IA

Project Manager: J. Harrington

Sampler(s): J. Harrington, J. Allen

Sample Date	Sample Time	Type Comp.	Type Grab	Sample Identification	Matrix	Containers No.	Containers Type	Analytical Parameters: Explosives (8330B)	Remarks
11-3-11	0800		X	DGGW07DA02	Aq	2	1-Liter Amber	X	4°C

Signatures	Date	Time	Shipping Details	Special Instructions
Relinquished by:	11-3-11	1700	Method of Shipment: Fed Ex	
Received by:			Airbill No.: 6026578-4	
Relinquished by:			Lab Address: APPL 908 N Temperance Ave Clovis, CA 93611	
Received for Laboratory by:				

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125893

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CHAIN OF CUSTODY RECORD

Project Name: Camp Dodge

Project No.: 1530 8625.30000

Project Location: Johnston, IA

Project Manager: J. Harrington

Sampler(s): J. Allen, J. Harrington

Sample Date	Sample Time	Type Comp.	Type Grab	Sample Identification	Matrix	Containers No.	Containers Type	Analytical Parameters: Explosives (8330B)	Remarks
11-3-11	0735		X	DGGW07DA01 MS/MSD	Aq	6	1-Liter Amber	X	4°C
11-3-11	0838		↓	DGGW08DA01	↓	2	↓	X	↓
~~11-3-11~~	~~0900~~		↓	~~DGGW07DA02~~	↓	~~2~~	↓	~~X~~	↓

Signatures	Date	Time	Shipping Details	Special Instructions
Relinquished by:	110311	1130	Method of Shipment: Fed EX	
Received by:			Airbill No.: 8682 9161 6725	
Relinquished by:			Lab Address: APPL 908 N Temperance Ave Clovis, CA 93611	
Received for Laboratory by:				

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125888

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CHAIN OF CUSTODY RECORD

Project Name: CAMP DODGE

Project No.: 15302625.30000

Project Location: Johnston, IA

Project Manager: J. Herrington

Sampler(s): J. Allen, K. Krause

Sample Date	Sample Time	Type Comp.	Type Grab	Sample Identification	Matrix	Containers No.	Containers Type	Analytical Parameters: EXPLOSIVES (8330B)										Remarks
1/6/12	0800		X	DG(TU)07DB02	Aq	2	1-Liter Amber	X										4°C
↓	1115		↓	DGGW08DB01	↓	↓	↓	X										↓

Signatures	Date	Time	Shipping Details	Special Instructions
Relinquished by:	1/6/12	1600	Method of Shipment: Fed EX	
Received by:			Airbill No.: 8682 9161 6633	
Relinquished by:			Lab Address: APPL, 908 N Temperance Ave, Clovis, CA 93611	
Received for Laboratory by:				

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125900

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CHAIN OF CUSTODY RECORD

Project Name: CAMP DODGE

Project No.: 15302625.30000

Project Location: Johnston, IA

Project Manager: J. Harrington

Sampler(s): J. Allen, K. Krause

Sample Date	Sample Time	Type Comp.	Type Grab	Sample Identification	Matrix	Containers No.	Containers Type	Analytical Parameters: Explosives (8330B)	Remarks
1/6/12	1045		X	DGTGTW07DB01MS/MSD	Aq	6	1-Liter Amber	X	48, MS/MSD

Signatures	Date	Time	Shipping Details	Special Instructions
Relinquished by: [signature]	1/6/12	1600	Method of Shipment: Fed EX	
Received by:			Airbill No.: 8682 9161 6622	
Relinquished by:			Lab Address: APPL 908 N Temperance Ave Clovis, CA 93611	
Received for Laboratory by:				

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125901

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CHAIN OF CUSTODY RECORD

Project Name: Camp Dodge ORA

Project No.: 15302625.30000

Project Location: Johnston, IA

Project Manager: J. Harrington

Sampler(s): J. Harrington, J. Allen, A. Sheridan, R. Herold

Sample Date	Sample Time	Type Comp.	Type Grab	Sample Identification	Matrix	Containers No.	Containers Type	Analytical Parameters: Explosives (8330B)	Remarks
5/8/12	1341		X	DGGW07WC01 MS/MSD	Aq	6	1-liter amber	X	4°C
↓	1413		↓	DGGW08WC01	↓	2	↓	X	↓
↓	0800		↓	DGGW07WC02	↓	2	↓	X	↓

Signatures	Date	Time	Shipping Details	Special Instructions
Relinquished by:	5/8/12	1600	Method of Shipment: Fed Ex Air	
Received by:			Airbill No.: 8006 7438 3391	
Relinquished by:			Lab Address: APPL, 908 N Temperance Ave, Clovis, CA 93611	
Received for Laboratory by:				

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CHAIN OF CUSTODY RECORD

Project Name: CAMP DODGE	Project No. 15302625.30000
Project Location: JOHNSON, IA	Project Manager: J. HARRINGTON
Sampler(s): J. HARRINGTON, R. HEROLD, J. ALLEN, A. SHERIDAN	

Analytical Parameters: EXPLOSIVES 8330B; METALS/HARDNESS 6020A/SM2340B

Sample Date	Sample Time	Type Comp.	Type Grab	Sample Identification	Matrix	Containers No.	Containers Type	EXPLOSIVES 8330B	METALS/HARDNESS 6020A/SM2340B	Remarks
5912	1000	X		DGSW03WA01	AQ	2	1-LITER AMBER	X		4°C
↓	↓	X		DGSW03WA01 MS/MSD	↓	4	↓	X		4°C
↓	↓	X		DGSW03WA01 MS/MSD	↓	1	SOONE POLY		X	HNO_3
↓	1235	X		DGSW01WA01	↓	1	↓		X	HNO_3

Signatures	Date	Time	Shipping Details	Special Instructions
Relinquished by: [signature]	5/19/12	1700	Method of Shipment: FED EX AIR	METALS AND HARDNESS SAMPLES WERE FIELD FILTERED WITH A 0.45 mm filter
Received by:			Airbill No.: 8006 7438 3417	
Relinquished by:			Lab Address: APPL 908 N TEMPERANCE AVE CLOVIS, CA 93611	
Received for Laboratory by:				

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126411

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CHAIN OF CUSTODY RECORD

Project Name: Camp Dodge

Project No.: 15302625.30000

Project Location: Johnston, IA

Project Manager: J. Harrington

Sampler(s): J. Harrington, R. Herold, J. Allen, A. Sheridan

Analytical Parameters: Dissolved metals for BLM; DOC for BLM; Dissolved Alkalinity for BLM; Dissolved Sulfate/Chloride for BLM

Sample Date	Sample Time	Type Comp.	Type Grab	Sample Identification	Matrix	Containers No.	Containers Type	Dissolved metals for BLM	DOC for BLM	Dissolved Alkalinity for BLM	Dissolved Sulfate/Chloride for BLM	Remarks
5/9/12	1000	X		DGSW03WA01 ms/msd	Aq	1	500 ml Plastic	X				4°C HNO3
						2	60 ml glass		X			HCL
						2	250 ml Plastic			X	X	
5/9/12	1235	X		DGSW01WA01	Aq	1	500 ml Plastic	X				HNO3
						2	60 ml glass		X			HCL
						2	250 ml Plastic			X	X	
5/10/12	1035	X		DGSW03WB01	Aq	1	500 ml Plastic	X				HNO3
						2	60 ml glass		X			HCL
						2	250 ml Plastic			X	X	
	0800	X		DGSW03WB02	Aq	1	500 ml Plastic	X				HNO3
						2	60 ml glass		X			HCL
						2	250 ml Plastic			X	X	

Signatures	Date	Time
Relinquished by:	5/11/12	1700
Received by:		
Relinquished by:		
Received for Laboratory by:		

Shipping Details

Method of Shipment: Fed Ex

Airbill No.: 8996 7737 5056

Lab Address: Accutest, 2235 US HW 130, Dayton, NJ 08810

Special Instructions

All samples field filtered with a 0.45 µm filter

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CHAIN OF CUSTODY RECORD

Project Name: Camp Dodge

Project No.: 15302625.30000

Project Location: Johnston, IA

Project Manager: J. Hennington

Sampler(s): J. Hennington, R. Herold, J. Allen, A. Sheridan

Analytical Parameters: Explosives (8330B); metals/hardness (6020A+SM2340B)

Sample Date	Sample Time	Type Comp.	Type Grab	Sample Identification	Matrix	Containers No.	Containers Type	Explosives (8330B)	metals/hardness (6020A+SM2340B)								Remarks
5/9/12	1000	X		DGSW03WA01 ms/msd	Aq	6	1-liter Amber	X									4°C
↓	↓	↓		↓		1	500ml HDPE		X								HNO3
↓	1235			DGSW01WA01		1	500ml HDPE		X								HNO3
5/10/12	1341			DGSW02WA01	Aq	2	1-liter Amber	X									4°
	↓	X		↓		1	500ml HDPE		X								HNO3
	1035			DGSW03WB01		2	1-liter Amber	X									
	↓			↓		1	500ml HDPE		X								HNO3
	0800			DGSW03WB02		2	1-liter Amber	X									
	↓			↓		1	500ml HDPE		X								HNO3
	1100			DGSW03WB03		2	1-liter Amber	X									
	↓			↓		1	500ml HDPE		X								HNO3
↓	1420	↓		DGSW01WB01	↓	1	500ml HDPE		X								HNO3

Signatures	Date	Time	Shipping Details	Special Instructions
Relinquished by: [signature]	5/10/12	1700	Method of Shipment: Fed Ex Air	Metals/hardness samples filtered with a 0.45µm filter
Received by:			Airbill No.: 800674383406	
Relinquished by:			Lab Address: APPL, 908 N Temperance Ave, Clovis, CA 93611	
Received for Laboratory by:				

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125895

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CHAIN OF CUSTODY RECORD

Project Name: Camp Dodge

Project No.: 15302625.30000

Project Location: Johnson, IA

Project Manager: J. Harrington

Sampler(s): J. Harrington, R. Herold, J. Allen, A. Sheridan

Analytical Parameters: Dissolved metals for DLM; DOC for DLM; Dissolved Ammonia as N; Dissolved Sulfate, chloride, nitrate as N

Sample Date	Sample Time	Type Comp.	Type Grab	Sample Identification	Matrix	Containers No.	Containers Type	Dissolved metals for DLM	DOC for DLM	Dissolved Ammonia as N	Dissolved Sulfate, chloride, nitrate as N								Remarks
5/10/12	1341	X		DGSW02WA01	Aq	1	500mL Plastic	X											4°C HNO3
	↓	↓		↓	↓	2	60mL glass		X										HCL
	↓	↓		↓	↓	2	250mL Plastic			X	X								
	1100	X		DGSW03WB03	Aq	1	500mL Plastic	X											HNO3
	↓	↓		↓	↓	2	60mL glass		X										HCL
	↓	↓		↓	↓	2	250mL Plastic			X	X								
	1420	X		DGSW01WB01	Aq	1	500mL Plastic	X											HNO3
	↓	↓		↓	↓	2	60mL glass		X										HCL
	↓	↓		↓	↓	2	250mL Plastic			X	X								

Signatures	Date	Time	Shipping Details	Special Instructions
Relinquished by:	5/10/12	1700	Method of Shipment: Fed EX	All samples field filtered with a 0.45 µm filter.
Received by:			Airbill No.: 8996 7737 5056	
Relinquished by:			Lab Address: Accutest, 2235 US Hwy 130, Dayton, NJ 08810	
Received for Laboratory by:				

Custody.frm/jdg 3-09-92

White copy - Laboratory Yellow copy - Laboratory Pink copy - WCC

126428

URS Corporation

12120 Shamrock Plaza Suite 300, Omaha, NE 68154 (402) 334-8181 Fax (402) 334-1984

CHAIN OF CUSTODY RECORD

Project Name: CAMP DODGE

Project No.: 15302625.30000

Project Location: JOHNSTON, IA

Project Manager: J. HARRINGTON

Sampler(s): J. HARRINGTON, J. ALLEN, R. HEROLD

Analytical Parameters: EXPLOSIVES 8330B; METALS/HARDNESS 6020A/SM2340B

Sample Date	Sample Time	Type Comp.	Type Grab	Sample Identification	Matrix	Containers No.	Containers Type	EXPLOSIVES 8330B	METALS/HARDNESS 6020A/SM2340B	Remarks
5/10/12	1235	X		DGSW02WB01	AQ	2	1 Liter Amber	X		4°C
↓	↓	↓		↓	↓	1	500 mL HDPE		X	↓ HNO3

Signatures	Date	Time	Shipping Details	Special Instructions
Relinquished by: Jennifer L Allen	5/11/12	1400	Method of Shipment: FED EX AIR	METALS/HARDNESS SAMPLE FIELD FILTERED w/ 0.45µm FILTER
Received by:			Airbill No.: 8006 7438 3428	
Relinquished by:			Lab Address: APPL 908 N TEMPERANCE AVE CLOVIS, CA 93611	
Received for Laboratory by:				

Custody.frm/jdg 3-09-92

White copy - Laboratory Yellow copy - Laboratory Pink copy - WCC

126412

URS Corporation

12120 Shamrock Plaza Suite 300, Omaha, NE 68154 (402) 334-8181 Fax (402) 334-1984

CHAIN OF CUSTODY RECORD

Project Name: CAMP DODGE

Project No.: 15302625.30000

Project Location: JOHNSTON, IA

Project Manager: J. HARRINGTON

Sampler(s): J. HARRINGTON, J. ALLEN, R. HEROLD

Analytical Parameters: DISSOLVED METALS for RLM; TOC for RLM; DISSOLVED ALKALINITY for RLM; DISSOLVED SULFATE, CHLORIDE for RLM

Sample Date	Sample Time	Type Comp.	Type Grab	Sample Identification	Matrix	Containers No.	Containers Type	Dissolved Metals for RLM	TOC for RLM	Dissolved Alkalinity for RLM	Dissolved Sulfate, Chloride for RLM	Remarks
5/11/12	1235	X		DGSW02WB01	AQ	1	500mL Plastic	X				4°C HNO3
↓	↓	↓		↓		2	60mL Glass		X			HCL
↓	↓	↓		↓		2	250mL Plastic			X	X	↓

Signatures	Date	Time	Shipping Details	Special Instructions
Relinquished by:	5/11/12	1600	Method of Shipment: FED EX AIR	SAMPLES FIELD FILTERED W/ 0.45µm FILTER.
Received by:			Airbill No.: 8996 7737 5045	
Relinquished by:			Lab Address: ACCUTEST 2235 US HW 130 DAYTON, NJ 08810	
Received for Laboratory by:				

Custody.frm/jdg 3-09-92

White copy - Laboratory Yellow copy - Laboratory Pink copy - WCC

126427

B-5 Compliance Agreements

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COMPLIANCE AGREEMENT

All project personnel, including visitors, must follow the requirements of this Accident Prevention Plan (APP). In order to document individual agreement with this requirement, all personnel must complete this "Site Safety and Health Plan Compliance Agreement." These agreements will be kept on site and will become part of the permanent project record upon completion of site activities.

CAMP DODGE, IOWA

I, _____ (print name), have read the APP for ~~Kansas Regional Training Center~~; or I have been verbally advised of its contents. I understand and I agree to comply with all of its provisions. I understand that I could be prohibited from working on the project, and I may be subject to disciplinary actions for violating any of the health and safety requirements specified in the APP.

_____
Signature

_____
Company

10311
_____
Date

COMPLIANCE AGREEMENT

All project personnel, including visitors, must follow the requirements of this Accident Prevention Plan (APP). In order to document individual agreement with this requirement, all personnel must complete this "Site Safety and Health Plan Compliance Agreement." These agreements will be kept on site and will become part of the permanent project record upon completion of site activities.

I, Kyle Krause (print name), have read the APP for Camp Dodge, Iowa; or I have been verbally advised of its contents. I understand and I agree to comply with all of its provisions. I understand that I could be prohibited from working on the project, and I may be subject to disciplinary actions for violating any of the health and safety requirements specified in the APP.

Signature

Date 1/16/2012

Company URS

COMPLIANCE AGREEMENT

All project personnel, including visitors, must follow the requirements of this Accident Prevention Plan (APP). In order to document individual agreement with this requirement, all personnel must complete this "Site Safety and Health Plan Compliance Agreement." These agreements will be kept on site and will become part of the permanent project record upon completion of site activities.

I, Adley Perkins (print name), have read the APP for Camp Dodge, Iowa; or I have been verbally advised of its contents. I understand and I agree to comply with all of its provisions. I understand that I could be prohibited from working on the project, and I may be subject to disciplinary actions for violating any of the health and safety requirements specified in the APP.

Signature

Company URS

10-31-11

Date

COMPLIANCE AGREEMENT

All project personnel, including visitors, must follow the requirements of this Accident Prevention Plan (APP). In order to document individual agreement with this requirement, all personnel must complete this "Site Safety and Health Plan Compliance Agreement." These agreements will be kept on site and will become part of the permanent project record upon completion of site activities.

I, Jennifer Allen (print name), have read the APP for Camp Dodge, Iowa; or I have been verbally advised of its contents. I understand and I agree to comply with all of its provisions. I understand that I could be prohibited from working on the project, and I may be subject to disciplinary actions for violating any of the health and safety requirements specified in the APP.

Signature

URS
Company

10/31/11
Date

COMPLIANCE AGREEMENT

All project personnel, including visitors, must follow the requirements of this Accident Prevention Plan (APP). In order to document individual agreement with this requirement, all personnel must complete this "Site Safety and Health Plan Compliance Agreement." These agreements will be kept on site and will become part of the permanent project record upon completion of site activities.

I, JaQuelyn Harrington (print name), have read the APP for Camp Dodge, Iowa; or I have been verbally advised of its contents. I understand and I agree to comply with all of its provisions. I understand that I could be prohibited from working on the project, and I may be subject to disciplinary actions for violating any of the health and safety requirements specified in the APP.

Signature

Company

10/31/11

Date

COMPLIANCE AGREEMENT

All project personnel, including visitors, must follow the requirements of this Accident Prevention Plan (APP). In order to document individual agreement with this requirement, all personnel must complete this "Site Safety and Health Plan Compliance Agreement." These agreements will be kept on site and will become part of the permanent project record upon completion of site activities.

I, Craig Johnson (print name), have read the APP for Camp Dodge, Iowa; or I have been verbally advised of its contents. I understand and I agree to comply with all of its provisions. I understand that I could be prohibited from working on the project, and I may be subject to disciplinary actions for violating any of the health and safety requirements specified in the APP.

Signature

Date 11.2.11

URS INC.

Company

B-6 Site Safety Tailgate Meetings

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URS Group, Inc
SITE SAFETY TAILGATE MEETING

PROJECT NAME:	ORA PHASE II CAMP DODGE, IONA	CLIENT NAME:	ARNG/USACE
PROJECT NUMBER:	15302425	PROJECT LEADER:	JACQUELYN HARRINGTON
PREPARED BY:	JACQUELYN HARRINGTON	DATE: 10/31/11	10/31/11

ON-SITE SAFETY MEETING RECORD

LOCATION: LODGING AREA AND SAMPLING LOCATIONS S3 AND S2

TASK TO BE PERFORMED:
ISCO SAMPLER SETUP AT S3 AND S2

I. Purpose for meeting: (check all that apply)

	DAILY SAFETY BRIEFING
✓	*Begin New Task. Task:* ISCO SAMPLER PLACEMENT S3 AND S2
✓	*Periodic Safety Meeting* WHEN TASKS CHANGE
	New Site Procedures
	New Site Conditions / Information
	New Site Workers

MEETING ATTENDEES:

NAME (Print)	SIGNATURE	COMPANY
1. Adley Perkins	[signature]	URS
2. Jennifer Allen	[signature]	URS
3. JACQUELYN HARRINGTON	[signature]	URS
4.		
5.		

ON-SITE SAFETY MEETING RECORD *Page 2 of 2*

II. Topic (check all that apply)

✓	Site Safety Personnel CPR / FIRST AID	N/A	Decontamination
✓	Work Area Description	✓	Emergency Response
✓	Site Characterization UXO HAZARDS PHYSICAL / BIOLOGICAL	✓	Hazard Communication
✓	Equipment Hazard(s)	✓	On-site Emergency
✓	Biological Hazard(s)	✓	On-site Injuries
N/A	Chemical Hazard(s)	✓	Evacuation Procedures keys on dash - Truck window open.
✓	Physical Hazard(s)	✓	Rally Point Truck
N/A	Heat Stress	✓	Emergency Communications 911
✓	Cold Stress	✓	Directions to Hospital HANDOUT
✓	Site Control	✓	Emergency Equipment LOCATION / ITEMS FIRST AID KIT.
✓	Work and Support Zones		Drug and Alcohol Policies ONLY ASKED IF AN ARC
✓	PPE	✓	Medical Monitoring PRIOR TO MOB
N/A	Air Monitoring		Task Training
✓	Safe Work Practices	✓	Unexploded Ordnance (UXO) BRIEF - MEC ADVOIDANCE

III. Remarks

V. Verification I certify that the personnel listed on this roster received the briefing described above. Site personnel not attending this meeting will be briefed before beginning their assigned duties.

[signature] 11/01/11

Field Project Manager Date

[signature] 11-02-11

UXO Safety Supervisor Date

URS Group, Inc
SITE SAFETY TAILGATE MEETING

PROJECT NAME:	OPA PHASE II	CLIENT NAME:	ADOG/USACE
PROJECT NUMBER:	15302625	PROJECT LEADER:	Jacqueline Harrington
PREPARED BY:	JHarrington	DATE:	1/20/11

ON-SITE SAFETY MEETING RECORD

LOCATION: Lodging Area and Sampling Locations

TASK TO BE PERFORMED:
ISCO SET UP AND SAMPLING

I. Purpose for meeting: (check all that apply)

	DAILY SAFETY BRIEFING
✓	*Begin New Task. Task:* Sampling Surface Water
✓	*Periodic Safety Meeting* With Task Change
	New Site Procedures
	New Site Conditions / Information
	New Site Workers

MEETING ATTENDEES:

NAME (Print)	SIGNATURE	COMPANY
1. Adley Perkins	[signature]	URS
2. Jennifer Allen	[signature]	URS
3. Jacqueline Harrington	[signature]	1/20/11
4.		
5.		

ON-SITE SAFETY MEETING RECORD *Page 2 of 2*

II. Topic (check all that apply)

	Site Safety Personnel		Decontamination
	Work Area Description		Emergency Response
	Site Characterization		Hazard Communication
✓	Equipment Hazard(s)		On-site Emergency
✓	Biological Hazard(s)		On-site Injuries
✓	Chemical Hazard(s)	✓	Evacuation Procedures
✓	Physical Hazard(s)	✓	Rally Point
	Heat Stress	✓	Emergency Communications
✓	Cold Stress		Directions to Hospital
	Site Control		Emergency Equipment
	Work and Support Zones		Drug and Alcohol Policies
✓	PPE		Medical Monitoring
	Air Monitoring		Task Training
✓	Safe Work Practices	✓	Unexploded Ordnance (UXO)

III. Remarks

V. Verification I certify that the personnel listed on this roster received the briefing described above. Site personnel not attending this meeting will be briefed before beginning their assigned duties.

11/01/11

Field Project Manager Date

11-01-11

UXO Safety Supervisor Date

URS Group, Inc
SITE SAFETY TAILGATE MEETING

PROJECT NAME:	ORA PHASE II CAMP DODGE, IOWA	CLIENT NAME:	ARNG / USACE
PROJECT NUMBER:	15302425	PROJECT LEADER:	JACQUELYN HARRINGTON
PREPARED BY:	J. Harrington	DATE:	11/02/11

ON-SITE SAFETY MEETING RECORD

LOCATION: Loading Area and sampling locations

TASK TO BE PERFORMED: SW Sample collect and Sediment Sample set up

I. Purpose for meeting: (check all that apply)

	DAILY SAFETY BRIEFING
✓	*Begin New Task. Task:* Sediment sample set up
✓	*Periodic Safety Meeting*
	New Site Procedures
	New Site Conditions / Information
✓	*New Site ~~Workers~~* QA

MEETING ATTENDEES:

NAME (Print)	SIGNATURE	COMPANY
1. Adley Perkins		URS
2. Jennifer Allen		URS
3. Jacquelyn Harrington		URS
4. Craig Johnson		URS
5.		

ON-SITE SAFETY MEETING RECORD *Page 2 of 2*

II. Topic (check all that apply)

	Site Safety Personnel	✓	Decontamination
✓	Work Area Description	✓	Emergency Response
✓	Site Characterization	✓	Hazard Communication
✓	Equipment Hazard(s)	✓	On-site Emergency
✓	Biological Hazard(s)	✓	On-site Injuries
✓	Chemical Hazard(s)	✓	Evacuation Procedures
	Physical Hazard(s)	✓	Rally Point
	Heat Stress	✓	Emergency Communications
✓	Cold Stress	✓	Directions to Hospital
✓	Site Control	✓	Emergency Equipment
✓	Work and Support Zones		Drug and Alcohol Policies
✓	PPE		Medical Monitoring
	Air Monitoring		Task Training
✓	Safe Work Practices	✓	Unexploded Ordnance (UXO)

III. Remarks

V. Verification I certify that the personnel listed on this roster received the briefing described above. Site personnel not attending this meeting will be briefed before beginning their assigned duties.

11-2-11

Field Project Manager Date

11-2-11

UXO Safety Supervisor Date

URS Group, Inc
SITE SAFETY TAILGATE MEETING

PROJECT NAME:	ORA Phase II	CLIENT NAME:	ARNG / USACE
PROJECT NUMBER:	15302625	PROJECT LEADER:	JAHarrington
PREPARED BY:	JHarrington	DATE:	11 03 11

ON-SITE SAFETY MEETING RECORD

LOCATION: Camp Dodge Lodging

TASK TO BE PERFORMED:
Water Monitoring, Sediment sampling, Surface Water Sampling

I. Purpose for meeting: (check all that apply)

	DAILY SAFETY BRIEFING
✓	*Begin New Task. Task:*
	Periodic Safety Meeting
	New Site Procedures
	New Site Conditions / Information
✓	*New Site ~~Workers~~* QA

MEETING ATTENDEES:

NAME (Print)	SIGNATURE	COMPANY
1.		
2. Adlee Perkins		URS
3. Craig Johnson		URS
4. Jacqueline Harrington		URS
5. Jennifer Allen		URS

ON-SITE SAFETY MEETING RECORD *Page 2 of 2*

II. Topic (check all that apply)

	Site Safety Personnel	✓	Decontamination
✓	Work Area Description	✓	Emergency Response
✓	Site Characterization	✓	Hazard Communication
✓	Equipment Hazard(s)	✓	On-site Emergency
✓	Biological Hazard(s)		On-site Injuries
✓	Chemical Hazard(s)	✓	Evacuation Procedures
✓	Physical Hazard(s)	✓	Rally Point
	Heat Stress	✓	Emergency Communications
✓	Cold Stress		Directions to Hospital
✓	Site Control	✓	Emergency Equipment
✓	Work and Support Zones		Drug and Alcohol Policies
✓	PPE		Medical Monitoring
	Air Monitoring		Task Training
	Safe Work Practices	✓	Unexploded Ordnance (UXO)

III. Remarks

V. Verification I certify that the personnel listed on this roster received the briefing described above. Site personnel not attending this meeting will be briefed before beginning their assigned duties.

110311

Field Project Manager Date

1-3-11

UXO Safety Supervisor Date

URS Group, Inc
SITE SAFETY TAILGATE MEETING

PROJECT NAME:	ORA CHARLE II	CLIENT NAME:	ARNG / USACE
PROJECT NUMBER:	15302405	PROJECT LEADER:	J. Harringh
PREPARED BY:	J Harringh	DATE:	11/04/11

ON-SITE SAFETY MEETING RECORD

LOCATION: Camp Dodge Lodging

TASK TO BE PERFORMED:
Sediment Any Surface Water Sampling

I. Purpose for meeting: (check all that apply)

	DAILY SAFETY BRIEFING
	Begin New Task. Task:
✓	*Periodic Safety Meeting*
	New Site Procedures
	New Site Conditions / Information
	New Site Workers

MEETING ATTENDEES:

NAME (Print)	SIGNATURE	COMPANY
1. Jacquelyn Harrington	[signature]	URS
2. Jennifer Allen	[signature]	URS
3. Adley Perkins	[signature]	URS
4.		
5.		

ON-SITE SAFETY MEETING RECORD *Page 2 of 2*

II. Topic (check all that apply)

	Site Safety Personnel		Decontamination
	Work Area Description		Emergency Response
	Site Characterization		Hazard Communication
	Equipment Hazard(s)		On-site Emergency
	Biological Hazard(s)		On-site Injuries
	Chemical Hazard(s)		Evacuation Procedures
	Physical Hazard(s)		Rally Point
	Heat Stress		Emergency Communications
	Cold Stress		Directions to Hospital
	Site Control		Emergency Equipment
	Work and Support Zones		Drug and Alcohol Policies
	PPE		Medical Monitoring
	Air Monitoring		Task Training
	Safe Work Practices		Unexploded Ordnance (UXO)

III. Remarks

V. Verification I certify that the personnel listed on this roster received the briefing described above. Site personnel not attending this meeting will be briefed before beginning their assigned duties.

11 04 11

Field Project Manager Date

UXO Safety Supervisor Date

URS Group, Inc
SITE SAFETY TAILGATE MEETING

PROJECT NAME:	CAMP DODGE	CLIENT NAME:	USACE- Baltimore
PROJECT NUMBER:	15302625.30000	PROJECT LEADER:	J. Herrington
PREPARED BY:	J. Allen	DATE:	January 6, 2012

ON-SITE SAFETY MEETING RECORD

LOCATION: Camp Dodge, Johnston, IA

TASK TO BE PERFORMED:

I. Purpose for meeting: (check all that apply)

	DAILY SAFETY BRIEFING
✓	*Begin New Task. Task:* Collect MW samples
	Periodic Safety Meeting
	New Site Procedures
	New Site Conditions / Information
	New Site Workers

MEETING ATTENDEES:

NAME (Print)	SIGNATURE	COMPANY
1. Jennifer Allen		URS
2. Kyle Krause		URS
3.		
4.		
5.		

URS Group, Inc
SITE SAFETY TAILGATE MEETING

PROJECT NAME:	ORA PHASE II CAMP DODGE	CLIENT NAME:	ARNG
PROJECT NUMBER:	15302625	PROJECT LEADER:	JHARRINGTON
PREPARED BY:	JHARRINGTON	DATE:	050712

ON-SITE SAFETY MEETING RECORD

LOCATION:

TASK TO BE PERFORMED: MOBILIZATION, SITE RECON, EQUIPMENT CALIBRATION

I. Purpose for meeting: (check all that apply)

	DAILY SAFETY BRIEFING
✓	*Begin New Task. Task:* SITE RECON
	Periodic Safety Meeting
	New Site Procedures
✓	*New Site Conditions / Information* SITE DESCRIPTION/HISTORY
✓	*New Site Workers* AMIBETH SHERIDAN, RYAN HERALD

MEETING ATTENDEES:

NAME (Print)	SIGNATURE	COMPANY
1. Amibeth Sheridan	[illegible]	URS
2. Ryan Herald	[illegible]	URS
3. Jennifer Allen	[illegible]	URS
4. JADY HARRINGTON	[illegible]	URS
5.		

ON-SITE SAFETY MEETING RECORD *Page 2 of 2*

II. Topic (check all that apply)

	Site Safety Personnel		Decontamination
✓	Work Area Description		Emergency Response
	Site Characterization	✓	Hazard Communication
✓	Equipment Hazard(s)		On-site Emergency
	Biological Hazard(s)		On-site Injuries
	Chemical Hazard(s)	✓	Evacuation Procedures
✓	Physical Hazard(s)	✓	Rally Point
	Heat Stress		Emergency Communications
	Cold Stress	✓	Directions to Hospital
	Site Control		Emergency Equipment
✓	Work and Support Zones		Drug and Alcohol Policies
✓	PPE		Medical Monitoring
	Air Monitoring		Task Training
	Safe Work Practices		Unexploded Ordnance (UXO)

III. Remarks

V. Verification I certify that the personnel listed on this roster received the briefing described above. Site personnel not attending this meeting will be briefed before beginning their assigned duties.

Field Project Manager Date

UXO Safety Supervisor Date

URS Group, Inc
SITE SAFETY TAILGATE MEETING

PROJECT NAME:	ORA PHASE II CAMP DODGE	CLIENT NAME:	ARNG
PROJECT NUMBER:	15302625	PROJECT LEADER:	J. HARRINGTON
PREPARED BY:	J. Harrington	DATE:	050812

ON-SITE SAFETY MEETING RECORD

LOCATION: CAMP DODGE, IOWA

TASK TO BE PERFORMED: SURFACE WATER SAMPLER SET UP

I. Purpose for meeting: (check all that apply)

	DAILY SAFETY BRIEFING
✓	*Begin New Task. Task:* SET ISCO SAMPLERS AT 3 LOCATIONS AND TWO GROUNDWATER SAMPLES
	Periodic Safety Meeting
✓	*New Site Procedures*
	New Site Conditions / Information
	New Site Workers

MEETING ATTENDEES:

NAME (Print)	SIGNATURE	COMPANY
1. Amibeth Sheridan		URS
2. Ryan Herold		URS
3. Jennifer Allen		URS
4. JADY HARRINGTON		URS
5.		

ON-SITE SAFETY MEETING RECORD *Page 2 of 2*

II. Topic (check all that apply)

	Site Safety Personnel		Decontamination
✓	Work Area Description		Emergency Response
	Site Characterization	✓	Hazard Communication
✓	Equipment Hazard(s)	✓	On-site Emergency
✓	Biological Hazard(s)	✓	On-site Injuries
✓	Chemical Hazard(s)	✓	Evacuation Procedures
✓	Physical Hazard(s)	✓	Rally Point
✓	Heat Stress		Emergency Communications
	Cold Stress	✓	Directions to Hospital
	Site Control		Emergency Equipment
✓	Work and Support Zones		Drug and Alcohol Policies
✓	PPE		Medical Monitoring
	Air Monitoring		Task Training
	Safe Work Practices		Unexploded Ordnance (UXO)

III. Remarks

V. Verification I certify that the personnel listed on this roster received the briefing described above. Site personnel not attending this meeting will be briefed before beginning their assigned duties.

Field Project Manager Date

UXO Safety Supervisor Date

URS Group, Inc
SITE SAFETY TAILGATE MEETING

PROJECT NAME:	ORA PHASE II CAMP DODGE	CLIENT NAME:	ARNG
PROJECT NUMBER:	15302625	PROJECT LEADER:	J. HARRINGTON
PREPARED BY:	J. HARRINGTON	DATE: 050912	050912

ON-SITE SAFETY MEETING RECORD

LOCATION: CAMP DODGE, IOWA

TASK TO BE PERFORMED: SURFACE WATER SAMPLING

I. Purpose for meeting: (check all that apply)

	DAILY SAFETY BRIEFING
	Begin New Task. Task: SURFACE WATER SAMPLING
	Periodic Safety Meeting
	New Site Procedures
	New Site Conditions / Information
	New Site Workers

MEETING ATTENDEES:

NAME (Print)	SIGNATURE	COMPANY
1. Amibeth Sheridan	[illegible]	URS
2. Jennifer Allen	Jennifer L Allen	URS
3. Ryan Herold	[illegible]	URS
4. Jay Harrington	[illegible]	URS
5.		

ON-SITE SAFETY MEETING RECORD *Page 2 of 2*

II. Topic (check all that apply)

	Site Safety Personnel		Decontamination
✓	Work Area Description		Emergency Response
	Site Characterization	✓	Hazard Communication
✓	Equipment Hazard(s)	✓	On-site Emergency
✓	Biological Hazard(s)	✓	On-site Injuries
✓	Chemical Hazard(s)	✓	Evacuation Procedures
✓	Physical Hazard(s)	✓	Rally Point
✓	Heat Stress		Emergency Communications
	Cold Stress	✓	Directions to Hospital
	Site Control		Emergency Equipment
✓	Work and Support Zones		Drug and Alcohol Policies
✓	PPE		Medical Monitoring
	Air Monitoring		Task Training
	Safe Work Practices		Unexploded Ordnance (UXO)

III. Remarks

V. Verification I certify that the personnel listed on this roster received the briefing described above. Site personnel not attending this meeting will be briefed before beginning their assigned duties.

050912

Field Project Manager Date

UXO Safety Supervisor Date

URS Group, Inc
SITE SAFETY TAILGATE MEETING

PROJECT NAME:	ORA PHASE II	CLIENT NAME:	ANG
PROJECT NUMBER:	15302625	PROJECT LEADER:	J HARRINGTON
PREPARED BY:	J HARRINGTON	DATE:	051012

ON-SITE SAFETY MEETING RECORD

LOCATION: CAMP DODGE, IOWA

TASK TO BE PERFORMED: SURFACE WATER SAMPLING

I. Purpose for meeting: (check all that apply)

	DAILY SAFETY BRIEFING
✓	*Begin New Task. Task:* SURFACE WATER SAMPLING
	Periodic Safety Meeting
	New Site Procedures
	New Site Conditions / Information
	New Site Workers

MEETING ATTENDEES:

NAME (Print)	SIGNATURE	COMPANY
1. Anibeth Sheridan	[illegible]	URS
2. Ryan Herold	[illegible]	URS
3. Jennifer Allen	[illegible]	URS
4. JON HARRINGTON	[illegible]	URS
5.		

ON-SITE SAFETY MEETING RECORD *Page 2 of 2*

II. Topic (check all that apply)

	Site Safety Personnel		Decontamination
	Work Area Description		Emergency Response
	Site Characterization		Hazard Communication
✓	Equipment Hazard(s)		On-site Emergency
✓	Biological Hazard(s)		On-site Injuries
✓	Chemical Hazard(s)		Evacuation Procedures
✓	Physical Hazard(s)		Rally Point
✓	Heat Stress		Emergency Communications
	Cold Stress	✓	Directions to Hospital ROUTE IN ON VEHICLES
	Site Control		Emergency Equipment
	Work and Support Zones		Drug and Alcohol Policies
✓	PPE		Medical Monitoring
	Air Monitoring		Task Training
	Safe Work Practices		Unexploded Ordnance (UXO)

III. Remarks

V. Verification I certify that the personnel listed on this roster received the briefing described above. Site personnel not attending this meeting will be briefed before beginning their assigned duties.

Field Project Manager Date

UXO Safety Supervisor Date

APPENDIX C
ANALYTICAL TABLES

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Table C-1
Surface Water Sampling Results

Sample ID		DGSW01DA01				DGSW01DB01				DGSW01DB02				DGSW01WA01				DGSW01WB01			
Sample Date		11/4/2011				11/3/2011				11/3/2011				5/9/2012				5/10/2012			
Explosives	**Units**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**
1,3,5-Trinitrobenzene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,3-Dinitrobenzene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4,6-Trinitrotoluene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Amino-4,6-Dinitrotoluene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Nitrotoluene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3-Nitrotoluene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Amino-2,6-Dinitrotoluene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Nitrotoluene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HMX	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrobenzene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitroglycerin	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PETN	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RDX	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tetryl	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Metals	**Units**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**
Antimony (Sb) (Dissolved)	µg/L	0.20	U	U	z	0.20	U	U	z	0.20	U	U	o	0.20		J-	o	0.10	J	J-	o
Copper (Cu) (Dissolved)	µg/L	0.76	U	U	x	0.93	U	U	x	1.0		J-	m	0.77	U	U	x	0.76	U	U	x
Lead (Pb) (Dissolved)	µg/L	0.39	U	U	x	0.18	U	U	x	0.22	U	U	x	0.15	U			0.13	J		
Zinc (Zn) (Dissolved)	µg/L	5.0	U	U	x	5.0	U	U	x	5.0	U	U	x	2.9	U	U	x	9.5	U	U	x
General Chemistry	**Units**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**
Hardness (Dissolved)	mg/L	285		J	q	305		J	q	300		J	q	314		J	q	337		J	q

Notes:

µg/L = micrograms per liter

DA/DB = Dry Season/Storm Event

ID = identification

mg/L = milligrams per liter

SW = surface water

WA/WB = 1st 24 Hour Composite/2nd 24 Hour Composite

Laboratory Qualifiers Used

J = Estimated value

U =Not detected

Data Validation Flags Used

J+ = Inorganic analyte present. Reported value may not be accurate or precise, but the result may be biased high.

J- = Inorganic analyte present. Reported value may not be accurate or precise, but the result may be biased low.

J = Analyte present. Reported value may not be accurate or precise.

U = Not detected substantially above the level reported in laboratory or field blanks.

UJ = Not detected substantially above the level reported in laboratory or field blanks, reported value may not be accurate or precise.

Reason Codes Used

n = ICS failure

m = MS/MSD recovery failure

o = Calibration blank contamination

q = Concentration exceeded the linear range

x = Field blank contamination

z = Preparation/Method blank contamination

Table C-1
Surface Water Sampling Results

Sample ID		DGSW02DA01				DGSW02DB01				DGSW02WA01				DGSW02WB01				DGSW03DA01			
Sample Date		11/1/2011				11/2/2011				5/10/2012				5/11/2012				11/1/2011			
Explosives	**Units**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**
1,3,5-Trinitrobenzene	µg/L	0.300	U			0.300	U			0.300	U			0.300	U			0.300	U		
1,3-Dinitrobenzene	µg/L	0.300	U			0.300	U			0.300	U			0.300	U			0.300	U		
2,4,6-Trinitrotoluene	µg/L	0.300	U			0.300	U			0.300	U			0.300	U			0.300	U		
2,4-Dinitrotoluene	µg/L	0.300	U			0.300	U			0.300	U			0.300	U			0.300	U		
2,6-Dinitrotoluene	µg/L	0.300	U			0.300	U			0.300	U			0.300	U			0.300	U		
2-Amino-4,6-Dinitrotoluene	µg/L	0.300	U			0.300	U			0.300	U			0.300	U			0.300	U		
2-Nitrotoluene	µg/L	0.300	U			0.300	U			0.300	U			0.300	U			0.300	U		
3-Nitrotoluene	µg/L	0.300	U			0.300	U			0.300	U			0.300	U			0.300	U		
4-Amino-2,6-Dinitrotoluene	µg/L	0.300	U			0.300	U			0.300	U			0.300	U			0.300	U		
4-Nitrotoluene	µg/L	0.300	U			0.300	U			0.300	U			0.300	U			0.300	U		
HMX	µg/L	0.300	U			0.300	U			0.300	U			0.300	U			0.300	U		
Nitrobenzene	µg/L	0.300	U			0.300	U			0.300	U			0.300	U			0.300	U		
Nitroglycerin	µg/L	0.300	U			0.300	U			0.300	U			0.300	U			0.300	U		
PETN	µg/L	1.500	U			1.500	U			1.500	U			1.500	U			1.500	U		
RDX	µg/L	0.300	U			0.300	U			0.300	U			0.300	U			0.300	U		
Tetryl	µg/L	0.300	U			0.300	U			0.300	U			0.300	U			0.300	U		
Metals	**Units**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**
Antimony (Sb) (Dissolved)	µg/L	0.29		J+	n	0.25		J+	n	0.15	J	J-	o	0.59		J+	o	0.20	U	U	o
Copper (Cu) (Dissolved)	µg/L	0.84	U	U	x	0.95		J+	n	1.1	U	U	x	0.94	U	U	x	1.1		J+	n
Lead (Pb) (Dissolved)	µg/L	0.15	U	U	x	0.15	U	UJ	z	0.68				0.15	U			0.89		J-	z
Zinc (Zn) (Dissolved)	µg/L	5.0	U	U	x	5.1	U	U	x	7.7	U	U	x	8.1	U	U	x	5.4	U	U	x
General Chemistry	**Units**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**
Hardness (Dissolved)	mg/L	336		J	q	322		J	q	335		J	q	348				330		J	q

Notes:

µg/L = micrograms per liter

DA/DB = Dry Season/Storm Event

ID = identification

mg/L = milligrams per liter

SW = surface water

WA/WB = 1st 24 Hour Composite/2nd 24 Hour Composite

Laboratory Qualifiers Used

J = Estimated value

U =Not detected

Data Validation Flags Used

J+ = Inorganic analyte present. Reported value may not be accurate or precise, but the result may be biased high.

J- = Inorganic analyte present. Reported value may not be accurate or precise, but the result may be biased low.

J = Analyte present. Reported value may not be accurate or precise.

U = Not detected substantially above the level reported in laboratory or field blanks.

UJ = Not detected substantially above the level reported in laboratory or field blanks, reported value may not be accurate or precise.

Reason Codes Used

n = ICS failure

m = MS/MSD recovery failure

o = Calibration blank contamination

q = Concentration exceeded the linear range

x = Field blank contamination

z = Preparation/Method blank contamination

Table C-1
Surface Water Sampling Results

Sample ID		DGSW03DA02				DGSW03DB01				DGSW03WA01				DGSW03WB01				DGSW03WB02			
Sample Date		11/1/2011				11/2/2011				5/9/2012				5/10/2012				5/10/2012			
Explosives	**Units**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**
1,3,5-Trinitrobenzene	µg/L	0.300	U			0.300	U			0.300	U			0.300	U			0.300	U		
1,3-Dinitrobenzene	µg/L	0.300	U			0.300	U			0.300	U			0.300	U			0.300	U		
2,4,6-Trinitrotoluene	µg/L	0.300	U			0.300	U			0.300	U			0.300	U			0.300	U		
2,4-Dinitrotoluene	µg/L	0.300	U			0.300	U			0.300	U			0.300	U			0.300	U		
2,6-Dinitrotoluene	µg/L	0.300	U			0.300	U			0.300	U			0.300	U			0.300	U		
2-Amino-4,6-Dinitrotoluene	µg/L	0.300	U			0.300	U			0.300	U			0.300	U			0.300	U		
2-Nitrotoluene	µg/L	0.300	U			0.300	U			0.300	U			0.300	U			0.300	U		
3-Nitrotoluene	µg/L	0.300	U			0.300	U			0.300	U			0.300	U			0.300	U		
4-Amino-2,6-Dinitrotoluene	µg/L	0.300	U			0.300	U			0.300	U			0.300	U			0.300	U		
4-Nitrotoluene	µg/L	0.300	U			0.300	U			0.300	U			0.300	U			0.300	U		
HMX	µg/L	0.300	U			0.300	U			0.300	U			0.300	U			0.300	U		
Nitrobenzene	µg/L	0.300	U			0.300	U			0.300	U			0.300	U			0.300	U		
Nitroglycerin	µg/L	0.300	U			0.300	U			0.300	U			0.300	U			0.300	U		
PETN	µg/L	1.500	U			1.500	U			1.500	U			1.500	U			1.500	U		
RDX	µg/L	0.300	U			0.300	U			0.300	U			0.300	U			0.300	U		
Tetryl	µg/L	0.300	U			0.300	U			0.300	U			0.300	U			0.300	U		
Metals	**Units**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**
Antimony (Sb) (Dissolved)	µg/L	0.65		J+	n	0.27		J+	n	0.12	J	J-	o	0.16	J	J-	o	0.17	J	J-	o
Copper (Cu) (Dissolved)	µg/L	0.99		J+	n	1.2		J+	n	1.7	U	U	x	0.95	U	U	x	0.86	U	U	x
Lead (Pb) (Dissolved)	µg/L	0.24	U	U	x	0.53	U	U	x	0.32	J			0.15	U			0.19	J		
Zinc (Zn) (Dissolved)	µg/L	5.4	U	U	x	7.3	U	U	x	17.9	U	U	x	14	U	U	x	20.1	U	U	x
General Chemistry	**Units**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**
Hardness (Dissolved)	mg/L	334		J	q	247		J	q	319		J	q	337		J	q	336		J	q

Notes:

µg/L = micrograms per liter

DA/DB = Dry Season/Storm Event

ID = identification

mg/L = milligrams per liter

SW = surface water

WA/WB = 1st 24 Hour Composite/2nd 24 Hour Composite

Laboratory Qualifiers Used

J = Estimated value

U =Not detected

Data Validation Flags Used

J+ = Inorganic analyte present. Reported value may not be accurate or precise, but the result may be biased high.

J- = Inorganic analyte present. Reported value may not be accurate or precise, but the result may be biased low.

J = Analyte present. Reported value may not be accurate or precise.

U = Not detected substantially above the level reported in laboratory or field blanks.

UJ = Not detected substantially above the level reported in laboratory or field blanks, reported value may not be accurate or precise.

Reason Codes Used

n = ICS failure

m = MS/MSD recovery failure

o = Calibration blank contamination

q = Concentration exceeded the linear range

x = Field blank contamination

z = Preparation/Method blank contamination

Table C-1
Surface Water Sampling Results

Sample ID		DGSW03DA03				DGSW03WB03			
Sample Date		11/1/2011				5/10/2012			
Explosives	**Units**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**
1,3,5-Trinitrobenzene	µg/L	0.300	U			0.300	U		
1,3-Dinitrobenzene	µg/L	0.300	U			0.300	U		
2,4,6-Trinitrotoluene	µg/L	0.300	U			0.300	U		
2,4-Dinitrotoluene	µg/L	0.300	U			0.300	U		
2,6-Dinitrotoluene	µg/L	0.300	U			0.300	U		
2-Amino-4,6-Dinitrotoluene	µg/L	0.300	U			0.300	U		
2-Nitrotoluene	µg/L	0.300	U			0.300	U		
3-Nitrotoluene	µg/L	0.300	U			0.300	U		
4-Amino-2,6-Dinitrotoluene	µg/L	0.300	U			0.300	U		
4-Nitrotoluene	µg/L	0.300	U			0.300	U		
HMX	µg/L	0.300	U			0.300	U		
Nitrobenzene	µg/L	0.300	U			0.300	U		
Nitroglycerin	µg/L	0.300	U			0.300	U		
PETN	µg/L	1.500	U			1.500	U		
RDX	µg/L	0.300	U			0.300	U		
Tetryl	µg/L	0.300	U			0.300	U		
Metals	**Units**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**
Antimony (Sb) (Dissolved)	µg/L	0.20	U	U	o	0.20	U	UJ-	o
Copper (Cu) (Dissolved)	µg/L	0.19	J			0.37	J		
Lead (Pb) (Dissolved)	µg/L	0.17	J	J-	z	0.15	U		
Zinc (Zn) (Dissolved)	µg/L	5.5	J			10.4	J		
General Chemistry	**Units**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**	**Result**	**Laboratory Qualifier**	**Data Validation Flag**	**Reason Code**
Hardness (Dissolved)	mg/L	1.0	U			1.0	U		

Notes:

µg/L = micrograms per liter

DA/DB = Dry Season/Storm Event

ID = identification

mg/L = milligrams per liter

SW = surface water

WA/WB = 1st 24 Hour Composite/2nd 24 Hour Composite

Laboratory Qualifiers Used

J = Estimated value

U =Not detected

Data Validation Flags Used

J+ = Inorganic analyte present. Reported value may not be accurate or precise, but the result may be biased high.

J- = Inorganic analyte present. Reported value may not be accurate or precise, but the result may be biased low.

J = Analyte present. Reported value may not be accurate or precise.

U = Not detected substantially above the level reported in laboratory or field blanks.

UJ = Not detected substantially above the level reported in laboratory or field blanks, reported value may not be accurate or precise.

Reason Codes Used

n = ICS failure

m = MS/MSD recovery failure

o = Calibration blank contamination

q = Concentration exceeded the linear range

x = Field blank contamination

z = Preparation/Method blank contamination

Table C-2
Sediment Sampling Results

Sample ID		DGSD01DA01				DGSD01DA02				DGSD01DA03				DGSD02DA01				DGSD02DA02			
Sample Date		11/4/2011				11/4/2011				11/4/2011				11/4/2011				11/4/2011			
Metals	Units	Result	Laboratory Qualifier	Data Validation Flag	Reason Code	Result	Laboratory Qualifier	Data Validation Flag	Reason Code	Result	Laboratory Qualifier	Data Validation Flag	Reason Code	Result	Laboratory Qualifier	Data Validation Flag	Reason Code	Result	Laboratory Qualifier	Data Validation Flag	Reason Code
Antimony (Sb)	mg/Kg	0.089	U	U	z	0.086	U	U	z	0.076	U	U	z	0.068	U	U	z	0.070	U	U	z
Copper (Cu)	mg/Kg	2.8		J	s	2.5		J	s	2.3		J	s	1.8		J	s	1.9		J	s
Lead (Pb)	mg/Kg	3.3				3.1				2.9				2.8				2.7			
Zinc (Zn)	mg/Kg	13.9		J	s	13.1		J	s	12.4		J	s	10.4		J	s	10.8		J	s

Notes:
µg/L = micrograms per liter
DA = Dry Season
ID = identification
mg/kg = milligram per kilogram
SD = sediment

Laboratory Qualifiers Used
U =Not detected
Data Validation Flags Used
J = Analyte present. Reported value may not be accurate or precise.
U = Not detected substantially above the level reported in laboratory or field blanks.
Reason Codes Used
o = Calibration blank contamination
s = Serial dilution failure
z = Preparation/Method blank contamination

Table C-2
Sediment Sampling Results

Sample ID		DGSD02DA03				DGSD03DA01				DGSD03DA02				DGSD03DA03			
Sample Date		11/4/2011				11/3/2011				11/3/2011				11/3/2011			
Metals	Units	Result	Laboratory Qualifier	Data Validation Flag	Reason Code	Result	Laboratory Qualifier	Data Validation Flag	Reason Code	Result	Laboratory Qualifier	Data Validation Flag	Reason Code	Result	Laboratory Qualifier	Data Validation Flag	Reason Code
Antimony (Sb)	mg/Kg	0.057	U	U	z	0.085	U	U	z	0.075	U	U	z	0.084	U	U	z
Copper (Cu)	mg/Kg	1.5		J	s	2.2		J	s	2.2		J	s	2.4		J	s
Lead (Pb)	mg/Kg	2.3				2.9				2.8				3.0			
Zinc (Zn)	mg/Kg	9.1		J	s	12.1		J	s	11.7		J	s	12.4		J	s

Sample ID		DGSD01DA04			
Sample Date		11/4/2011			
Metals	Units	Result	Laboratory Qualifier	Data Validation Flag	Reason Code
Antimony (Sb)	µg/L	0.20	U	U	o
Copper (Cu)	µg/L	0.86			
Lead (Pb)	µg/L	0.23	J		
Zinc (Zn)	µg/L	5.0	U		

Notes:

µg/L = micrograms per liter
DA = Dry Season
ID = identification
mg/kg = milligram per kilogram
SD = sediment

Laboratory Qualifiers Used

U =Not detected

Data Validation Flags Used

J = Analyte present. Reported value may not be accurate or precise.
U = Not detected substantially above the level reported in laboratory or field blanks.

Reason Codes Used

o = Calibration blank contamination
s = Serial dilution failure
z = Preparation/Method blank contamination

Table C-3
Groundwater Sampling Results

Sample ID		DGGW07DA01				DGGW07DA02				DGGW07DB01			
Sample Date		11/3/2011				11/3/2011				1/6/2012			
Explosives	Units	Result	Laboratory Qualifier	Data Validation Flag	Reason Code	Result	Laboratory Qualifier	Data Validation Flag	Reason Code	Result	Laboratory Qualifier	Data Validation Flag	Reason Code
1,3,5-Trinitrobenzene	µg/L	0.300	U			0.300	U			0.300	U		
1,3-Dinitrobenzene	µg/L	0.300	U			0.300	U			0.300	U		
2,4,6-Trinitrotoluene	µg/L	0.300	U			0.300	U			0.300	U		
2,4-Dinitrotoluene	µg/L	0.300	U			0.300	U			0.300	U		
2,6-Dinitrotoluene	µg/L	0.300	U			0.300	U			0.300	U		
2-Amino-4,6-Dinitrotoluene	µg/L	0.300	U			0.300	U			0.300	U		
2-Nitrotoluene	µg/L	0.300	U			0.300	U			0.300	U		
3-Nitrotoluene	µg/L	0.300	U			0.300	U			0.300	U		
4-Amino-2,6-Dinitrotoluene	µg/L	0.300	U			0.300	U			0.300	U		
4-Nitrotoluene	µg/L	0.300	U			0.300	U			0.300	U		
HMX	µg/L	0.300	U			0.300	U			0.300	U		
Nitrobenzene	µg/L	0.300	U			0.300	U			0.300	U		
Nitroglycerin	µg/L	0.300	U			0.300	U			0.300	U		
PETN	µg/L	1.500	U			1.500	U			1.500	U		
RDX	µg/L	0.300	U			0.300	U			0.300	U		
Tetryl	µg/L	0.300	U			0.300	U			0.300	U		

Notes:

µg/L = micrograms per liter

DA = First Sampling Event/

DB = Second Sampling Event

DC = Third Sampling Event

GW = groundwater

ID = identification

Laboratory Qualifiers Used

U =Not detected

Table C-3
Groundwater Sampling Results

Sample ID		DGGW07DB02				DGGW07WC01				DGGW07WC02			
Sample Date		1/6/2012				5/8/2012				5/8/2012			
Explosives	Units	Result	Laboratory Qualifier	Data Validation Flag	Reason Code	Result	Laboratory Qualifier	Data Validation Flag	Reason Code	Result	Laboratory Qualifier	Data Validation Flag	Reason Code
1,3,5-Trinitrobenzene	µg/L	0.300	U			0.300	U			0.300	U		
1,3-Dinitrobenzene	µg/L	0.300	U			0.300	U			0.300	U		
2,4,6-Trinitrotoluene	µg/L	0.300	U			0.300	U			0.300	U		
2,4-Dinitrotoluene	µg/L	0.300	U			0.300	U			0.300	U		
2,6-Dinitrotoluene	µg/L	0.300	U			0.300	U			0.300	U		
2-Amino-4,6-Dinitrotoluene	µg/L	0.300	U			0.300	U			0.300	U		
2-Nitrotoluene	µg/L	0.300	U			0.300	U			0.300	U		
3-Nitrotoluene	µg/L	0.300	U			0.300	U			0.300	U		
4-Amino-2,6-Dinitrotoluene	µg/L	0.300	U			0.300	U			0.300	U		
4-Nitrotoluene	µg/L	0.300	U			0.300	U			0.300	U		
HMX	µg/L	0.300	U			0.300	U			0.300	U		
Nitrobenzene	µg/L	0.300	U			0.300	U			0.300	U		
Nitroglycerin	µg/L	0.300	U			0.300	U			0.300	U		
PETN	µg/L	1.500	U			1.500	U			1.500	U		
RDX	µg/L	0.300	U			0.300	U			0.300	U		
Tetryl	µg/L	0.300	U			0.300	U			0.300	U		

Notes:

µg/L = micrograms per liter

DA = First Sampling Event/

DB = Second Sampling Event

DC = Third Sampling Event

GW = groundwater

ID = identification

Laboratory Qualifiers Used

U =Not detected

Table C-3
Groundwater Sampling Results

Sample ID		DGGW08DA01				DGGW08DB01				DGGW08WC01			
Sample Date		11/3/2011				1/6/2012				5/8/2012			
Explosives	Units	Result	Laboratory Qualifier	Data Validation Flag	Reason Code	Result	Laboratory Qualifier	Data Validation Flag	Reason Code	Result	Laboratory Qualifier	Data Validation Flag	Reason Code
1,3,5-Trinitrobenzene	µg/L	0.300	U			0.300	U			0.300	U		
1,3-Dinitrobenzene	µg/L	0.300	U			0.300	U			0.300	U		
2,4,6-Trinitrotoluene	µg/L	0.300	U			0.300	U			0.300	U		
2,4-Dinitrotoluene	µg/L	0.300	U			0.300	U			0.300	U		
2,6-Dinitrotoluene	µg/L	0.300	U			0.300	U			0.300	U		
2-Amino-4,6-Dinitrotoluene	µg/L	0.300	U			0.300	U			0.300	U		
2-Nitrotoluene	µg/L	0.300	U			0.300	U			0.300	U		
3-Nitrotoluene	µg/L	0.300	U			0.300	U			0.300	U		
4-Amino-2,6-Dinitrotoluene	µg/L	0.300	U			0.300	U			0.300	U		
4-Nitrotoluene	µg/L	0.300	U			0.300	U			0.300	U		
HMX	µg/L	0.300	U			0.300	U			0.300	U		
Nitrobenzene	µg/L	0.300	U			0.300	U			0.300	U		
Nitroglycerin	µg/L	0.300	U			0.300	U			0.300	U		
PETN	µg/L	1.500	U			1.500	U			1.500	U		
RDX	µg/L	0.300	U			0.300	U			0.300	U		
Tetryl	µg/L	0.300	U			0.300	U			0.300	U		

Notes:

µg/L = micrograms per liter

DA = First Sampling Event/

DB = Second Sampling Event

DC = Third Sampling Event

GW = groundwater

ID = identification

Laboratory Qualifiers Used

U =Not detected

Table C-4
Sediment SEM, AVS, and TOC Analysis (Dry Season)

Sample ID	DGSD01DA01		DGSD01DA02		DGSD01DA03		DGSD02DA01		DGSD02DA02		DGSD02DA03		DGSD03DA01		DGSD03DA02		DGSD03DA03	
Date	11/4/2011		11/4/2011		11/4/2011		11/4/2011		11/4/2011		11/4/2011		11/4/2011		11/4/2011		11/4/2011	
	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
[1]Σ SEM - µmol/g	0.1495	*	0.1403	*	0.1697	*	0.1833	*	0.2133	*	0.3102	*	0.3072	*	0.6424	*	0.3681	*
Acid Volatile Sulfide -µmol/g_{sed}	0.062	U	0.067	U	0.075	U	0.066	U	0.073	U	0.069	U	0.071	U	0.13		0.072	U
[1]Σ SEM/AVS	2.411		2.095		2.263		2.778		2.922		4.495		4.327		4.942		5.113	
TOC - mg/kg	808		718		4,300		595		766		1,120		5,340		11,100		2,040	

Notes:

* = Sum of SEM metals was not reported by the laboratory. Therefore, no qualifier is provided by the laboratory. Although, individual metals may have been qualified.

[1] = When the laboratory reported a non-detect value for an SEM metal or AVS, the MDL concentration was used.

µmol/g = micromole per gram

AVS = acid volitel sulfide

DA = Dry Season

ID = indentification

mg/kg = milligram per kilogram

SEM = simultaneoouly extracted metals

SD = sediment

TOC = total organic carbon

Data Validation Flags Used

J = Analyte present. Reported value may not be accurate or precise.

U = Not detected substantially above the level reported in laboratory or field blanks.

Table C-5
Grain Size (Dry Season)

Sampling Location	% Gravel ≥ 4.75 mm	% Sand 0.076 mm - 4.74 mm	% Silt, Clay, Colloids < 0.075 mm
DG01	35	62.8	2.2
DG02	0.47	97.2	2.4
DG03	52.4	23.1	24.5

Notes:

= number

DA = Dry Season

g = gram

SD = sediment

Table C-6
Course Fraction (Dry Season)

Sample Location	Sample Identification	Metal					
		Magnetic		Non-Magnetic			
				Lead		Non Lead	
		Weight (g)	#Parts	Weight (g)	#Parts	Weight (g)	#Parts
DGSD01	DGSD01DA01	0.00	0	0.00	0	0.00	0
	DGSD01DA02	0.00	0	0.00	0	0.00	0
	DGSD01DA03	0.00	0	0.00	0	0.00	0
DGSD02	DGSD02DA01	0.00	0	0.00	0	4.02	1
	DGSD02DA02	0.00	0	0.00	0	0.00	0
	DGSD02DA03	0.00	0	0.00	0	0.00	0
DGSD03	DGSD03DA01	0.00	0	0.00	0	0.00	0
	DGSD03DA02	0.00	0	0.00	0	0.00	0
	DGSD03DA03	0.00	0	0.00	0	0.00	0

Notes:

= number

DA = Dry Season

g = gram

SD = sediment

APPENDIX D
DATA USABILITY SUMMARY REPORTS

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DATA VALIDATION REPORT - Level III Review

SDG No.:	**ARF 66214**	**Fraction:**	**Metals**
Laboratory:	**APPL**	**Project:**	**Camp Dodge/15302625.40000**
Reviewer:	**Naoum Tavantzis**	**Date:**	**05/14/12**

This report presents the findings of a review of the referenced data. The report consists of this summary, a listing of the samples included in the review, copies of data reports with data qualifying flags applied, the data review checklist, supporting documentation, and an explanation of the data qualifying flags employed. The review performed is based on the project-specific QAPP, and qualified according to the USEPA CLP National Functional Guidelines for Organic (June 2008) and Inorganic (January 2010) Superfund Data Review. Modifications reflect the level of review requested, the specifications of the project-specific QAPP, and the specifics of the analytical methods employed.

Major Anomalies: None.

Minor Anomalies: During the metals analysis, the following blanks displayed detections with an absolute value greater than the detection limit for the following analytes:

Date Analyzed	Time	Blank	Analyte	Concentration	Units
11/18/11	1100	Initial Calibration	Antimony	0.03	µg/L
	1208	111114A-MB		0.037	
			Lead	-0.23	
	1732	DGSW03DA03 (Equipment Blank)	Antimony	0.041	
			Copper	0.19	
			Lead	0.17	
			Zinc	5.5	
	1916	DGSD01DA04 (Equipment Blank)	Antimony	0.012	
			Copper	0.86	
			Lead	0.23	
	2004	Continuing Calibration	Antimony	0.02	
12/16/11	0213	111128A-MB		0.055	mg/Kg

The associated positive field sample results less than five times the calibration blank detection were qualified U,o, while positive field sample results less than five times the method blank detections were qualified U,z. The antimony detections in equipment blanks DGSD01DA04 and DGSW03DA03 (submitted in sample delivery group ARF 66188) were previously qualified due to a calibration blank detections and no further data qualifying action was taken based on this detection. The associated field sample results less than five times the remaining equipment blank detections were qualified U,x. When the sample concentration was less than the limit of detection (LOD), the sample associated with the blank detection was reported as non-detect at the LOD. When the sample concentration was greater than the LOD, the LOD and/or the LOQ were elevated to the concentration detected. The serial dilution performed on field sample DGSD03DA01 displayed percent differences greater than the control limit of 10% for copper at 14.2% and zinc at 15.1%. The associated field sample results were positive and were qualified J,s. The matrix spike performed on field sample DGSW03DA01, submitted in sample delivery group ARF 66188, displayed percent recoveries less than

the lower control limit of 80% for copper at 76.1%, lead at 77.1% and zinc at 73.1%. The associated surface water sample results for copper, lead, and zinc were positive and flagged J-,m, unless previously flagged for blank detections. The interference check standard displayed detections above the limit of detection for the following:

Date Analyzed	Analyte	Concentration	Units
11/18/11	Antimony	2.692	µg/L
	Copper	2.866	
	Lead	3.805	
	Zinc	5.297	
12/15/11	Antimony	1.859	
	Copper	0.8301	
	Lead	0.474	

Several field samples displayed concentrations of calcium at levels approximate to those found in the interference check standard spiked sample. Positive associated field sample results less than three times the antimony, copper, lead, or zinc values reported in the interference check standard were previously qualified due to a blank detection or a serial dilution failure; no further data qualifying action was taken. The calcium results in all surface water field samples displayed concentrations greater than the linear range of the instrument. Since the hardness calculation is based on magnesium and calcium concentrations, the associated hardness results were qualified J,q.

Correctable Anomalies: None.

Comments: The hardness analysis for field sample DGSD01DA04 was cancelled by the field sampler. On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of anomalies discussed above. All data are usable, as qualified, for their intended purpose based on the data reviewed.

Signed: _____

Naoum Tavantzis

Camp Dodge

Job #: 15302625.40000

Laboratory: APPL
SDG #: ARF 66214

Sample	Client ID	Sample Type	Collected	Matrix	Metals
AY50187	DGSD03DA01	Sample	3-Nov-11	Sediment	X
AY50188	DGSD03DA02	Duplicate	3-Nov-11	Sediment	X
AY50189	DGSD03DA03	Triplicate	3-Nov-11	Sediment	X
AY50190	DGSW01DB01	Sample	3-Nov-11	Water	X
AY50191	DGSW01DB02	Duplicate	3-Nov-11	Water	X
AY50192	DGSW01DA01	Sample	4-Nov-11	Water	X
AY50193	DGSD01DA04	Equipment Blank	4-Nov-11	Water	X
AY50194	DGSD02DA01	Sample	4-Nov-11	Sediment	X
AY50195	DGSD02DA02	Duplicate	4-Nov-11	Sediment	X
AY50196	DGSD02DA03	Triplicate	4-Nov-11	Sediment	X
AY50197	DGSD01DA01	Sample	4-Nov-11	Sediment	X
AY50198	DGSD01DA02	Duplicate	4-Nov-11	Sediment	X
AY50199	DGSD01DA03	Triplicate	4-Nov-11	Sediment	X

Camp Dodge
Duplicate Results
ARF 66214

Client Sample ID:				DGSW01DB01		DGSW01DB02					
Date Sampled:				11/3/11		11/3/11					
	Units	RL	5xRL	Sample Conc		Duplicate Conc		%RPD	Delta	2xRL	Pass/ Fail
Inorganics											
Antimony, Dissolved	ug/L	0.2	1	0.13	J	0.11	J	16.7%	**0.02**	0.4	Pass
Copper, Dissolved	ug/L	0.5	2.5	0.93		1.0		7.3%	**0.07**	1	Pass
Lead, Dissolved	ug/L	0.5	2.5	0.18	J	0.22	J	20.0%	**0.04**	1	Pass
Zinc, Dissolved	ug/L	50	250	3.8	J	3.7	J	2.7%	**0.1**	100	Pass
Hardness	mg/L	1.0	5	305		300		**1.7%**	5	2	Pass

Control limit [sample]>5xRL use 35%

[sample]<5xRL use Delta<2xRL

Camp Dodge
Triplicate Results
ARF 66214

Client Sample ID:				DGSD03DA01		DGSD03DA02		DGSD03DA03						
Date Sampled:				11/3/11		11/3/11		11/3/11						
	Units	RL	5xRL	Sample Conc		Duplicate Conc		Triplicate Conc		Average	% RSD	Average Deviation	4x RL	Pass/ Fail
Inorganics														
Antimony	mg/Kg	5	25	0.085	J	0.075	J	0.084	J	0.1	6.8%	**0.00**	**20**	Pass
Copper	mg/Kg	5	25	2.2		2.2		2.4		2.3	5.1%	**0.09**	**20**	Pass
Lead	mg/Kg	5	25	2.9		2.8		3.0		2.9	3.4%	**0.07**	**20**	Pass
Zinc	mg/Kg	50	250	12.1		11.7		12.4		12.1	2.9%	**0.24**	**200**	Pass

Client Sample ID:				DGSD02DA01		DGSD02DA02		DGSD02DA03						
Date Sampled:				11/4/11		11/4/11		11/4/11						
	Units	RL	5xRL	Sample Conc		Duplicate Conc		Triplicate Conc		Average	% RSD	Average Deviation	4x RL	Pass/ Fail
Inorganics														
Antimony	mg/Kg	5	25	0.068	J	0.070	J	0.057	J	0.1	10.8%	**0.01**	**20**	Pass
Copper	mg/Kg	5	25	1.8		1.9		1.5		1.7	12.0%	**0.16**	**20**	Pass
Lead	mg/Kg	5	25	2.8		2.7		2.3		2.6	10.2%	**0.20**	**20**	Pass
Zinc	mg/Kg	50	250	10.4		10.8		9.1		10.1	8.8%	**0.67**	**200**	Pass

Client Sample ID:				DGSD01DA01		DGSD01DA02		DGSD01DA03						
Date Sampled:				11/4/11		11/4/11		11/4/11						
	Units	RL	5xRL	Sample Conc		Duplicate Conc		Triplicate Conc		Average	% RSD	Average Deviation	4x RL	Pass/ Fail
Inorganics														
Antimony	mg/Kg	5	25	0.089	J	0.086	J	0.076	J	0.1	8.1%	**0.01**	**20**	Pass
Copper	mg/Kg	5	25	2.8		2.5		2.3		2.5	9.9%	**0.18**	**20**	Pass
Lead	mg/Kg	5	25	3.3		3.1		2.9		3.1	6.5%	**0.13**	**20**	Pass
Zinc	mg/Kg	50	250	13.9		13.1		12.4		13.1	5.7%	**0.51**	**200**	Pass

Control limit [sample]>5xRL use 60%

[sample]<5xRL use Average Deviation <4xRL

Metals Analysis

URS Group
849 International Dr, Ste 320
Linthicum, MD 21090

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Andrea Sansom
Project: 15302625.30000 ORA Ph II Camp Dodge
Sample ID: DGSD03DA01
Sample Collection Date: 11/03/11

ARF: 66214
APPL ID: AY50187

Method	Analyte	Result	LOQ	LOD	DL	Units	DF	Prep Date	Analysis Date
6020	ANTIMONY (SB)	0.085 NAT 4/4/12 U,2	0.5	~~0.04~~ 0.085 NAT 4/4/12	0.03	mg/Kg	1	11/28/11	12/16/11
6020	COPPER (CU)	2.2 J,s	0.5	0.05	0.04	mg/Kg	1	11/28/11	12/16/11
6020	LEAD (PB)	2.9	0.5	0.04	0.02	mg/Kg	1	11/28/11	12/16/11
6020	ZINC (ZN)	12.1 J,s	5.0	0.50	0.13	mg/Kg	1	11/28/11	12/16/11

J = Estimated value.

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Metals Analysis

URS Group
849 International Dr, Ste 320
Linthicum, MD 21090

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Andrea Sansom
Project: 15302625.30000 ORA Ph II Camp Dodge
Sample ID: DGSD03DA02
Sample Collection Date: 11/03/11

ARF: 66214
APPL ID: AY50188

Method	Analyte	Result	LOQ	LOD	DL	Units	DF	Prep Date	Analysis Date
6020	ANTIMONY (SB)	0.075 ~~JU~~ MT 4/4/12 U,Z	0.5	~~0.04~~ 0.075 MT 4/4/12	0.03	mg/Kg	1	11/28/11	12/16/11
6020	COPPER (CU)	2.2 J,S	0.5	0.05	0.04	mg/Kg	1	11/28/11	12/16/11
6020	LEAD (PB)	2.8	0.5	0.04	0.02	mg/Kg	1	11/28/11	12/16/11
6020	ZINC (ZN)	11.7 J,S	5.0	0.50	0.13	mg/Kg	1	11/28/11	12/16/11

J = Estimated value.

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Metals Analysis

URS Group
849 International Dr, Ste 320
Linthicum, MD 21090

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Andrea Sansom
Project: 15302625.30000 ORA Ph II Camp Dodge
Sample ID: DGSD03DA03
Sample Collection Date: 11/03/11

ARF: 66214
APPL ID: AY50189

Method	Analyte	Result	LOQ	LOD	DL	Units	DF	Prep Date	Analysis Date
6020	ANTIMONY (SB)	MAT 4/4/12 0.084 ~~U~~ U,2	0.5	0.084 ~~0.04~~ MAT 4/4/12	0.03	mg/Kg	1	11/28/11	12/16/11
6020	COPPER (CU)	2.4 J,S	0.5	0.05	0.04	mg/Kg	1	11/28/11	12/16/11
6020	LEAD (PB)	3.0	0.5	0.04	0.02	mg/Kg	1	11/28/11	12/16/11
6020	ZINC (ZN)	12.4 J,S	5.0	0.50	0.13	mg/Kg	1	11/28/11	12/16/11

J = Estimated value.

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APPL-F1-SC-NoMC-URS-REG MDLs

Metals Analysis

URS Group
849 International Dr, Ste 320
Linthicum, MD 21090

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Andrea Sansom
Project: 15302625.30000 ORA Ph II Camp Dodge
Sample ID: DGSW01DB01
Sample Collection Date: 11/03/11

ARF: 66214
APPL ID: AY50190

Method	Analyte	Result	LOQ	LOD	DL	Units	DF	Prep Date	Analysis Date
SM2340B/Z	HARDNESS	305 J,q	1.0		1.0	mg/L	1	12/16/11	12/16/11
6020	ANTIMONY (SB) (DISSOLVE	NAT 0.2U ~~0.13J~~ U,2	0.2	0.20	0.01	ug/L	1	11/14/11	11/18/11
6020	COPPER (CU) (DISSOLVED)	4/4/12 0.93 U U,x	~~0.5~~ 0.93	~~0.25~~ 0.93	0.13	ug/L	1	11/14/11	11/18/11
6020	LEAD (PB) (DISSOLVED)	0.18 JU U,x	0.5	~~0.15~~ NAT 5/4/12 0.18	0.11	ug/L	1	11/14/11	11/18/11
6020	ZINC (ZN) (DISSOLVED)	4/4/12 NAT ~~3.8J~~ 5.0U U,x	50.0	5.00	2.30	ug/L	1	11/14/11	11/18/11

J = Estimated value.

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APPL-F1-SC-NoMC-URS-REG MDLs

Metals Analysis

URS Group
849 International Dr, Ste 320
Linthicum, MD 21090

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Andrea Sansom
Project: 15302625.30000 ORA Ph II Camp Dodge
Sample ID: DGSW01DB02
Sample Collection Date: 11/03/11

ARF: 66214
APPL ID: AY50191

Method	Analyte	Result	LOQ	LOD	DL	Units	DF	Prep Date	Analysis Date
SM2340B/Z	HARDNESS	300 J,q	1.0		1.0	mg/L	1	12/16/11	12/16/11
6020	ANTIMONY (SB) (DISSOLVE	NAT 4/4/12 ~~0.11J~~ 0.20 U,o	0.2	0.20	0.01	ug/L	1	11/14/11	11/18/11
6020	COPPER (CU) (DISSOLVED)	1.0 J-,m	0.5	0.25	0.13	ug/L	1	11/14/11	11/18/11
6020	LEAD (PB) (DISSOLVED)	0.22 ~~J~~ U NAT 4/4/12 U,x	0.5	NAT 5/4/12 ~~0.15~~ 0.22	0.11	ug/L	1	11/14/11	11/18/11
6020	ZINC (ZN) (DISSOLVED)	~~3.7J~~ 5.0U U,x	50.0	5.00	2.30	ug/L	1	11/14/11	11/18/11

J = Estimated value.

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APPL-F1-SC-NoMC-URS-REG MDLs

Metals Analysis

URS Group
849 International Dr, Ste 320
Linthicum, MD 21090

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Andrea Sansom
Project: 15302625.30000 ORA Ph II Camp Dodge
Sample ID: DGSW01DA01
Sample Collection Date: 11/04/11

ARF: 66214
APPL ID: AY50192

Method	Analyte	Result	LOQ	LOD	DL	Units	DF	Prep Date	Analysis Date
SM2340B/Z	HARDNESS	285 J,q	1.0		1.0	mg/L	1	12/16/11	12/16/11
6020	ANTIMONY (SB) (DISSOLVE	NAT 4/4/12 ~~0.097 J~~ 0.2U U,r	0.2	0.20	0.01	ug/L	1	11/14/11	11/18/11
6020	COPPER (CU) (DISSOLVED)	0.76 U U,x	~~0.5~~ 0.70	NAT 5/4/12 ~~0.25~~ 0.16	0.13	ug/L	1	11/14/11	11/18/11
6020	LEAD (PB) (DISSOLVED)	0.39 J U U,x	0.5	~~0.15~~ 0.31	0.11	ug/L	1	11/14/11	11/18/11
6020	ZINC (ZN) (DISSOLVED)	NAT 4/4/12 ~~2.6 J~~ 5.0U U,x	50.0	5.00	2.30	ug/L	1	11/14/11	11/18/11

J = Estimated value.

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APPL-F1-SC-NoMC-URS-REG MDLs

Metals Analysis

URS Group
849 International Dr, Ste 320
Linthicum, MD 21090

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Andrea Sansom
Project: 15302625.30000 ORA Ph II Camp Dodge
Sample ID: DGSD01DA04
Sample Collection Date: 11/04/11

ARF: 66214
APPL ID: AY50193

Method	Analyte	Result	LOQ	LOD	DL	Units	DF	Prep Date	Analysis Date
~~SM2340B/Z~~	~~HARDNESS~~	~~U~~	~~1.0~~		~~1.0~~	~~mg/L~~	~~1~~	~~12/16/11~~	~~12/16/11~~
6020	ANTIMONY (SB) (DISSOLVE	0.012 J	0.2	0.20	0.01	ug/L	1	11/14/11	11/18/11
6020	COPPER (CU) (DISSOLVED)	0.86	0.5	0.25	0.13	ug/L	1	11/14/11	11/18/11
6020	LEAD (PB) (DISSOLVED)	0.23 J	0.5	0.15	0.11	ug/L	1	11/14/11	11/18/11
6020	ZINC (ZN) (DISSOLVED)	5.00 U	50.0	5.00	2.30	ug/L	1	11/14/11	11/18/11

J = Estimated value.

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APPL-F1-SC-NoMC-URS-REG MDLs

Metals Analysis

URS Group
849 International Dr, Ste 320
Linthicum, MD 21090

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Andrea Sansom
Project: 15302625.30000 ORA Ph II Camp Dodge
Sample ID: DGSD02DA01
Sample Collection Date: 11/04/11

ARF: 66214
APPL ID: AY50194

Method	Analyte	Result	LOQ	LOD	DL	Units	DF	Prep Date	Analysis Date
6020	ANTIMONY (SB)	0.068 NAT 4/4/12 U,2	0.5	~~0.04~~ 0.068 NAT 4/4/12	0.03	mg/Kg	1	11/28/11	12/16/11
6020	COPPER (CU)	1.8 J,S	0.5	0.05	0.04	mg/Kg	1	11/28/11	12/16/11
6020	LEAD (PB)	2.8	0.5	0.04	0.02	mg/Kg	1	11/28/11	12/16/11
6020	ZINC (ZN)	10.4 J,S	5.0	0.50	0.13	mg/Kg	1	11/28/11	12/16/11

J = Estimated value.

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APPL-F1-SC-NoMC-URS-REG MDLs

Metals Analysis

URS Group
849 International Dr, Ste 320
Linthicum, MD 21090

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Andrea Sansom
Project: 15302625.30000 ORA Ph II Camp Dodge
Sample ID: DGSD02DA02
Sample Collection Date: 11/04/11

ARF: 66214
APPL ID: AY50195

Method	Analyte	Result	LOQ	LOD	DL	Units	DF	Prep Date	Analysis Date
6020	ANTIMONY (SB)	0.070 NU U,2	0.5	~~0.04~~ 0.07 NAT 4/4/12	0.03	mg/Kg	1	11/28/11	12/16/11
6020	COPPER (CU)	NAT 4/4/12 1.9 J,s	0.5	0.05	0.04	mg/Kg	1	11/28/11	12/16/11
6020	LEAD (PB)	2.7	0.5	0.04	0.02	mg/Kg	1	11/28/11	12/16/11
6020	ZINC (ZN)	10.8 J,s	5.0	0.50	0.13	mg/Kg	1	11/28/11	12/16/11

J = Estimated value.

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APPL-F1-SC-NoMC-URS-REG MDLs

Metals Analysis

URS Group
849 International Dr, Ste 320
Linthicum, MD 21090

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Andrea Sansom
Project: 15302625.30000 ORA Ph II Camp Dodge
Sample ID: DGSD02DA03
Sample Collection Date: 11/04/11

ARF: 66214
APPL ID: AY50196

Method	Analyte	Result	LOQ	LOD	DL	Units	DF	Prep Date	Analysis Date
6020	ANTIMONY (SB)	0.057 J U 1/2	0.5	~~0.04~~ 0.057	0.03	mg/Kg	1	11/28/11	12/16/11
6020	COPPER (CU)	1.5 J,S	0.5	0.05	0.04	mg/Kg	1	11/28/11	12/16/11
6020	LEAD (PB)	2.3	0.5	0.04	0.02	mg/Kg	1	11/28/11	12/16/11
6020	ZINC (ZN)	9.1 J,S	5.0	0.50	0.13	mg/Kg	1	11/28/11	12/16/11

J = Estimated value.

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APPL-F1-SC-NoMC-URS-REG MDLs

Metals Analysis

URS Group
849 International Dr, Ste 320
Linthicum, MD 21090

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Andrea Sansom
Project: 15302625.30000 ORA Ph II Camp Dodge
Sample ID: DGSD01DA01
Sample Collection Date: 11/04/11

ARF: 66214
APPL ID: AY50197

Method	Analyte	Result	LOQ	LOD	DL	Units	DF	Prep Date	Analysis Date
6020	ANTIMONY (SB)	0.089 U U.2	0.5	0.089 ~~0.04~~	0.03	mg/Kg	1	11/28/11	12/16/11
6020	COPPER (CU)	2.8 J,s	0.5	0.05	0.04	mg/Kg	1	11/28/11	12/16/11
6020	LEAD (PB)	3.3	0.5	0.04	0.02	mg/Kg	1	11/28/11	12/16/11
6020	ZINC (ZN)	13.9 J,s	5.0	0.50	0.13	mg/Kg	1	11/28/11	12/16/11

J = Estimated value.

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APPL-F1-SC-NoMC-URS-REG MDLs

Metals Analysis

URS Group
849 International Dr, Ste 320
Linthicum, MD 21090

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Andrea Sansom
Project: 15302625.30000 ORA Ph II Camp Dodge
Sample ID: DGSD01DA02
Sample Collection Date: 11/04/11

ARF: 66214
APPL ID: AY50198

Method	Analyte	Result	LOQ	LOD	DL	Units	DF	Prep Date	Analysis Date
6020	ANTIMONY (SB)	0.086 ~~J~~ U U,2 NAT 4/4/12	0.5	~~0.04~~ 0.086 NAT 4/4/12	0.03	mg/Kg	1	11/28/11	12/16/11
6020	COPPER (CU)	2.5 J,3	0.5	0.05	0.04	mg/Kg	1	11/28/11	12/16/11
6020	LEAD (PB)	3.1	0.5	0.04	0.02	mg/Kg	1	11/28/11	12/16/11
6020	ZINC (ZN)	13.1 J,3	5.0	0.50	0.13	mg/Kg	1	11/28/11	12/16/11

J = Estimated value.

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APPL-F1-SC-NoMC-URS-REG MDLs

Metals Analysis

URS Group
849 International Dr, Ste 320
Linthicum, MD 21090

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Andrea Sansom
Project: 15302625.30000 ORA Ph II Camp Dodge
Sample ID: DGSD01DA03
Sample Collection Date: 11/04/11

ARF: 66214
APPL ID: AY50199

Method	Analyte	Result	LOQ	LOD	DL	Units	DF	Prep Date	Analysis Date
6020	ANTIMONY (SB)	0.076 ~~J~~ NAT 4/4/12 U,2	0.5	~~0.04~~ 0.076 NAT 4/4/12	0.03	mg/Kg	1	11/28/11	12/16/11
6020	COPPER (CU)	2.3 J,5	0.5	0.05	0.04	mg/Kg	1	11/28/11	12/16/11
6020	LEAD (PB)	2.9	0.5	0.04	0.02	mg/Kg	1	11/28/11	12/16/11
6020	ZINC (ZN)	12.4 J,5	5.0	0.50	0.13	mg/Kg	1	11/28/11	12/16/11

J = Estimated value.

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APPL-F1-SC-NoMC-URS-REG MDLs

DATA VALIDATION WORKSHEET
INORGANIC - ICPMS (Sb, Cu, Pb, Zn)

SDG No.: ARF 66214
Project No.: 15302625.40000

Project: Camp Dodge
Reviewer: Naoum Tavantzis
Date: May 9, 2012

_X_ USEPA CLP National Functional Guidelines for Superfund Inorganic Methods Data Review
_X_ SW-846/DoD QSM v4.2
_X_ Project QAPP/SAP

1.0 Chain of Custody/Sample Condition/Raw Data		**Yes**	**No**	**NA**
1.1	Do Chain-of-Custody forms list all samples which were analyzed?	X		
1.2	Are all Chain-of-Custody forms signed, indicating sample chain-of-custody was maintained?	X		
1.3	Do the traffic Reports, chain-of-custody, and lab narrative indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data?		X	
1.4	Does sample preservation, collection and storage meet method requirement? (For metal: water samples: with Nitric Acid to pH < 2, and soil/sediment samples: 4 ^{O}C $\pm$ 2 ^{O}C). Action: Professional judgement or J-(+)/R(-)	X		
1.5	Are the digestion logs present and complete with pH values, sample weights, dilutions, final volumes. % solids (for soil samples), and preparation dates? For any missing or incomplete documentation, contact the laboratory for explanation/resubmittal.	X		
1.6	Were the sediment samples dryed and sieved appropiately?	X		
1.7	Are the measurement read out records legible and complete (properly labeled, and include all samples and QC)?	X		

Note: _____

2.0 Holding Time		**Yes**	**No**	**NA**
2.1	Have any technical holding times of 6 months, determined from date of collection to date of analysis, been exceeded?		X	
	Action: Use professional judgement, then J-(+)/R(-)			

Note: _____

3.0 Instrument Calibration

		Yes	No	NA
3.1	Are the Quartlery LOD establishment forms provided for each instrument?	X		
3.2	Is the signal/noise ratio less than 3:1? If not, is the determination repeated at a higher concentration?	X		
3.3	Are sufficient standards of a blank + one standard & a RL standard OR 3 standards and a blank with one standard at the RL included in the calibration curve? If not, qualify with "R".	X		
3.3.a	If more than one standard is used, are the correlation coefficients > 0.995? Action: J(+)/UJ(-).	X		
3.4	Was an initial calibration check standard (ICV) analyzed immediately after instrument system had been calibrated? Action: If no, all associated data are rejected "R".	X		
3.5	Was continuing calibration (CCV) analyzed at a minimum frequency of 10% (every 10 samples) during and at the end of the analytical run? If not, document and flag based on professional judgement.	X		
3.6	Are all calibration standard percent recoveries within the control limits of 90%-110%? ICV and CCV:	X		
	< 75% 75%-89% 111%-125% 125%<%R<160% >160%			
	Action: J-(+)/R(-) J-(+)/UJ(-) J+(+) J+(+)(maybe R(+)) R(+)			
3.7	Was the high-level check standard included within 10% of the true value?	X		

Note: _____

4.0 Blanks

		Yes	No	NA
4.1	Were method blank (MB) prepared at the appropriate frequency (one / 20 samples, batch, or matrix)?	X		
4.2	Were calibration blanks (ICB and CCBs) analyzed immediately after each ICV and CCVs?	X		
4.3	Are there reported ICB/CCBs values > DL? If yes, refer to action table.	X		
4.4	Are there negative ICB/CCB blank results with the absolute value > DL? If yes, refer to action table.	X		
4.5	Are there reported MB values > DL? If yes, refer to action table.	X		
4.6	Are there negative method blank results with the absolute value > LOD? If yes, refer to action table.	X		
4.7	Are there reported field blank or equipment blank > ± DL? If yes, refer to action table.	X		

Blank Type	Blank Concentration	Sample Concentration		Report Concentrations	Validation Flag
ICB/CCB MB/EQB	positive > LOQ	[sample] < 5x [blank]	DL < [sample] < LOD	LOD	U
			LOD < [sample] < LOQ	[sample], elevate LOD	U
			LOQ < [sample]	[sample], elevate LOD & LOQ	U
		[sample] < 10x [blank]	LOQ < [sample]	[sample]	J+
	positive ≤ LOQ	[sample] < 5x [blank]	DL < [sample] < LOD	LOD	U
			LOD < [sample] < LOQ	[sample], elevate LOD	U
			LOQ < [sample]	[sample], elevate LOD & LOQ	U
	|negative| > LOD	[sample] < 10x LOQ		[sample]	J-/UJ
ICB/CCB	|negative| > DL	[sample] < 10x LOQ		[sample]	J-/UJ

Note: When appropiate, elevate LODs/LOQs to concentration detected

5.0 Laboratory Control Sample (LCS)		Yes	No	NA
5.1	Was an LCS prepared and analyzed at the correct frequency (one / 20 samples, batch, or matrix)? Action: If no, J(+)/R(-) any sample not associated with LCS results.	X		
5.2	Is any LCS recovery outside the control limits?		X	
	% Recoveries: <40% 40%-LCL% >UCL,<130% >150%			
	J-(+)/R(-) J-(+)/UJ(-) J+(+) R(+/-)			

Note:

6.0 ICP Interference Check Sample (ICS)		Yes	No	NA
6.1	Was ICS analyzed at beginning of each ICP run and every 12 hours?	X		
6.2	Are the ICS AB recoveries within 80% - 120%?	X		
6.3	Are the results for unspiked analytes (in ICS A) <LOQ?		X	
6.4	If not, are the associated sample Al, Ca, Fe, and Mg concentrations less than the level in the ICS?		X	
	Action: Not Spiked Analytes Spiked analytes			
	False negative False Positive < 50% 50%-79% 120%			
	≥DL, but <10x |-[ICS]| ≥DL			
	J-(+)/UJ(-) J+(+) R(-) J-(+)/UJ(-) J+(+)			

Note:

7.0 Laboratory Duplicates (MD)		Yes	No	NA
7.1	Were Laboratory duplicates prepared and analyzed at the correct frequency (one / 20 samples, batch, or matrix)? If no, J(+), using professional judgement, analytes not associated with duplicate results.	X		
7.2	Are all RPDs less than 20%? If no, qualify all associated field samples J(+)/UJ(-) for the batch.	X		

Note:

8.0 Matrix/Matrix Spike Duplicate		Yes	No	NA
8.1	Was a spiked sample prepared and analyzed at the correct frequency (one / 20 samples, batch, or matrix)? If not, J(+) with professional judgement.	X		
8.2	Are any MS/MSD recovery outside the control limits?	X		
	For all analytes with sample concentration ,4x spike concentration:			
	Matrix Spike %R <30% 30%-74% >125%			
	No PDS, Action: J-(+)/R(-, reanalyze) J-(+)/UJ(-) J+(+)			
	Matrix Spike %R <30% 30%-74% >125%			
	PDS%R <75% ≥75% <75% ≥75% <125% ≥125%			
	Action J-(+)/R(-) J(+)/UJ(-) J-(+)/UJ(-) J(+)/UJ(-) J(+) J+(+)			
8.3	Are all RPDs less than 20%? If no, qualify all associated field samples J(+) for the batch.	X		

Note:

9.0 ICP/AA Serial Dilutions (Not for Mercury Analysis)		Yes	No	NA
9.1	Were serial dilutions performed?	X		
9.2	Was a five-fold dilution performed?	X		
9.3	Were results agree within 10% for [sample] > 50 X DL in the original sample? If no, J(+)/UJ(-)		X	
9.4	Where dilution test fails or [sample]<50xLOD, was a post-digestion spike performed? Note any recoveries greater than ±25%D in DV report, but no data qualifying action is required.	X		
9.5	When both dilution test and post-digestion spikes do not pass, was a method of standard additions used to quantitate the reported sample concentration? If not, ask lab to comment.			X

Note: _____

10.0 Field Duplicate Samples		Yes	No	NA
10.1	Were any field duplicates submitted for metal analysis?	X		
	For sample results > 5 x RL, a control limit of ≤35% RPD will be used. For sample results < 5 x RL, a control limit of 2 x RL will be used.			
10.2	Are all analyte duplicate results within control limits? If not, J(+) the parent samples.	X		

Note: _____

11.0 Result Verification/ Internal Standards/ Tune		Yes	No	NA
11.1	Are all DLs/RLs equal to or less than the reporting limits specified?	X		
11.2	Were all results and detection limits for solid-matrix samples reported on a dry-weight basis?	X		
11.3	Were all dilutions reflected in the positive results and detection limits?	X		
11.4	Is there an Internal Standard associated with all analytes? R(+/-)	X		
11.5	Were the Internal Standard recoveries within 65-125%. Action: J(+)/UJ(-)	X		
11.6	Was a tune performed? If not, R(+/-) all associated samples.	X		
11.7	Were the tunes run at a minimum of four times with RSD < 5% for analytes in solution? Action: J(+)/UJ(-)	X		
11.8	Were the tune mass calibrations < 0.1 amu from the true value? Action: J(+)/UJ(-)	X		
11.9	Was the resolution check peak width < 0.9 amu at 10% peak height? Action: J(+)/UJ(-)	X		

Note: _____

12.0 Completeness Calculation		Yes	No	NA
12.1	Is % completeness within the control limits? (Control limit 90%)	X		
12.2	Number of samples: 13			
12.3	Number of target compounds in each analysis: 4			
12.4	Number of results rejected and not reported: 0			
	% Completeness = (12.1.1 x 12.1.2 - 12.1.3) x 100/(12.1.1 x 12.1.2)			
	% Completeness = 100%			

DATA VALIDATION WORKSHEET

Hardness

Reviewer:	Naoum Tavantzis	**Project Name:**	Camp Dodge
Date:	5/14/2012	**Project Number:**	15302625.40000
DV Level:	II **III** IV	**Laboratory:**	APPL
Review Document:		**SDG No.:**	ARF 66214
X Region IX Guidelines for Data Review of CLP Analytical Services Inorganic Data Packages		**Test Name:**	Hardness
X Project QAPP/SAP		**Method No.:**	SM 2340B

1.0 Laboratory Deliverables

		Yes	No	NA
1.1	Do Chain-of-Custody forms list all samples that were analyzed?	X		
1.2	Are all Chain-of-Custody forms signed, indicating sample chain-of-custody was maintained?	X		
1.3	Do sample preservation, collection and storage condition meet method requirement?	X		
	Water: pH<2 Soil/Sediment samples: 4°C + 2°C). Action: Professional judgement or J-(+)/R(-)			
1.4	Do the traffic Reports, chain-of-custody, and lab narrative indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data?		X	

Notes:

2.0 Holding Time

		Yes	No	NA
2.1	Have any technical holding times of 6 months, determined from date of collection to date of analysis, been exceeded? Action: Use professional judgement, then J-(+)/R(-)		X	

Note:

3.0 Instrument Calibration

		Yes	No	NA
3.1	Are the Quartlery LOD establishment forms provided for each instrument?	X		
3.2	Is the signal/noise ratio less than 3:1? If not, is the determination repeated at a higher concentration?	X		
3.3	Are sufficient standards of a blank + one standard & a RL standard OR 3 standards and a blank with one standard at the RL included in the calibration curve? If not, qualify with "R".	X		
3.3.a	If more than one standard is used, are the correlation coefficients > 0.995? Action: J(+)/UJ(-).	X		
3.4	Was an initial calibration check standard (ICV) analyzed immediately after instrument system had been calibrated? Action: If no, all associated data are rejected "R".	X		
3.5	Was continuing calibration (CCV) analyzed at a minimum frequency of 10% (every 10 samples) during and at the end of the analytical run? If not, document and flag based on professional judgement.	X		
3.6	Are all calibration standard percent recoveries within the control limits of 90%-110%? ICV and CCV: < 75% — 75%-89% — 111%-125% — 125%<%R<160% — >160% Action: J-(+)/R(-) — J-(+)/UJ(-) — J+(+) — J+(+)(maybe R(+)) — R(+)	X		
3.7	Was the high-level check standard included within 10% of the true value?	X		

Note:

11.0 Result Verification/ Internal Standards/ Tune		Yes	No	NA
11.1	Are all DLs/RLs equal to or less than the reporting limits specified?	X		
11.2	Were all results and detection limits for solid-matrix samples reported on a dry-weight basis?	X		
11.3	Were all dilutions reflected in the positive results and detection limits?	X		
11.4	Is there an Internal Standard associated with all analytes? R(+/-)	X		
11.5	Were the Internal Standard recoveries within 65-125%. Action: J(+)/UJ(-)	X		
11.6	Was a tune performed? If not, R(+/-) all associated samples.	X		
11.7	Were the tunes run at a minimum of four times with RSD < 5% for analytes in solution? Action: J(+)/UJ(-)	X		
11.8	Were the tune mass calibrations < 0.1 amu from the true value? Action: J(+)/UJ(-)	X		
11.9	Was the resolution check peak width < 0.9 amu at 10% peak height? Action: J(+)/UJ(-)	X		

Note:

6.0 Compound Identification and Detection Limit Verification		Yes	No	NA
6.1	Do detection limits meet those required by the project QAPP and were they properly adjusted for dilution factors and moisture (including adjustment of wet weight aliquot)?	X		
6.2	Did the concentratrion of magnesium and/or calcium exceed the linear range of the instrument? If so, J(+).	X		
6.3	If a concentration exceeded the linear range of the instument, was a dilution performed?		X	

Notes:

7.0 Data Completeness		Yes	No	NA
7.1	Is % completeness for certainty? (Control limit 90%)	X		
7.1.1	Number of samples: 3			
7.1.2	Number of target compounds in each analysis: 1			
7.1.3	Number of results that are uncertain at comparison criteria standard:			
	% Completeness = (7.1.1 x 7.1.2 - 7.1.3) x 100/(7.1.1 x 7.1.2)			
	% Completeness = 100			

Hardness Calculation

$$\frac{M_{CaCO_3}}{M_{Ca}} = \frac{100.088}{40.08} = 2.497$$

$$\frac{M_{CaCO_3}}{M_{Mg}} = \frac{100.088}{24.305} = 4.118$$

$$[CaCO_3]=2.497[Ca^{2+}]+4.118[Mg^{2+}]$$

Field Samples:

Sample ID:	DGSW01DB01	
	$[Ca^{2+}]$	78458.82
	$[Mg^{2+}]$	26452.91
Calculated	Hardness:	305
Reported	Hardness:	305

Sample ID:	DGSW01DB02	
	$[Ca^{2+}]$	77447.81
	$[Mg^{2+}]$	25952.96
Calculated	Hardness:	300
Reported	Hardness:	300

Sample ID:	DGSW01DA01	
	$[Ca^{2+}]$	73603.75
	$[Mg^{2+}]$	24508.66
Calculated	Hardness:	285
Reported	Hardness:	285

6020/200.8 Injection Log

Directory: K:\ICP-MS Optimus\raw data output csv\

RunID	Injected		Sample Name	Misc Info	FileName	Multiplier
1	18 Nov 2011	10:11	Calibration Blank		111118A	1.
2	18 Nov 2011	10:18	111118 Standard 1		111118A	1.
3	18 Nov 2011	10:24	111118 Standard 2		111118A	1.
4	18 Nov 2011	10:30	111118 Standard 3		111118A	1.
5	18 Nov 2011	10:36	111118 Standard 4		111118A	1.
6	18 Nov 2011	10:42	ICV 111118		111118A	1.
8	18 Nov 2011	11:00	ICB 111118		111118A	1.
9	18 Nov 2011	11:06	CCV 111118		111118A	1.
10	18 Nov 2011	11:12	CCB 111118		111118A	1.
11	18 Nov 2011	11:19	ICSA 111118		111118A	1.
12	18 Nov 2011	11:37	ICSAB 111118		111118A	1.
15	18 Nov 2011	12:08	111114A-3015-BLK		111118A	1.
18	18 Nov 2011	12:26	CCV 111118		111118A	1.
19	18 Nov 2011	12:39	CCB 111118		111118A	1.
23	18 Nov 2011	13:09	111114A-3015-LCS		111118A	1.
24	18 Nov 2011	13:15	111114A-3015-LCSD		111118A	1.
31	18 Nov 2011	13:58	CCV 111118		111118A	1.
32	18 Nov 2011	14:10	CCB 111118		111118A	1.
71	18 Nov 2011	18:27	CCV 111118		111118A	1.
72	18 Nov 2011	18:39	CCB 111118		111118A	1.
75	18 Nov 2011	18:58	AY50190W01		111118A	1.
76	18 Nov 2011	19:04	AY50191W01		111118A	1.
77	18 Nov 2011	19:10	AY50192W01		111118A	1.
78	18 Nov 2011	19:16	AY50193W01		111118A	1.
84	18 Nov 2011	19:52	CCV 111118		111118A	1.
85	18 Nov 2011	20:04	CCB 111118		111118A	1.

A.P.P.L. INC.
3
BLANKS

Lab Name: APPL, Inc. Contract #: URS Group

ARF No. 66214
Prep Blank Matrix: Water Concentration Units (ug/L or mg/kg): ug/L

Analysis Date: 11/18/2011

Analyte		Initial Calibration Blank 11:00	Continuing Calibration Blank 18:39	20:04		Preparation Blank 12:08	M
			1	2			
Copper		0.25U	0.25U	0.25U		0.25U	
Lead		0.15U	0.15U	0.15U		0.15U	
Antimony		0.03J	0.20U	0.02J		0.037J	
Zinc		5.00U	5.00U	5.00U		5.00U	

*Exceeds +/- LOD

Form III-IN

CCB QC Report

Data File: C:\ICPCHEM\1\DATA\11K18j01.B\013_CCB.D\013_CCB.D#
Date Acquired: Nov 18 2011 11:00 am
Operator: NBS
Sample Name: ICB 111118
Misc Info:
Vial Number: 1102
Current Method: C:\ICPCHEM\1\METHODS\62A1118A.M
Calibration File: C:\ICPCHEM\1\CALIB\62A1118A.C
Last Cal Update: Nov 18 2011 10:40 am
Sample Type: CCB
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	High Limit	Flag
7 (Li)	-------- ug/l	--------	#VALUE!	
9 Be	0.00 ug/l	165.85	0.12	
11 B	0.03 ug/l	21.10	15.00	
23 Na	7.64 ug/l	18.75	77.10	
24 Mg	0.12 ug/l	37.57	7.50	
27 Al	-0.15 ug/l	74.72	3.96	
39 K	9.71 ug/l	111.95	19.20	
44 Ca	-7.66 ug/l	57.26	90.00	
47 Ti	0.04 ug/l	74.72	0.78	
51 V	-0.09 ug/l	3.21	0.21	
52 Cr	0.01 ug/l	27.07	0.12	
55 Mn	-0.01 ug/l	175.14	0.18	
56 Fe	0.04 ug/l	65.24	40.80	
59 Co	0.00 ug/l	96.85	0.09	
60 Ni	0.04 ug/l	70.18	0.48	
63 Cu	0.01 ug/l	50.11	0.39	
65 Cu	0.00 ug/l	679.69	0.39	
66 Zn	0.08 ug/l	62.90	6.90	
75 As	0.01 ug/l	42.92	0.27	
78 Se	0.00 ug/l	530.52	0.30	
78 Se	0.18 ug/l	55.21	0.30	
88 Sr	0.00 ug/l	433.53	0.03	
88 Sr	0.01 ug/l	64.71	0.03	
95 Mo	0.02 ug/l	46.06	0.21	
106 (Cd)	-------- ug/l	--------	#VALUE!	
107 Ag	0.00 ug/l	73.18	0.09	
108 (Cd)	-------- ug/l	--------	#VALUE!	
111 Cd	0.01 ug/l	88.56	0.06	
118 Sn	0.00 ug/l	515.60	0.30	
121 Sb	0.03 ug/l	30.04	0.03	
137 Ba	0.01 ug/l	215.72	0.12	
205 Tl	0.00 ug/l	46.63	0.03	
206 (Pb)	-------- ug/l	--------	#VALUE!	
207 (Pb)	-------- ug/l	--------	#VALUE!	
208 Pb	-0.11 ug/l	5.18	0.33	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3297570.30	1.26	3235938.50	101.9	70 - 120	
45 Sc	213323.19	1.01	204426.16	104.4	70 - 120	
45 Sc	73332.66	2.97	72238.92	101.5	70 - 120	
45 Sc	1325617.60	1.33	1281777.80	103.4	70 - 120	
72 Ge	47220.46	0.58	43283.03	109.1	70 - 120	
72 Ge	33262.66	1.22	32047.51	103.8	70 - 120	
72 Ge	193496.56	1.02	185969.94	104.0	70 - 120	
115 In	1237917.50	2.21	1167925.30	106.0	70 - 120	
159 Tb	1858708.00	1.97	1768807.80	105.1	70 - 120	
165 Ho	1896492.60	2.04	1805815.10	105.0	70 - 120	

ISTD Ref File : C:\ICPCHEM\1\DATA\11K18j01.B\005CALB.D\005CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

CCB QC Report

Data File: C:\ICPCHEM\1\DATA\11K18j01.B\088_CCB.D\088_CCB.D#
Date Acquired: Nov 18 2011 06:39 pm
Operator: NBS
Sample Name: CCB 111118
Misc Info:
Vial Number: 1102
Current Method: C:\ICPCHEM\1\METHODS\62A1118A.M
Calibration File: C:\ICPCHEM\1\CALIB\62A1118A.C
Last Cal Update: Nov 18 2011 05:12 pm
Sample Type: CCB
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	High Limit	Flag
7 (Li)	-------- ug/l	--------	#VALUE!	
9 Be	0.00 ug/l	5966.00	0.12	
11 B	0.15 ug/l	180.45	15.00	
23 Na	-1.35 ug/l	79.59	77.10	
24 Mg	-0.61 ug/l	29.64	7.50	
27 Al	-0.04 ug/l	459.57	3.96	
39 K	-5.14 ug/l	302.84	19.20	
44 Ca	-4.32 ug/l	56.58	90.00	
47 Ti	0.00 ug/l	578.41	0.78	
51 V	0.20 ug/l	15.52	0.21	
52 Cr	0.00 ug/l	231.08	0.12	
55 Mn	-0.02 ug/l	32.61	0.18	
56 Fe	-0.06 ug/l	89.90	40.80	
59 Co	-0.01 ug/l	26.93	0.09	
60 Ni	-0.02 ug/l	52.83	0.48	
63 Cu	-0.04 ug/l	32.97	0.39	
65 Cu	-0.02 ug/l	96.93	0.39	
66 Zn	-0.25 ug/l	6.94	6.90	
75 As	0.02 ug/l	97.63	0.27	
78 Se	0.03 ug/l	35.33	0.30	
78 Se	-0.04 ug/l	399.95	0.30	
88 Sr	-0.01 ug/l	62.73	0.03	
88 Sr	0.00 ug/l	529.66	0.03	
95 Mo	0.00 ug/l	155.08	0.21	
106 (Cd)	-------- ug/l	--------	#VALUE!	
107 Ag	0.00 ug/l	43.85	0.09	
108 (Cd)	-------- ug/l	--------	#VALUE!	
111 Cd	0.01 ug/l	175.26	0.06	
118 Sn	0.01 ug/l	65.86	0.30	
121 Sb	0.00 ug/l	281.78	0.03	
137 Ba	0.01 ug/l	101.57	0.12	
205 Tl	0.01 ug/l	24.38	0.03	
206 (Pb)	-------- ug/l	--------	#VALUE!	
207 (Pb)	-------- ug/l	--------	#VALUE!	
208 Pb	-0.09 ug/l	3.18	0.33	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	4057719.80	1.06	3952274.80	102.7	70 - 120	
45 Sc	307540.16	1.08	314358.13	97.8	70 - 120	
45 Sc	91167.67	3.01	91947.45	99.2	70 - 120	
45 Sc	1575742.60	0.68	1594646.50	98.8	70 - 120	
72 Ge	68881.63	0.70	69736.12	98.8	70 - 120	
72 Ge	42011.51	0.55	42526.00	98.8	70 - 120	
72 Ge	231698.06	0.76	222673.61	104.1	70 - 120	
115 In	1409051.80	0.60	1330628.00	105.9	70 - 120	
159 Tb	1993242.40	1.32	1858270.60	107.3	70 - 120	
165 Ho	2010223.00	0.93	1869665.40	107.5	70 - 120	

ISTD Ref File : C:\ICPCHEM\1\DATA\11K18j01.B\073CALB.D\073CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:

Analytes: Pass
ISTD: Pass

CCB QC Report

Data File: C:\ICPCHEM\1\DATA\11K18j01.B\102_CCB.D\102_CCB.D#
Date Acquired: Nov 18 2011 08:04 pm
Operator: NBS
Sample Name: CCB 111118
Misc Info:
Vial Number: 1102
Current Method: C:\ICPCHEM\1\METHODS\62A1118A.M
Calibration File: C:\ICPCHEM\1\CALIB\62A1118A.C
Last Cal Update: Nov 18 2011 05:12 pm
Sample Type: CCB
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	High Limit	Flag
7 (Li)	-------- ug/l	--------	#VALUE!	
9 Be	0.00 ug/l	340.29	0.12	
11 B	0.07 ug/l	66.30	15.00	
23 Na	-9.85 ug/l	9.77	77.10	
24 Mg	-0.70 ug/l	10.38	7.50	
27 Al	-0.10 ug/l	41.53	3.96	
39 K	-9.53 ug/l	150.43	19.20	
44 Ca	-3.70 ug/l	54.93	90.00	
47 Ti	-0.01 ug/l	451.99	0.78	
51 V	0.05 ug/l	85.42	0.21	
52 Cr	0.00 ug/l	91.87	0.12	
55 Mn	-0.01 ug/l	134.55	0.18	
56 Fe	-0.08 ug/l	66.68	40.80	
59 Co	0.00 ug/l	67.56	0.09	
60 Ni	-0.02 ug/l	36.01	0.48	
63 Cu	-0.05 ug/l	27.66	0.39	
65 Cu	-0.02 ug/l	46.07	0.39	
66 Zn	-0.24 ug/l	10.08	6.90	
75 As	0.00 ug/l	726.08	0.27	
78 Se	0.03 ug/l	31.72	0.30	
78 Se	-0.10 ug/l	15.38	0.30	
88 Sr	0.00 ug/l	237.49	0.03	
88 Sr	0.00 ug/l	171.41	0.03	
95 Mo	0.01 ug/l	58.57	0.21	
106 (Cd)	-------- ug/l	--------	#VALUE!	
107 Ag	0.00 ug/l	14.82	0.09	
108 (Cd)	-------- ug/l	--------	#VALUE!	
111 Cd	0.00 ug/l	336.15	0.06	
118 Sn	0.01 ug/l	169.44	0.30	
121 Sb	0.02 ug/l	32.16	0.03	
137 Ba	0.00 ug/l	8273.40	0.12	
205 Tl	0.01 ug/l	36.66	0.03	
206 (Pb)	-------- ug/l	--------	#VALUE!	
207 (Pb)	-------- ug/l	--------	#VALUE!	
208 Pb	-0.08 ug/l	4.98	0.33	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	4031528.30	1.16	3952274.80	102.0	70 - 120	
45 Sc	302245.19	0.90	314358.13	96.1	70 - 120	
45 Sc	87677.80	2.88	91947.45	95.4	70 - 120	
45 Sc	1550717.00	1.56	1594646.50	97.2	70 - 120	
72 Ge	67189.99	0.62	69736.12	96.3	70 - 120	
72 Ge	40254.74	0.46	42526.00	94.7	70 - 120	
72 Ge	225318.02	0.69	222673.61	101.2	70 - 120	
115 In	1413370.80	1.91	1330628.00	106.2	70 - 120	
159 Tb	1993990.60	1.93	1858270.60	107.3	70 - 120	
165 Ho	2004710.60	1.68	1869665.40	107.2	70 - 120	

ISTD Ref File : C:\ICPCHEM\1\DATA\11K18j01.B\073CALB.D\073CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

A.P.P.L. INC.
4
ICP INTERFERENCE CHECK SAMPLE

Lab Name: A.P.P.L. INC.
Contract: URS Group
ARF No.: 66214
SDG: 66214
ICP ID Number: Optimus
ICS Source: Environmental Express

Analysis Date: 11/18/2011
Concentration Units: ug/L

Analyte	True		Initial Found		
	Sol A	Sol AB	Sol A 11:19	Sol AB 11:37	%R(1)
Copper (Cu)		250	2.866	249.2	99.7
Lead (Pb)		500	3.805	471.8	94.4
Antimony (Sb)		250	2.692	288.2	115
Zinc (Zn)		500	5.297	481.4	96.3

(1) Control Limits: Metals 80-120

6020/200.8 Injection Log

Directory: K:\ICP-MS Optimus\raw data output csv\

RunID	Injected		Sample Name	Misc Info	FileName	Multiplier
1	15 Dec 2011	17:26	Calibration Blank		111215A	1.
2	15 Dec 2011	17:33	111215 Standard 1		111215A	1.
3	15 Dec 2011	17:41	111215 Standard 2		111215A	1.
4	15 Dec 2011	17:48	111215 Standard 3		111215A	1.
5	15 Dec 2011	17:55	111215 Standard 4		111215A	1.
6	15 Dec 2011	18:02	ICV 111215		111215A	1.
8	15 Dec 2011	18:26	ICB 111215		111215A	1.
9	15 Dec 2011	18:33	CCV 111215		111215A	1.
10	15 Dec 2011	18:40	CCB 111215		111215A	1.
11	15 Dec 2011	19:02	LDR 500ppb 111215		111215A	1.
12	15 Dec 2011	19:16	ICSA 111215		111215A	1.
13	15 Dec 2011	19:23	ICSAB 111215		111215A	1.
59	16 Dec 2011	01:23	CCV 111215		111215A	1.
60	16 Dec 2011	01:38	CCB 111215		111215A	1.
65	16 Dec 2011	02:13	111128A-3050LM-BLK-1/10		111215A	10.
66	16 Dec 2011	02:21	111128A-3050LM-LCS-1/10		111215A	10.
67	16 Dec 2011	02:28	AY50187S01-1/10		111215A	10.
68	16 Dec 2011	02:35	AY50187S01 DUP-1/10		111215A	10.
69	16 Dec 2011	02:42	AY50187S01 MS-1/10		111215A	10.
70	16 Dec 2011	02:49	AY50187S01-1/10-A		111215A	10.
72	16 Dec 2011	03:03	CCV 111215		111215A	1.
73	16 Dec 2011	03:18	CCB 111215		111215A	1.
74	16 Dec 2011	03:25	AY50187S01-1/50		111215A	50.
75	16 Dec 2011	03:32	AY50188S01-1/10		111215A	10.
76	16 Dec 2011	03:39	AY50189S01-1/10		111215A	10.
77	16 Dec 2011	03:46	AY50194S01-1/10		111215A	10.
78	16 Dec 2011	03:53	AY50195S01-1/10		111215A	10.
79	16 Dec 2011	04:01	AY50196S01-1/10		111215A	10.
80	16 Dec 2011	04:08	AY50197S01-1/10		111215A	10.
81	16 Dec 2011	04:15	AY50198S01-1/10		111215A	10.
82	16 Dec 2011	04:22	AY50199S01-1/10		111215A	10.
85	16 Dec 2011	04:44	CCV 111215		111215A	1.
86	16 Dec 2011	04:58	CCB 111215		111215A	1.

A.P.P.L. INC.
3
BLANKS

Lab Name: APPL, Inc. Contract #: URS Group

ARF No. 66214
Prep Blank Matrix: Soil Concentration Units (ug/L or mg/kg): mg/Kg

Analysis Date: 12/15/2011

Analyte		Initial Calibration Blank 18:26	Continuing Calibration Blank 18:40	1:38	3:18	Preparation Blank 2:13	M
			1	2	3		
Copper		0.05U	0.05U	0.05U	0.05U	0.05U	
Lead		0.04U	0.04U	0.04U	0.04U	0.04U	
Antimony		0.04U	0.04U	0.04U	0.04U	0.055J	
Zinc		0.50U	0.50U	0.50U	0.50U	0.50U	

Form III-IN

A.P.P.L. INC.
3
BLANKS

Lab Name: APPL, Inc. Contract #: URS Group

ARF No. 66214
Prep Blank Matrix: Soil Concentration Units (ug/L or mg/kg): mg/Kg

Analysis Date: 12/15/2011

Analyte		Initial Calibration Blank 18:26	Continuing Calibration Blank 4:58			Preparation Blank 2:13	M
			4				
Copper		0.05U	0.05U			0.05U	
Lead		0.04U	0.04U			0.04U	
Antimony		0.04U	0.04U			0.055J	
Zinc		0.50U	0.50U			0.50U	

Form III-IN

CCB QC Report

Data File: C:\ICPCHEM\1\DATA\11L15q00.B\013_CCB.D\013_CCB.D#
Date Acquired: Dec 15 2011 06:26 pm
Operator: NBS
Sample Name: ICB 111215
Misc Info:
Vial Number: 1102
Current Method: C:\ICPCHEM\1\METHODS\62A1215D.M
Calibration File: C:\ICPCHEM\1\CALIB\62A1215D.C
Last Cal Update: Dec 15 2011 05:59 pm
Sample Type: CCB
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	High Limit	Flag
7 (Li)	-------- ug/l	--------	#VALUE!	
9 Be	0.00 ug/l	125.94	0.12	
11 B	0.10 ug/l	14.16	15.00	
23 Na	4.81 ug/l	5.25	77.10	
24 Mg	-0.09 ug/l	34.93	7.50	
27 Al	-0.12 ug/l	76.61	3.96	
39 K	-0.16 ug/l	1005.70	19.20	
44 Ca	-1.42 ug/l	80.61	90.00	
47 Ti	-0.01 ug/l	237.82	0.78	
51 V	-0.04 ug/l	117.22	0.21	
52 Cr	0.01 ug/l	27.67	0.12	
55 Mn	-0.01 ug/l	170.50	0.18	
56 Fe	-0.74 ug/l	3.21	40.80	
59 Co	-0.01 ug/l	41.22	0.09	
60 Ni	-0.01 ug/l	95.83	0.48	
63 Cu	-0.03 ug/l	21.31	0.39	
65 Cu	-0.03 ug/l	7.45	0.39	
66 Zn	-0.16 ug/l	8.76	6.90	
75 As	-0.03 ug/l	45.84	0.27	
78 Se	0.04 ug/l	81.46	0.30	
78 Se	0.11 ug/l	11.23	0.30	
88 Sr	0.00 ug/l	293.60	0.03	
88 Sr	0.00 ug/l	46.89	0.03	
95 Mo	0.02 ug/l	25.10	0.21	
106 (Cd)	-------- ug/l	--------	#VALUE!	
107 Ag	0.00 ug/l	562.36	0.09	
108 (Cd)	-------- ug/l	--------	#VALUE!	
111 Cd	0.00 ug/l	201.01	0.06	
118 Sn	0.03 ug/l	36.95	0.30	
121 Sb	0.08 ug/l	6.37	0.03	Fail
137 Ba	0.00 ug/l	1109.90	0.12	
205 Tl	0.01 ug/l	20.16	0.03	
206 (Pb)	-------- ug/l	--------	#VALUE!	
207 (Pb)	-------- ug/l	--------	#VALUE!	
208 Pb	-0.01 ug/l	24.19	0.33	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2117792.50	1.28	1928380.00	109.8	70 - 120	
45 Sc	86497.80	0.42	92197.27	93.8	70 - 120	
45 Sc	91983.49	0.45	88900.77	103.5	70 - 120	
45 Sc	897979.19	1.44	860562.44	104.3	70 - 120	
72 Ge	19030.38	0.39	19733.91	96.4	70 - 120	
72 Ge	38517.02	1.38	36760.26	104.8	70 - 120	
72 Ge	173421.14	0.14	163358.02	106.2	70 - 120	
115 In	1105027.50	0.92	1074789.60	102.8	70 - 120	
159 Tb	1900503.90	0.70	1850943.00	102.7	70 - 120	
165 Ho	1934878.10	0.65	1889027.00	102.4	70 - 120	

ISTD Ref File : C:\ICPCHEM\1\DATA\11L15q00.B\005CALB.D\005CALB.D#

1 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

CCB QC Report

Data File: C:\ICPCHEM\1\DATA\11L15q00.B\073_CCB.D\073_CCB.D#
Date Acquired: Dec 16 2011 01:38 am
Operator: NBS
Sample Name: CCB 111215
Misc Info:
Vial Number: 1102
Current Method: C:\ICPCHEM\1\METHODS\62A1215D.M
Calibration File: C:\ICPCHEM\1\CALIB\62A1215D.C
Last Cal Update: Dec 15 2011 05:59 pm
Sample Type: CCB
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	High Limit	Flag
7 (Li)	-------- ug/l	--------	#VALUE!	
9 Be	0.00 ug/l	12.03	0.12	
11 B	-0.10 ug/l	33.01	15.00	
23 Na	3.44 ug/l	12.45	77.10	
24 Mg	0.11 ug/l	96.86	7.50	
27 Al	0.88 ug/l	14.31	3.96	
39 K	-10.48 ug/l	22.48	19.20	
44 Ca	-0.89 ug/l	108.00	90.00	
47 Ti	0.00 ug/l	3752.80	0.78	
51 V	-0.34 ug/l	8.10	0.21	
52 Cr	-0.03 ug/l	37.78	0.12	
55 Mn	0.35 ug/l	3.93	0.18	Fail
56 Fe	6.29 ug/l	2.12	40.80	
59 Co	-0.01 ug/l	19.82	0.09	
60 Ni	0.00 ug/l	199.64	0.48	
63 Cu	0.01 ug/l	9.37	0.39	
65 Cu	0.02 ug/l	81.16	0.39	
66 Zn	-0.10 ug/l	27.07	6.90	
75 As	-0.13 ug/l	8.94	0.27	
78 Se	0.00 ug/l	113.62	0.30	
78 Se	0.09 ug/l	32.42	0.30	
88 Sr	0.00 ug/l	552.80	0.03	
88 Sr	0.00 ug/l	104.26	0.03	
95 Mo	0.01 ug/l	28.43	0.21	
106 (Cd)	-------- ug/l	--------	#VALUE!	
107 Ag	0.00 ug/l	368.68	0.09	
108 (Cd)	-------- ug/l	--------	#VALUE!	
111 Cd	0.00 ug/l	197.64	0.06	
118 Sn	0.08 ug/l	18.57	0.30	
121 Sb	0.15 ug/l	3.69	0.03	Fail
137 Ba	0.03 ug/l	13.34	0.12	
205 Tl	0.00 ug/l	42.51	0.03	
206 (Pb)	-------- ug/l	--------	#VALUE!	
207 (Pb)	-------- ug/l	--------	#VALUE!	
208 Pb	-0.01 ug/l	31.03	0.33	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1287691.60	1.77	1928380.00	66.8	70 - 120	IS Fail
45 Sc	126234.56	0.53	92197.27	136.9	70 - 120	IS Fail
45 Sc	73435.33	1.59	88900.77	82.6	70 - 120	
45 Sc	858242.13	8.69	860562.44	99.7	70 - 120	
72 Ge	27799.33	0.40	19733.91	140.9	70 - 120	IS Fail
72 Ge	34179.59	2.22	36760.26	93.0	70 - 120	
72 Ge	155757.20	0.77	163358.02	95.3	70 - 120	
115 In	1091413.80	0.64	1074789.60	101.5	70 - 120	
159 Tb	1914620.40	0.90	1850943.00	103.4	70 - 120	
165 Ho	1955270.90	0.94	1889027.00	103.5	70 - 120	

ISTD Ref File : C:\ICPCHEM\1\DATA\11L15q00.B\005CALB.D\005CALB.D#

2 :Element Failures 0 :Max. Number of Failures Allowed
3 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:

Analytes: Fail
ISTD: Fail

CCB QC Report

Data File:	C:\ICPCHEM\1\DATA\11L15q00.B\087_CCB.D\087_CCB.D#
Date Acquired:	Dec 16 2011 03:18 am
Operator:	NBS
Sample Name:	CCB 111215
Misc Info:	
Vial Number:	1102
Current Method:	C:\ICPCHEM\1\METHODS\62A1215D.M
Calibration File:	C:\ICPCHEM\1\CALIB\62A1215D.C
Last Cal Update:	Dec 15 2011 05:59 pm
Sample Type:	CCB
Total Dil Factor:	1.00

QC Elements

Element	Conc.	RSD(%)	High Limit	Flag
7 (Li)	-------- ug/l	--------	#VALUE!	
9 Be	0.00 ug/l	49.42	0.12	
11 B	0.10 ug/l	9.83	15.00	
23 Na	8.90 ug/l	0.98	77.10	
24 Mg	0.79 ug/l	7.66	7.50	
27 Al	0.57 ug/l	31.06	3.96	
39 K	-10.22 ug/l	18.21	19.20	
44 Ca	0.66 ug/l	92.81	90.00	
47 Ti	0.04 ug/l	71.87	0.78	
51 V	-0.22 ug/l	28.95	0.21	
52 Cr	-0.04 ug/l	15.38	0.12	
55 Mn	0.17 ug/l	6.75	0.18	
56 Fe	3.76 ug/l	3.46	40.80	
59 Co	0.00 ug/l	98.80	0.09	
60 Ni	-0.01 ug/l	100.49	0.48	
63 Cu	0.03 ug/l	6.71	0.39	
65 Cu	0.01 ug/l	79.74	0.39	
66 Zn	-0.12 ug/l	34.16	6.90	
75 As	-0.09 ug/l	20.03	0.27	
78 Se	0.01 ug/l	120.71	0.30	
78 Se	0.10 ug/l	96.49	0.30	
88 Sr	0.01 ug/l	15.27	0.03	
88 Sr	0.00 ug/l	89.67	0.03	
95 Mo	0.04 ug/l	14.44	0.21	
106 (Cd)	-------- ug/l	--------	#VALUE!	
107 Ag	0.00 ug/l	36.10	0.09	
108 (Cd)	-------- ug/l	--------	#VALUE!	
111 Cd	0.01 ug/l	55.71	0.06	
118 Sn	0.10 ug/l	8.38	0.30	
121 Sb	0.30 ug/l	6.83	0.03	Fail
137 Ba	0.05 ug/l	3.14	0.12	
205 Tl	0.02 ug/l	7.18	0.03	
206 (Pb)	-------- ug/l	--------	#VALUE!	
207 (Pb)	-------- ug/l	--------	#VALUE!	
208 Pb	0.00 ug/l	68.97	0.33	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1415402.80	0.81	1928380.00	73.4	70 - 120	
45 Sc	113604.45	0.09	92197.27	123.2	70 - 120	IS Fail
45 Sc	84848.52	0.46	88900.77	95.4	70 - 120	
45 Sc	870274.94	0.14	860562.44	101.1	70 - 120	
72 Ge	25087.37	0.38	19733.91	127.1	70 - 120	IS Fail
72 Ge	39012.80	1.19	36760.26	106.1	70 - 120	
72 Ge	177714.09	0.42	163358.02	108.8	70 - 120	
115 In	1230435.10	0.34	1074789.60	114.5	70 - 120	
159 Tb	2111109.30	0.31	1850943.00	114.1	70 - 120	
165 Ho	2148257.80	0.65	1889027.00	113.7	70 - 120	

ISTD Ref File : C:\ICPCHEM\1\DATA\11L15q00.B\005CALB.D\005CALB.D#

1 :Element Failures 0 :Max. Number of Failures Allowed
2 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Fail

CCB QC Report

Data File: C:\ICPCHEM\1\DATA\11L15q00.B\101_CCB.D\101_CCB.D#
Date Acquired: Dec 16 2011 04:58 am
Operator: NBS
Sample Name: CCB 111215
Misc Info:
Vial Number: 1102
Current Method: C:\ICPCHEM\1\METHODS\62A1215D.M
Calibration File: C:\ICPCHEM\1\CALIB\62A1215D.C
Last Cal Update: Dec 15 2011 05:59 pm
Sample Type: CCB
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	High Limit	Flag
7 (Li)	-------- ug/l	--------	#VALUE!	
9 Be	0.00 ug/l	36.06	0.12	
11 B	-0.03 ug/l	30.06	15.00	
23 Na	2.75 ug/l	12.90	77.10	
24 Mg	1.03 ug/l	10.66	7.50	
27 Al	1.17 ug/l	21.55	3.96	
39 K	-9.25 ug/l	22.97	19.20	
44 Ca	2.36 ug/l	67.40	90.00	
47 Ti	0.09 ug/l	44.46	0.78	
51 V	-0.30 ug/l	10.25	0.21	
52 Cr	-0.06 ug/l	22.68	0.12	
55 Mn	0.17 ug/l	7.53	0.18	
56 Fe	4.43 ug/l	4.92	40.80	
59 Co	-0.01 ug/l	30.80	0.09	
60 Ni	0.00 ug/l	282.74	0.48	
63 Cu	-0.01 ug/l	36.01	0.39	
65 Cu	-0.01 ug/l	153.22	0.39	
66 Zn	-0.09 ug/l	40.10	6.90	
75 As	-0.10 ug/l	6.23	0.27	
78 Se	0.03 ug/l	16.71	0.30	
78 Se	0.16 ug/l	50.04	0.30	
88 Sr	0.01 ug/l	25.03	0.03	
88 Sr	0.00 ug/l	69.80	0.03	
95 Mo	0.02 ug/l	34.92	0.21	
106 (Cd)	-------- ug/l	--------	#VALUE!	
107 Ag	0.00 ug/l	54.12	0.09	
108 (Cd)	-------- ug/l	--------	#VALUE!	
111 Cd	0.00 ug/l	54.48	0.06	
118 Sn	0.18 ug/l	79.92	0.30	
121 Sb	0.13 ug/l	2.49	0.03	Fail
137 Ba	0.05 ug/l	8.25	0.12	
205 Tl	0.01 ug/l	29.46	0.03	
206 (Pb)	-------- ug/l	--------	#VALUE!	
207 (Pb)	-------- ug/l	--------	#VALUE!	
208 Pb	0.00 ug/l	33.07	0.33	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1396743.10	1.30	1928380.00	72.4	70 - 120	
45 Sc	68559.58	0.28	92197.27	74.4	70 - 120	
45 Sc	77388.22	0.78	88900.77	87.1	70 - 120	
45 Sc	850108.38	0.78	860562.44	98.8	70 - 120	
72 Ge	15845.44	1.00	19733.91	80.3	70 - 120	
72 Ge	35894.48	1.91	36760.26	97.6	70 - 120	
72 Ge	170307.27	0.60	163358.02	104.3	70 - 120	
115 In	1167292.80	0.57	1074789.60	108.6	70 - 120	
159 Tb	1979757.30	1.20	1850943.00	107.0	70 - 120	
165 Ho	2008231.90	0.39	1889027.00	106.3	70 - 120	

ISTD Ref File : C:\ICPCHEM\1\DATA\11L15q00.B\005CALB.D\005CALB.D#

1 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:

Analytes: Fail
ISTD: Pass

A.P.P.L. INC.
4
ICP INTERFERENCE CHECK SAMPLE

Lab Name: A.P.P.L. INC.
ARF No.: 66214
ICP ID Number: Optimus

Contract: URS Group
SDG: 66214
ICS Source: Environmental Express

Analysis Date: 12/15/11

Concentration Units: ug/L

Analyte	True		Initial Found		
	Sol A	Sol AB	Sol A 19:16	Sol AB 19:23	%R(1)
Copper (Cu)		250	0.8301	231.3	92.5
Lead (Pb)		500	0.474	417.7	83.5
Antimony (Sb)		250	1.859	220	88.0
Zinc (Zn)		500	1.108	464.8	93.0

(1) Control Limits: Metals 80-120

A.P.P.L. INC.
5B
POST DIGEST SPIKE SAMPLE RECOVERY

CLIENT SAMPLE NO.
DGSD03DA01

Lab Name: A.P.P.L. INC.
Contract: URS Group
ARF No.: 66214
SDG: 66214

Analysis Date: 12/16/11
Concentration Units: mg/Kg

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Copper (Cu)	75-125	22.47		2.176		24.975	81.3		
Lead (Pb)	75-125	21.79		2.929		24.975	75.5		
Antimony (Sb)	75-125	20.14		0.0848		24.975	80.3		
Zinc (Zn)	75-125	50.44		12.11		49.950	76.7		

Comments:

12/16/11 02:28 AY50187S01-1/10

12/16/11 02:49 AY50187S01-1/10-A

A.P.P.L. INC.
9
ICP SERIAL DILUTION

CLIENT SAMPLE NO.
DGSD03DA01

Lab Name: A.P.P.L. INC.
Contract: URS Group
ARF No.: 66214
SDG: 66214
Matrix: soil

Analysis Date: 12/16/11
Concentration Units: mg/Kg

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	%D	Q	M
Copper (Cu)	2.176		2.4845		14.2		M
Lead (Pb)	2.929		3.0175		3.02		
Antimony (Sb)	0.0848		0.16225		NA		
Zinc (Zn)	12.11		13.935		15.1		M

Comments:

12/16/11 02:28 AY50187S01-1/10

12/16/11 03:25 AY50187S01-1/50

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\11L15q00.B\080SMPL.D\080SMPL.D#
Date Acquired: Dec 16 2011 02:28 am
Operator: NBS
Sample Name: AY50187S01-1/10
Misc Info: 111128A-3050LLMIS
Vial Number: 4103
Current Method: C:\ICPCHEM\1\METHODS\62A1215D.M
Calibration File: C:\ICPCHEM\1\CALIB\62A1215D.C
Last Cal Update: Dec 15 2011 05:59 pm
Sample Type: Sample
Prep Dil Factor: 0.10
Total Dil Factor: 0.10

QC Elements

Element	Conc.	Corr. Conc.	RSD(%)	High Limit	Flag
7 (Li)	-------- ug/l	#VALUE!	--------	0	
9 Be	1.19 ug/l	0.12	0.57	1000	
11 B	16.46 ug/l	1.64	1.08	1000	
23 Na	601.70 ug/l	60.11	0.74	25000	
24 Mg	25760.00 ug/l	2573.42	0.75	50000	
27 Al	21450.00 ug/l	2142.86	1.03	20000	>Cal
39 K	2270.00 ug/l	226.77	1.99	20000	
44 Ca	72440.00 ug/l	7236.76	1.32	50000	>Cal
47 Ti	1278.00 ug/l	127.67	1.14	1000	>Cal
51 V	102.50 ug/l	10.24	0.47	1000	
52 Cr	60.03 ug/l	6.00	0.22	1000	
55 Mn	3917.00 ug/l	391.31	1.18	1000	>Cal
56 Fe	52200.00 ug/l	5214.78	0.78	20000	>Cal
59 Co	26.87 ug/l	2.68	1.80	1000	
60 Ni	49.76 ug/l	4.97	0.54	1000	
63 Cu	21.76 ug/l	2.17	1.71	1000	
65 Cu	21.92 ug/l	2.19	1.34	1000	
66 Zn	121.10 ug/l	12.10	0.92	1000	
75 As	12.99 ug/l	1.30	1.29	1000	
78 Se	1.00 ug/l	0.10	6.35	1000	
78 Se	1.70 ug/l	0.17	9.27	1000	
88 Sr	129.00 ug/l	12.89	0.98	1000	
88 Sr	129.60 ug/l	12.95	0.44	1000	
95 Mo	1.11 ug/l	0.11	2.21	1000	
106 (Cd)	-------- ug/l	#VALUE!	--------	#######	
107 Ag	0.16 ug/l	0.02	6.18	500	
108 (Cd)	-------- ug/l	#VALUE!	--------	#######	
111 Cd	1.14 ug/l	0.11	4.53	1000	
118 Sn	1.82 ug/l	0.18	1.11	1000	
121 Sb	0.85 ug/l	0.08	2.34	1000	
137 Ba	576.50 ug/l	57.59	0.30	1000	
205 Tl	0.50 ug/l	0.05	0.79	1000	
206 (Pb)	-------- ug/l	#VALUE!	--------	#######	
207 (Pb)	-------- ug/l	#VALUE!	--------	#######	
208 Pb	29.29 ug/l	2.93	0.26	1000	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1280176.80	0.20	1928380.00	66.4	70 - 120	IS Fai
45 Sc	140143.86	0.21	92197.27	152.0	70 - 120	IS Fai
45 Sc	88102.59	1.83	88900.77	99.1	70 - 120	
45 Sc	915551.50	0.43	860562.44	106.4	70 - 120	
72 Ge	27269.46	0.26	19733.91	138.2	70 - 120	IS Fai
72 Ge	38651.84	1.91	36760.26	105.1	70 - 120	
72 Ge	179716.94	0.11	163358.02	110.0	70 - 120	
115 In	1105206.90	0.61	1074789.60	102.8	70 - 120	
159 Tb	2046039.30	0.44	1850943.00	110.5	70 - 120	
165 Ho	2095005.90	0.15	1889027.00	110.9	70 - 120	

ISTD Ref File : C:\ICPCHEM\1\DATA\11L15q00.B\005CALB.D\005CALB.D#

5 :Element Failures 0 :Max. Number of Failures Allowed
3 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Fail

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\11L15q00.B\089SMPL.D\089SMPL.D#
Date Acquired: Dec 16 2011 03:32 am
Operator: NBS
Sample Name: AY50188S01-1/10
Misc Info: 111128A-3050LLMIS
Vial Number: 4108
Current Method: C:\ICPCHEM\1\METHODS\62A1215D.M
Calibration File: C:\ICPCHEM\1\CALIB\62A1215D.C
Last Cal Update: Dec 15 2011 05:59 pm
Sample Type: Sample
Prep Dil Factor: 0.10
Total Dil Factor: 0.10

QC Elements

Element	Conc.	Corr. Conc.	RSD(%)	High Limit	Flag
7 (Li)	-------- ug/l	#VALUE!	--------	0	
9 Be	1.16 ug/l	0.12	3.04	1000	
11 B	16.73 ug/l	1.67	1.37	1000	
23 Na	581.50 ug/l	58.15	1.46	25000	
24 Mg	32510.00 ug/l	3251.00	1.37	50000	
27 Al	21190.00 ug/l	2119.00	0.63	20000	>Cal
39 K	2302.00 ug/l	230.20	0.74	20000	
44 Ca	86480.00 ug/l	8648.00	0.54	50000	>Cal
47 Ti	1226.00 ug/l	122.60	1.25	1000	>Cal
51 V	99.98 ug/l	10.00	1.13	1000	
52 Cr	60.73 ug/l	6.07	0.78	1000	
55 Mn	2686.00 ug/l	268.60	1.35	1000	>Cal
56 Fe	50080.00 ug/l	5008.00	1.27	20000	>Cal
59 Co	25.22 ug/l	2.52	1.88	1000	
60 Ni	47.96 ug/l	4.80	0.74	1000	
63 Cu	22.12 ug/l	2.21	0.63	1000	
65 Cu	22.38 ug/l	2.24	0.94	1000	
66 Zn	117.20 ug/l	11.72	0.20	1000	
75 As	12.85 ug/l	1.29	1.38	1000	
78 Se	1.01 ug/l	0.10	11.68	1000	
78 Se	1.76 ug/l	0.18	6.74	1000	
88 Sr	134.40 ug/l	13.44	1.15	1000	
88 Sr	133.50 ug/l	13.35	0.78	1000	
95 Mo	0.96 ug/l	0.10	2.74	1000	
106 (Cd)	-------- ug/l	#VALUE!	--------	#######	
107 Ag	0.15 ug/l	0.02	6.57	500	
108 (Cd)	-------- ug/l	#VALUE!	--------	#######	
111 Cd	1.08 ug/l	0.11	5.52	1000	
118 Sn	1.82 ug/l	0.18	1.70	1000	
121 Sb	0.75 ug/l	0.07	3.53	1000	
137 Ba	376.00 ug/l	37.60	1.34	1000	
205 Tl	0.43 ug/l	0.04	1.53	1000	
206 (Pb)	-------- ug/l	#VALUE!	--------	#######	
207 (Pb)	-------- ug/l	#VALUE!	--------	#######	
208 Pb	28.07 ug/l	2.81	0.87	1000	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1355604.50	0.72	1928380.00	70.3	70 - 120	
45 Sc	125380.52	0.42	92197.27	136.0	70 - 120	IS Fai
45 Sc	93176.97	1.63	88900.77	104.8	70 - 120	
45 Sc	983130.44	0.66	860562.44	114.2	70 - 120	
72 Ge	24672.96	1.03	19733.91	125.0	70 - 120	IS Fai
72 Ge	40553.30	0.59	36760.26	110.3	70 - 120	
72 Ge	192366.34	0.41	163358.02	117.8	70 - 120	
115 In	1171808.00	0.56	1074789.60	109.0	70 - 120	
159 Tb	2123794.50	0.87	1850943.00	114.7	70 - 120	
165 Ho	2156528.00	0.47	1889027.00	114.2	70 - 120	

ISTD Ref File : C:\ICPCHEM\1\DATA\11L15q00.B\005CALB.D\005CALB.D#

5 :Element Failures 0 :Max. Number of Failures Allowed
2 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Fail

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\11L15q00.B\090SMPL.D\090SMPL.D#
Date Acquired: Dec 16 2011 03:39 am
Operator: NBS
Sample Name: AY50189S01-1/10
Misc Info: 111128A-3050LLMIS
Vial Number: 4109
Current Method: C:\ICPCHEM\1\METHODS\62A1215D.M
Calibration File: C:\ICPCHEM\1\CALIB\62A1215D.C
Last Cal Update: Dec 15 2011 05:59 pm
Sample Type: Sample
Prep Dil Factor: 0.10
Total Dil Factor: 0.10

QC Elements

Element	Conc.	Corr. Conc.	RSD(%)	High Limit	Flag
7 (Li)	-------- ug/l	#VALUE!	--------	0	
9 Be	1.20 ug/l	0.12	0.35	1000	
11 B	18.71 ug/l	1.87	1.06	1000	
23 Na	639.00 ug/l	63.71	0.39	25000	
24 Mg	27750.00 ug/l	2766.68	0.93	50000	
27 Al	23870.00 ug/l	2379.84	1.36	20000	>Cal
39 K	2708.00 ug/l	269.99	0.46	20000	
44 Ca	68510.00 ug/l	6830.45	0.80	50000	>Cal
47 Ti	1656.00 ug/l	165.10	0.46	1000	>Cal
51 V	115.40 ug/l	11.51	0.50	1000	
52 Cr	66.92 ug/l	6.67	0.20	1000	
55 Mn	3174.00 ug/l	316.45	0.39	1000	>Cal
56 Fe	54020.00 ug/l	5385.79	0.85	20000	>Cal
59 Co	29.15 ug/l	2.91	1.00	1000	
60 Ni	53.86 ug/l	5.37	0.07	1000	
63 Cu	23.62 ug/l	2.35	1.05	1000	
65 Cu	23.97 ug/l	2.39	0.95	1000	
66 Zn	123.60 ug/l	12.32	0.11	1000	
75 As	14.52 ug/l	1.45	1.07	1000	
78 Se	1.13 ug/l	0.11	6.64	1000	
78 Se	1.88 ug/l	0.19	9.88	1000	
88 Sr	143.50 ug/l	14.31	0.87	1000	
88 Sr	142.80 ug/l	14.24	0.92	1000	
95 Mo	1.25 ug/l	0.12	2.01	1000	
106 (Cd)	-------- ug/l	#VALUE!	--------	#######	
107 Ag	0.15 ug/l	0.02	2.69	500	
108 (Cd)	-------- ug/l	#VALUE!	--------	#######	
111 Cd	1.17 ug/l	0.12	3.29	1000	
118 Sn	2.32 ug/l	0.23	2.34	1000	
121 Sb	0.84 ug/l	0.08	5.40	1000	
137 Ba	483.20 ug/l	48.18	0.42	1000	
205 Tl	0.47 ug/l	0.05	1.56	1000	
206 (Pb)	-------- ug/l	#VALUE!	--------	#######	
207 (Pb)	-------- ug/l	#VALUE!	--------	#######	
208 Pb	29.99 ug/l	2.99	0.75	1000	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1355796.80	0.77	1928380.00	70.3	70 - 120	
45 Sc	115235.30	0.24	92197.27	125.0	70 - 120	IS Fai
45 Sc	94597.77	0.60	88900.77	106.4	70 - 120	
45 Sc	1003586.10	0.06	860562.44	116.6	70 - 120	
72 Ge	22516.50	0.69	19733.91	114.1	70 - 120	
72 Ge	41102.99	0.80	36760.26	111.8	70 - 120	
72 Ge	196374.59	0.10	163358.02	120.2	70 - 120	IS Fai
115 In	1181200.50	0.07	1074789.60	109.9	70 - 120	
159 Tb	2147572.00	0.47	1850943.00	116.0	70 - 120	
165 Ho	2180816.00	0.20	1889027.00	115.4	70 - 120	

ISTD Ref File : C:\ICPCHEM\1\DATA\11L15q00.B\005CALB.D\005CALB.D#

5 :Element Failures 0 :Max. Number of Failures Allowed
2 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Fail

Sample QC Report

Data File:	C:\ICPCHEM\1\DATA\11K18j01.B\091SMPL.D\091SMPL.D#
Date Acquired:	Nov 18 2011 06:58 pm
Operator:	NBS
Sample Name:	AY50190W01
Misc Info:	111114A-3015
Vial Number:	3409
Current Method:	C:\ICPCHEM\1\METHODS\62A1118A.M
Calibration File:	C:\ICPCHEM\1\CALIB\62A1118A.C
Last Cal Update:	Nov 18 2011 05:12 pm
Sample Type:	Sample
Prep Dil Factor:	1.11
Total Dil Factor:	1.11

QC Elements

Element	Conc.	Corr. Conc.	RSD(%)	High Limit	Flag
7 (Li)	-------- ug/1	#VALUE!	--------	0	
9 Be	-0.01 ug/1	-0.01	10.00	1000	
11 B	42.86 ug/1	47.62	0.31	1000	
23 Na	17160.00 ug/1	19064.76	0.58	25000	
24 Mg	23810.00 ug/1	26452.91	1.74	50000	
27 Al	10.29 ug/1	11.43	3.81	20000	
39 K	2661.00 ug/1	2956.37	0.70	20000	
44 Ca	70620.00 ug/1	78458.82	1.16	50000	>Cal
47 Ti	0.39 ug/1	0.43	9.62	1000	
51 V	1.49 ug/1	1.65	3.39	1000	
52 Cr	0.23 ug/1	0.26	5.57	1000	
55 Mn	215.20 ug/1	239.09	0.56	1000	
56 Fe	19.53 ug/1	21.70	2.35	20000	
59 Co	0.25 ug/1	0.28	2.52	1000	
60 Ni	2.09 ug/1	2.33	3.27	1000	
63 Cu	0.84 ug/1	0.93	6.61	1000	
65 Cu	0.90 ug/1	1.00	2.92	1000	
66 Zn	3.44 ug/1	3.83	3.08	1000	
75 As	1.80 ug/1	2.00	2.40	1000	
78 Se	0.31 ug/1	0.35	9.85	1000	
78 Se	0.26 ug/1	0.29	26.55	1000	
88 Sr	188.60 ug/1	209.53	1.09	1000	
88 Sr	194.20 ug/1	215.76	0.18	1000	
95 Mo	2.83 ug/1	3.14	1.73	1000	
106 (Cd)	-------- ug/1	#VALUE!	--------	#######	
107 Ag	0.00 ug/1	0.00	75.98	500	
108 (Cd)	-------- ug/1	#VALUE!	--------	#######	
111 Cd	0.01 ug/1	0.01	351.00	1000	
118 Sn	0.07 ug/1	0.08	8.45	1000	
121 Sb	0.11 ug/1	0.13	5.87	1000	
137 Ba	95.01 ug/1	105.56	1.02	1000	
205 Tl	0.00 ug/1	0.00	178.78	1000	
206 (Pb)	-------- ug/1	#VALUE!	--------	#######	
207 (Pb)	-------- ug/1	#VALUE!	--------	#######	
208 Pb	0.16 ug/1	0.18	4.39	1000	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3929255.50	0.36	3952274.80	99.4	70 - 120	
45 Sc	375809.81	3.35	314358.13	119.5	70 - 120	
45 Sc	89388.64	0.42	91947.45	97.2	70 - 120	
45 Sc	1673293.60	0.47	1594646.50	104.9	70 - 120	
72 Ge	68435.63	3.33	69736.12	98.1	70 - 120	
72 Ge	38329.15	1.50	42526.00	90.1	70 - 120	
72 Ge	218710.41	0.29	222673.61	98.2	70 - 120	
115 In	1379712.60	1.48	1330628.00	103.7	70 - 120	
159 Tb	2028232.90	0.41	1858270.60	109.1	70 - 120	
165 Ho	2048254.80	0.63	1869665.40	109.6	70 - 120	

ISTD Ref File : C:\ICPCHEM\1\DATA\11K18j01.B\073CALB.D\073CALB.D#

1 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

Sample QC Report

Data File:	C:\ICPCHEM\1\DATA\11K18j01.B\092SMPL.D\092SMPL.D#
Date Acquired:	Nov 18 2011 07:04 pm
Operator:	NBS
Sample Name:	AY50191W01
Misc Info:	111114A-3015
Vial Number:	3410
Current Method:	C:\ICPCHEM\1\METHODS\62A1118A.M
Calibration File:	C:\ICPCHEM\1\CALIB\62A1118A.C
Last Cal Update:	Nov 18 2011 05:12 pm
Sample Type:	Sample
Prep Dil Factor:	1.11
Total Dil Factor:	1.11

QC Elements

Element	Conc.	Corr. Conc.	RSD(%)	High Limit	Flag
7 (Li)	-------- ug/l	#VALUE!	--------	0	
9 Be	-0.01 ug/l	-0.01	22.36	1000	
11 B	39.75 ug/l	44.16	0.58	1000	
23 Na	16880.00 ug/l	18753.68	0.95	25000	
24 Mg	23360.00 ug/l	25952.96	1.39	50000	
27 Al	3.60 ug/l	3.99	15.71	20000	
39 K	2625.00 ug/l	2916.38	1.44	20000	
44 Ca	69710.00 ug/l	77447.81	0.77	50000	>Cal
47 Ti	0.35 ug/l	0.39	11.46	1000	
51 V	1.44 ug/l	1.60	2.93	1000	
52 Cr	0.14 ug/l	0.16	7.29	1000	
55 Mn	212.60 ug/l	236.20	0.89	1000	
56 Fe	14.89 ug/l	16.54	0.67	20000	
59 Co	0.24 ug/l	0.27	5.20	1000	
60 Ni	2.07 ug/l	2.30	3.82	1000	
63 Cu	0.92 ug/l	1.02	4.65	1000	
65 Cu	1.00 ug/l	1.11	0.73	1000	
66 Zn	3.32 ug/l	3.69	3.35	1000	
75 As	1.72 ug/l	1.91	3.30	1000	
78 Se	0.27 ug/l	0.30	1.93	1000	
78 Se	0.12 ug/l	0.13	100.17	1000	
88 Sr	186.00 ug/l	206.65	0.31	1000	
88 Sr	191.90 ug/l	213.20	0.33	1000	
95 Mo	2.82 ug/l	3.14	0.62	1000	
106 (Cd)	-------- ug/l	#VALUE!	--------	#######	
107 Ag	0.00 ug/l	0.00	80.50	500	
108 (Cd)	-------- ug/l	#VALUE!	--------	#######	
111 Cd	0.01 ug/l	0.01	124.43	1000	
118 Sn	0.06 ug/l	0.07	7.47	1000	
121 Sb	0.10 ug/l	0.11	2.29	1000	
137 Ba	93.34 ug/l	103.70	0.82	1000	
205 Tl	0.00 ug/l	0.00	383.21	1000	
206 (Pb)	-------- ug/l	#VALUE!	--------	#######	
207 (Pb)	-------- ug/l	#VALUE!	--------	#######	
208 Pb	0.19 ug/l	0.22	0.55	1000	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3917291.30	0.58	3952274.80	99.1	70 - 120	
45 Sc	375523.31	3.72	314358.13	119.5	70 - 120	
45 Sc	88990.69	0.62	91947.45	96.8	70 - 120	
45 Sc	1650033.60	0.51	1594646.50	103.5	70 - 120	
72 Ge	68515.63	3.81	69736.12	98.2	70 - 120	
72 Ge	38203.99	1.03	42526.00	89.8	70 - 120	
72 Ge	215185.50	0.35	222673.61	96.6	70 - 120	
115 In	1368765.60	0.48	1330628.00	102.9	70 - 120	
159 Tb	2020754.50	1.26	1858270.60	108.7	70 - 120	
165 Ho	2029481.90	0.38	1869665.40	108.5	70 - 120	

ISTD Ref File : C:\ICPCHEM\1\DATA\11K18j01.B\073CALB.D\073CALB.D#

1 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\11K18j01.B\093SMPL.D\093SMPL.D#
Date Acquired: Nov 18 2011 07:10 pm
Operator: NBS
Sample Name: AY50192W01
Misc Info: 111114A-3015
Vial Number: 3411
Current Method: C:\ICPCHEM\1\METHODS\62A1118A.M
Calibration File: C:\ICPCHEM\1\CALIB\62A1118A.C
Last Cal Update: Nov 18 2011 05:12 pm
Sample Type: Sample
Prep Dil Factor: 1.11
Total Dil Factor: 1.11

QC Elements

Element	Conc.	Corr. Conc.	RSD(%)	High Limit	Flag
7 (Li)	-------- ug/l	#VALUE!	--------	0	
9 Be	-0.01 ug/l	-0.01	35.49	1000	
11 B	39.47 ug/l	43.85	1.09	1000	
23 Na	15680.00 ug/l	17420.48	11.38	25000	
24 Mg	22060.00 ug/l	24508.66	11.85	50000	
27 Al	9.32 ug/l	10.35	9.93	20000	
39 K	2480.00 ug/l	2755.28	12.13	20000	
44 Ca	66250.00 ug/l	73603.75	11.84	50000	>Cal
47 Ti	0.44 ug/l	0.49	17.48	1000	
51 V	1.36 ug/l	1.51	9.23	1000	
52 Cr	0.08 ug/l	0.09	17.54	1000	
55 Mn	187.00 ug/l	207.76	11.55	1000	
56 Fe	19.53 ug/l	21.70	11.93	20000	
59 Co	0.24 ug/l	0.27	16.17	1000	
60 Ni	1.91 ug/l	2.12	13.11	1000	
63 Cu	0.68 ug/l	0.76	8.14	1000	
65 Cu	0.78 ug/l	0.86	11.08	1000	
66 Zn	2.31 ug/l	2.56	17.84	1000	
75 As	1.70 ug/l	1.89	12.73	1000	
78 Se	0.32 ug/l	0.35	6.00	1000	
78 Se	0.22 ug/l	0.24	83.15	1000	
88 Sr	180.30 ug/l	200.31	11.25	1000	
88 Sr	195.00 ug/l	216.65	0.79	1000	
95 Mo	2.93 ug/l	3.26	0.78	1000	
106 (Cd)	-------- ug/l	#VALUE!	--------	#######	
107 Ag	0.00 ug/l	0.00	516.36	500	
108 (Cd)	-------- ug/l	#VALUE!	--------	#######	
111 Cd	0.03 ug/l	0.03	36.03	1000	
118 Sn	0.08 ug/l	0.09	32.39	1000	
121 Sb	0.09 ug/l	0.10	5.60	1000	
137 Ba	95.61 ug/l	106.22	1.30	1000	
205 Tl	0.00 ug/l	0.00	68.64	1000	
206 (Pb)	-------- ug/l	#VALUE!	--------	#######	
207 (Pb)	-------- ug/l	#VALUE!	--------	#######	
208 Pb	0.35 ug/l	0.39	1.85	1000	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3874283.30	0.62	3952274.80	98.0	70 - 120	
45 Sc	356548.75	1.49	314358.13	113.4	70 - 120	
45 Sc	95674.13	10.45	91947.45	104.1	70 - 120	
45 Sc	1659692.00	1.06	1594646.50	104.1	70 - 120	
72 Ge	65576.10	2.09	69736.12	94.0	70 - 120	
72 Ge	40211.61	9.40	42526.00	94.6	70 - 120	
72 Ge	214507.73	0.29	222673.61	96.3	70 - 120	
115 In	1372307.10	1.35	1330628.00	103.1	70 - 120	
159 Tb	2017809.00	0.64	1858270.60	108.6	70 - 120	
165 Ho	2043724.90	0.67	1869665.40	109.3	70 - 120	

ISTD Ref File : C:\ICPCHEM\1\DATA\11K18j01.B\073CALB.D\073CALB.D#

1 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

Sample QC Report

Data File:	C:\ICPCHEM\1\DATA\11K18j01.B\094SMPL.D\094SMPL.D#
Date Acquired:	Nov 18 2011 07:16 pm
Operator:	NBS
Sample Name:	AY50193W01
Misc Info:	111114A-3015
Vial Number:	3412
Current Method:	C:\ICPCHEM\1\METHODS\62A1118A.M
Calibration File:	C:\ICPCHEM\1\CALIB\62A1118A.C
Last Cal Update:	Nov 18 2011 05:12 pm
Sample Type:	Sample
Prep Dil Factor:	1.11
Total Dil Factor:	1.11

QC Elements

Element	Conc.	Corr. Conc.	RSD(%)	High Limit	Flag
7 (Li)	-------- ug/l	#VALUE!	--------	0	
9 Be	0.00 ug/l	0.00	14.88	1000	
11 B	7.34 ug/l	8.16	0.92	1000	
23 Na	25.79 ug/l	28.65	1.11	25000	
24 Mg	65.26 ug/l	72.50	1.16	50000	
27 Al	14.42 ug/l	16.02	3.60	20000	
39 K	-6.42 ug/l	-7.13	126.13	20000	
44 Ca	227.80 ug/l	253.09	4.54	50000	
47 Ti	0.54 ug/l	0.60	15.70	1000	
51 V	0.66 ug/l	0.73	12.50	1000	
52 Cr	0.23 ug/l	0.26	3.33	1000	
55 Mn	1.84 ug/l	2.04	0.97	1000	
56 Fe	25.10 ug/l	27.89	0.63	20000	
59 Co	0.01 ug/l	0.01	19.48	1000	
60 Ni	0.55 ug/l	0.61	7.94	1000	
63 Cu	0.77 ug/l	0.86	3.08	1000	
65 Cu	0.76 ug/l	0.84	2.49	1000	
66 Zn	1.60 ug/l	1.78	1.95	1000	
75 As	0.08 ug/l	0.09	23.15	1000	
78 Se	0.01 ug/l	0.01	204.46	1000	
78 Se	-0.14 ug/l	-0.15	81.86	1000	
88 Sr	0.32 ug/l	0.35	13.26	1000	
88 Sr	0.30 ug/l	0.34	4.63	1000	
95 Mo	0.02 ug/l	0.02	67.08	1000	
106 (Cd)	-------- ug/l	#VALUE!	--------	#######	
107 Ag	0.00 ug/l	0.00	141.09	500	
108 (Cd)	-------- ug/l	#VALUE!	--------	#######	
111 Cd	0.00 ug/l	0.00	360.74	1000	
118 Sn	0.08 ug/l	0.09	17.53	1000	
121 Sb	0.01 ug/l	0.01	25.32	1000	
137 Ba	0.49 ug/l	0.54	1.62	1000	
205 Tl	0.00 ug/l	0.00	42.20	1000	
206 (Pb)	-------- ug/l	#VALUE!	--------	#######	
207 (Pb)	-------- ug/l	#VALUE!	--------	#######	
208 Pb	0.20 ug/l	0.23	2.61	1000	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	4060290.80	0.27	3952274.80	102.7	70 - 120	
45 Sc	377990.31	4.86	314358.13	120.2	70 - 120	IS Fai
45 Sc	91928.06	0.25	91947.45	100.0	70 - 120	
45 Sc	1571299.60	0.60	1594646.50	98.5	70 - 120	
72 Ge	71898.27	4.75	69736.12	103.1	70 - 120	
72 Ge	40323.40	0.61	42526.00	94.8	70 - 120	
72 Ge	224583.61	0.53	222673.61	100.9	70 - 120	
115 In	1458744.50	0.64	1330628.00	109.6	70 - 120	
159 Tb	2083731.10	0.75	1858270.60	112.1	70 - 120	
165 Ho	2103409.50	0.64	1869665.40	112.5	70 - 120	

ISTD Ref File : C:\ICPCHEM\1\DATA\11K18j01.B\073CALB.D\073CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed
1 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:

Analytes: Pass
ISTD: Fail

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\11L15q00.B\091SMPL.D\091SMPL.D#
Date Acquired: Dec 16 2011 03:46 am
Operator: NBS
Sample Name: AY50194S01-1/10
Misc Info: 111128A-3050LLMIS
Vial Number: 4110
Current Method: C:\ICPCHEM\1\METHODS\62A1215D.M
Calibration File: C:\ICPCHEM\1\CALIB\62A1215D.C
Last Cal Update: Dec 15 2011 05:59 pm
Sample Type: Sample
Prep Dil Factor: 0.10
Total Dil Factor: 0.10

QC Elements

Element	Conc.	Corr. Conc.	RSD(%)	High Limit	Flag
7 (Li)	-------- ug/l	#VALUE!	--------	0	
9 Be	0.99 ug/l	0.10	1.78	1000	
11 B	15.96 ug/l	1.60	0.97	1000	
23 Na	591.10 ug/l	59.23	0.28	25000	
24 Mg	33820.00 ug/l	3388.76	0.36	50000	
27 Al	19520.00 ug/l	1955.90	0.23	20000	
39 K	2052.00 ug/l	205.61	0.83	20000	
44 Ca	84280.00 ug/l	8444.86	0.19	50000	>Cal
47 Ti	1415.00 ug/l	141.78	0.59	1000	>Cal
51 V	96.17 ug/l	9.64	0.07	1000	
52 Cr	56.59 ug/l	5.67	0.23	1000	
55 Mn	3157.00 ug/l	316.33	0.54	1000	>Cal
56 Fe	48780.00 ug/l	4887.76	0.21	20000	>Cal
59 Co	27.67 ug/l	2.77	0.32	1000	
60 Ni	50.32 ug/l	5.04	0.30	1000	
63 Cu	18.48 ug/l	1.85	0.69	1000	
65 Cu	18.63 ug/l	1.87	1.37	1000	
66 Zn	103.80 ug/l	10.40	1.09	1000	
75 As	13.07 ug/l	1.31	0.91	1000	
78 Se	0.98 ug/l	0.10	11.28	1000	
78 Se	1.69 ug/l	0.17	3.17	1000	
88 Sr	134.60 ug/l	13.49	0.89	1000	
88 Sr	134.40 ug/l	13.47	0.70	1000	
95 Mo	1.07 ug/l	0.11	3.45	1000	
106 (Cd)	-------- ug/l	#VALUE!	--------	#######	
107 Ag	0.16 ug/l	0.02	4.80	500	
108 (Cd)	-------- ug/l	#VALUE!	--------	#######	
111 Cd	0.94 ug/l	0.09	6.35	1000	
118 Sn	1.95 ug/l	0.20	0.89	1000	
121 Sb	0.68 ug/l	0.07	1.31	1000	
137 Ba	391.10 ug/l	39.19	1.57	1000	
205 Tl	0.38 ug/l	0.04	0.14	1000	
206 (Pb)	-------- ug/l	#VALUE!	--------	#######	
207 (Pb)	-------- ug/l	#VALUE!	--------	#######	
208 Pb	27.64 ug/l	2.77	0.74	1000	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1382485.80	1.01	1928380.00	71.7	70 - 120	
45 Sc	109312.90	0.68	92197.27	118.6	70 - 120	
45 Sc	92726.73	0.78	88900.77	104.3	70 - 120	
45 Sc	994685.88	0.78	860562.44	115.6	70 - 120	
72 Ge	21897.77	0.33	19733.91	111.0	70 - 120	
72 Ge	41076.62	1.76	36760.26	111.7	70 - 120	
72 Ge	195250.23	0.39	163358.02	119.5	70 - 120	
115 In	1182445.60	1.01	1074789.60	110.0	70 - 120	
159 Tb	2120981.80	0.81	1850943.00	114.6	70 - 120	
165 Ho	2165124.30	0.81	1889027.00	114.6	70 - 120	

ISTD Ref File : C:\ICPCHEM\1\DATA\11L15q00.B\005CALB.D\005CALB.D#

4 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\11L15q00.B\092SMPL.D\092SMPL.D#
Date Acquired: Dec 16 2011 03:53 am
Operator: NBS
Sample Name: AY50195S01-1/10
Misc Info: 111128A-3050LLMIS
Vial Number: 4111
Current Method: C:\ICPCHEM\1\METHODS\62A1215D.M
Calibration File: C:\ICPCHEM\1\CALIB\62A1215D.C
Last Cal Update: Dec 15 2011 05:59 pm
Sample Type: Sample
Prep Dil Factor: 0.10
Total Dil Factor: 0.10

QC Elements

Element	Conc.	Corr. Conc.	RSD(%)	High Limit	Flag
7 (Li)	-------- ug/l	#VALUE!	--------	0	
9 Be	1.02 ug/l	0.10	2.22	1000	
11 B	19.26 ug/l	1.92	1.15	1000	
23 Na	628.80 ug/l	62.75	1.26	25000	
24 Mg	38780.00 ug/l	3870.24	1.42	50000	
27 Al	21000.00 ug/l	2095.80	0.71	20000	>Cal
39 K	2372.00 ug/l	236.73	0.79	20000	
44 Ca	88340.00 ug/l	8816.33	0.25	50000	>Cal
47 Ti	1912.00 ug/l	190.82	0.61	1000	>Cal
51 V	122.90 ug/l	12.27	0.85	1000	
52 Cr	69.92 ug/l	6.98	1.11	1000	
55 Mn	3761.00 ug/l	375.35	1.03	1000	>Cal
56 Fe	53050.00 ug/l	5294.39	1.45	20000	>Cal
59 Co	29.79 ug/l	2.97	0.96	1000	
60 Ni	56.26 ug/l	5.61	2.04	1000	
63 Cu	19.35 ug/l	1.93	0.48	1000	
65 Cu	19.81 ug/l	1.98	0.77	1000	
66 Zn	107.70 ug/l	10.75	1.22	1000	
75 As	13.62 ug/l	1.36	1.14	1000	
78 Se	0.84 ug/l	0.08	1.65	1000	
78 Se	1.69 ug/l	0.17	3.55	1000	
88 Sr	136.60 ug/l	13.63	0.30	1000	
88 Sr	135.00 ug/l	13.47	0.53	1000	
95 Mo	1.23 ug/l	0.12	1.94	1000	
106 (Cd)	-------- ug/l	#VALUE!	--------	#######	
107 Ag	0.13 ug/l	0.01	10.12	500	
108 (Cd)	-------- ug/l	#VALUE!	--------	#######	
111 Cd	1.15 ug/l	0.12	1.51	1000	
118 Sn	2.36 ug/l	0.24	1.88	1000	
121 Sb	0.70 ug/l	0.07	0.55	1000	
137 Ba	520.80 ug/l	51.98	0.14	1000	
205 Tl	0.43 ug/l	0.04	1.13	1000	
206 (Pb)	-------- ug/l	#VALUE!	--------	#######	
207 (Pb)	-------- ug/l	#VALUE!	--------	#######	
208 Pb	26.92 ug/l	2.69	0.36	1000	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1381496.80	0.20	1928380.00	71.6	70 - 120	
45 Sc	102066.23	0.71	92197.27	110.7	70 - 120	
45 Sc	93594.77	1.67	88900.77	105.3	70 - 120	
45 Sc	1010081.00	0.60	860562.44	117.4	70 - 120	
72 Ge	20081.43	0.54	19733.91	101.8	70 - 120	
72 Ge	40689.60	1.38	36760.26	110.7	70 - 120	
72 Ge	196349.25	0.30	163358.02	120.2	70 - 120	IS Fai
115 In	1167501.30	0.52	1074789.60	108.6	70 - 120	
159 Tb	2098600.50	0.47	1850943.00	113.4	70 - 120	
165 Ho	2133350.80	0.45	1889027.00	112.9	70 - 120	

ISTD Ref File : C:\ICPCHEM\1\DATA\11L15q00.B\005CALB.D\005CALB.D#

5 :Element Failures 0 :Max. Number of Failures Allowed
1 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:

Analytes: Fail
ISTD: Fail

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\11L15q00.B\093SMPL.D\093SMPL.D#
Date Acquired: Dec 16 2011 04:01 am
Operator: NBS
Sample Name: AY50196S01-1/10
Misc Info: 111128A-3050LLMIS
Vial Number: 4112
Current Method: C:\ICPCHEM\1\METHODS\62A1215D.M
Calibration File: C:\ICPCHEM\1\CALIB\62A1215D.C
Last Cal Update: Dec 15 2011 05:59 pm
Sample Type: Sample
Prep Dil Factor: 0.10
Total Dil Factor: 0.10

QC Elements

Element	Conc.	Corr. Conc.	RSD(%)	High Limit	Flag
7 (Li)	-------- ug/l	#VALUE!	--------	0	
9 Be	0.88 ug/l	0.09	0.96	1000	
11 B	18.28 ug/l	1.82	0.39	1000	
23 Na	657.70 ug/l	65.44	1.10	25000	
24 Mg	27070.00 ug/l	2693.47	0.87	50000	
27 Al	19150.00 ug/l	1905.43	0.75	20000	
39 K	2260.00 ug/l	224.87	0.64	20000	
44 Ca	66660.00 ug/l	6632.67	0.46	50000	>Cal
47 Ti	1911.00 ug/l	190.14	0.94	1000	>Cal
51 V	95.45 ug/l	9.50	0.75	1000	
52 Cr	61.04 ug/l	6.07	0.85	1000	
55 Mn	2335.00 ug/l	232.33	0.93	1000	>Cal
56 Fe	43900.00 ug/l	4368.05	1.17	20000	>Cal
59 Co	25.19 ug/l	2.51	1.53	1000	
60 Ni	50.62 ug/l	5.04	0.36	1000	
63 Cu	14.81 ug/l	1.47	0.91	1000	
65 Cu	14.99 ug/l	1.49	1.07	1000	
66 Zn	91.21 ug/l	9.08	0.97	1000	
75 As	11.02 ug/l	1.10	1.03	1000	
78 Se	0.71 ug/l	0.07	8.18	1000	
78 Se	1.33 ug/l	0.13	4.18	1000	
88 Sr	180.20 ug/l	17.93	0.81	1000	
88 Sr	179.50 ug/l	17.86	0.83	1000	
95 Mo	0.76 ug/l	0.08	2.82	1000	
106 (Cd)	-------- ug/l	#VALUE!	--------	#######	
107 Ag	0.12 ug/l	0.01	5.26	500	
108 (Cd)	-------- ug/l	#VALUE!	--------	#######	
111 Cd	0.78 ug/l	0.08	3.58	1000	
118 Sn	1.43 ug/l	0.14	1.64	1000	
121 Sb	0.57 ug/l	0.06	4.02	1000	
137 Ba	407.30 ug/l	40.53	1.17	1000	
205 Tl	0.36 ug/l	0.04	1.30	1000	
206 (Pb)	-------- ug/l	#VALUE!	--------	#######	
207 (Pb)	-------- ug/l	#VALUE!	--------	#######	
208 Pb	22.78 ug/l	2.27	0.59	1000	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1379713.80	0.56	1928380.00	71.5	70 - 120	
45 Sc	88781.14	0.98	92197.27	96.3	70 - 120	
45 Sc	92712.23	1.51	88900.77	104.3	70 - 120	
45 Sc	1004520.00	0.06	860562.44	116.7	70 - 120	
72 Ge	18035.42	1.96	19733.91	91.4	70 - 120	
72 Ge	40502.43	0.53	36760.26	110.2	70 - 120	
72 Ge	194558.50	0.18	163358.02	119.1	70 - 120	
115 In	1176250.60	0.79	1074789.60	109.4	70 - 120	
159 Tb	2087490.80	0.63	1850943.00	112.8	70 - 120	
165 Ho	2126311.30	0.90	1889027.00	112.6	70 - 120	

ISTD Ref File : C:\ICPCHEM\1\DATA\11L15q00.B\005CALB.D\005CALB.D#

4 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\11L15q00.B\094SMPL.D\094SMPL.D#
Date Acquired: Dec 16 2011 04:08 am
Operator: NBS
Sample Name: AY50197S01-1/10
Misc Info: 111128A-3050LLMIS
Vial Number: 4201
Current Method: C:\ICPCHEM\1\METHODS\62A1215D.M
Calibration File: C:\ICPCHEM\1\CALIB\62A1215D.C
Last Cal Update: Dec 15 2011 05:59 pm
Sample Type: Sample
Prep Dil Factor: 0.10
Total Dil Factor: 0.10

QC Elements

Element	Conc.	Corr. Conc.	RSD(%)	High Limit	Flag
7 (Li)	-------- ug/l	#VALUE!	--------	0	
9 Be	1.38 ug/l	0.14	2.25	1000	
11 B	25.58 ug/l	2.56	0.37	1000	
23 Na	725.20 ug/l	72.45	1.07	25000	
24 Mg	33110.00 ug/l	3307.69	0.37	50000	
27 Al	30150.00 ug/l	3011.99	0.80	20000	>Cal
39 K	3568.00 ug/l	356.44	1.05	20000	
44 Ca	84070.00 ug/l	8398.59	0.42	50000	>Cal
47 Ti	1992.00 ug/l	199.00	0.71	1000	>Cal
51 V	134.40 ug/l	13.43	0.67	1000	
52 Cr	75.96 ug/l	7.59	0.57	1000	
55 Mn	3485.00 ug/l	348.15	0.67	1000	>Cal
56 Fe	57770.00 ug/l	5771.22	1.07	20000	>Cal
59 Co	32.70 ug/l	3.27	0.55	1000	
60 Ni	61.63 ug/l	6.16	0.94	1000	
63 Cu	27.87 ug/l	2.78	1.26	1000	
65 Cu	28.16 ug/l	2.81	0.20	1000	
66 Zn	138.60 ug/l	13.85	0.29	1000	
75 As	16.25 ug/l	1.62	0.43	1000	
78 Se	1.36 ug/l	0.14	2.38	1000	
78 Se	2.02 ug/l	0.20	9.63	1000	
88 Sr	161.40 ug/l	16.12	0.55	1000	
88 Sr	161.80 ug/l	16.16	0.29	1000	
95 Mo	1.56 ug/l	0.16	3.24	1000	
106 (Cd)	-------- ug/l	#VALUE!	--------	#######	
107 Ag	0.18 ug/l	0.02	3.09	500	
108 (Cd)	-------- ug/l	#VALUE!	--------	#######	
111 Cd	1.51 ug/l	0.15	2.41	1000	
118 Sn	2.43 ug/l	0.24	1.71	1000	
121 Sb	0.89 ug/l	0.09	2.48	1000	
137 Ba	637.90 ug/l	63.73	0.08	1000	
205 Tl	0.62 ug/l	0.06	2.30	1000	
206 (Pb)	-------- ug/l	#VALUE!	--------	#######	
207 (Pb)	-------- ug/l	#VALUE!	--------	#######	
208 Pb	33.09 ug/l	3.31	0.39	1000	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1348878.40	1.02	1928380.00	69.9	70 - 120	IS Fai
45 Sc	83891.55	0.43	92197.27	91.0	70 - 120	
45 Sc	95559.08	0.22	88900.77	107.5	70 - 120	
45 Sc	1046395.80	1.10	860562.44	121.6	70 - 120	IS Fai
72 Ge	16184.33	0.56	19733.91	82.0	70 - 120	
72 Ge	40723.45	1.06	36760.26	110.8	70 - 120	
72 Ge	197829.50	0.94	163358.02	121.1	70 - 120	IS Fai
115 In	1155104.90	0.55	1074789.60	107.5	70 - 120	
159 Tb	2081233.40	0.42	1850943.00	112.4	70 - 120	
165 Ho	2113189.80	0.40	1889027.00	111.9	70 - 120	

ISTD Ref File : C:\ICPCHEM\1\DATA\11L15q00.B\005CALB.D\005CALB.D#

5 :Element Failures 0 :Max. Number of Failures Allowed
3 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Fail

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\11L15q00.B\095SMPL.D\095SMPL.D#
Date Acquired: Dec 16 2011 04:15 am
Operator: NBS
Sample Name: AY50198S01-1/10
Misc Info: 111128A-3050LLMIS
Vial Number: 4202
Current Method: C:\ICPCHEM\1\METHODS\62A1215D.M
Calibration File: C:\ICPCHEM\1\CALIB\62A1215D.C
Last Cal Update: Dec 15 2011 05:59 pm
Sample Type: Sample
Prep Dil Factor: 0.10
Total Dil Factor: 0.10

QC Elements

Element	Conc.	Corr. Conc.	RSD(%)	High Limit	Flag
7 (Li)	-------- ug/l	#VALUE!	--------	0	
9 Be	1.25 ug/l	0.12	1.70	1000	
11 B	24.07 ug/l	2.39	0.36	1000	
23 Na	729.30 ug/l	72.57	0.62	25000	
24 Mg	32000.00 ug/l	3184.00	1.38	50000	
27 Al	27380.00 ug/l	2724.31	1.05	20000	>Cal
39 K	3398.00 ug/l	338.10	0.16	20000	
44 Ca	79290.00 ug/l	7889.36	1.05	50000	>Cal
47 Ti	2043.00 ug/l	203.28	0.71	1000	>Cal
51 V	125.20 ug/l	12.46	0.45	1000	
52 Cr	71.59 ug/l	7.12	0.62	1000	
55 Mn	3223.00 ug/l	320.69	0.64	1000	>Cal
56 Fe	55690.00 ug/l	5541.16	0.73	20000	>Cal
59 Co	28.78 ug/l	2.86	0.80	1000	
60 Ni	57.98 ug/l	5.77	0.31	1000	
63 Cu	25.26 ug/l	2.51	0.78	1000	
65 Cu	25.66 ug/l	2.55	0.49	1000	
66 Zn	130.90 ug/l	13.02	0.27	1000	
75 As	15.61 ug/l	1.55	0.13	1000	
78 Se	1.27 ug/l	0.13	9.60	1000	
78 Se	1.88 ug/l	0.19	3.13	1000	
88 Sr	159.60 ug/l	15.88	0.20	1000	
88 Sr	156.80 ug/l	15.60	0.59	1000	
95 Mo	1.34 ug/l	0.13	2.55	1000	
106 (Cd)	-------- ug/l	#VALUE!	--------	#######	
107 Ag	0.19 ug/l	0.02	4.40	500	
108 (Cd)	-------- ug/l	#VALUE!	--------	#######	
111 Cd	1.29 ug/l	0.13	2.70	1000	
118 Sn	2.32 ug/l	0.23	1.62	1000	
121 Sb	0.86 ug/l	0.09	1.33	1000	
137 Ba	506.70 ug/l	50.42	0.52	1000	
205 Tl	0.54 ug/l	0.05	0.20	1000	
206 (Pb)	-------- ug/l	#VALUE!	--------	#######	
207 (Pb)	-------- ug/l	#VALUE!	--------	#######	
208 Pb	30.69 ug/l	3.05	0.57	1000	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1359903.50	1.50	1928380.00	70.5	70 - 120	
45 Sc	75640.17	0.17	92197.27	82.0	70 - 120	
45 Sc	94509.41	0.53	88900.77	106.3	70 - 120	
45 Sc	1048317.50	0.77	860562.44	121.8	70 - 120	IS Fai
72 Ge	14934.11	0.63	19733.91	75.7	70 - 120	
72 Ge	40614.96	0.78	36760.26	110.5	70 - 120	
72 Ge	199312.02	0.16	163358.02	122.0	70 - 120	IS Fai
115 In	1164466.50	0.60	1074789.60	108.3	70 - 120	
159 Tb	2083707.50	0.38	1850943.00	112.6	70 - 120	
165 Ho	2123577.30	0.42	1889027.00	112.4	70 - 120	

ISTD Ref File : C:\ICPCHEM\1\DATA\11L15q00.B\005CALB.D\005CALB.D#

5 :Element Failures 0 :Max. Number of Failures Allowed
2 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Fail

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\11L15q00.B\096SMPL.D\096SMPL.D#
Date Acquired: Dec 16 2011 04:22 am
Operator: NBS
Sample Name: AY50199S01-1/10
Misc Info: 111128A-3050LLMIS
Vial Number: 4203
Current Method: C:\ICPCHEM\1\METHODS\62A1215D.M
Calibration File: C:\ICPCHEM\1\CALIB\62A1215D.C
Last Cal Update: Dec 15 2011 05:59 pm
Sample Type: Sample
Prep Dil Factor: 0.10
Total Dil Factor: 0.10

QC Elements

Element	Conc.	Corr. Conc.	RSD(%)	High Limit	Flag
7 (Li)	-------- ug/l	#VALUE!	--------	0	
9 Be	1.23 ug/l	0.12	1.38	1000	
11 B	23.24 ug/l	2.33	0.99	1000	
23 Na	739.00 ug/l	74.05	0.24	25000	
24 Mg	30100.00 ug/l	3016.02	0.46	50000	
27 Al	26930.00 ug/l	2698.39	0.86	20000	>Cal
39 K	3246.00 ug/l	325.25	0.29	20000	
44 Ca	77680.00 ug/l	7783.54	0.55	50000	>Cal
47 Ti	2107.00 ug/l	211.12	0.62	1000	>Cal
51 V	122.50 ug/l	12.27	0.49	1000	
52 Cr	72.51 ug/l	7.27	0.74	1000	
55 Mn	3062.00 ug/l	306.81	0.61	1000	>Cal
56 Fe	53630.00 ug/l	5373.73	0.60	20000	>Cal
59 Co	29.77 ug/l	2.98	0.68	1000	
60 Ni	58.79 ug/l	5.89	1.26	1000	
63 Cu	22.57 ug/l	2.26	0.94	1000	
65 Cu	23.20 ug/l	2.32	1.06	1000	
66 Zn	124.00 ug/l	12.42	0.40	1000	
75 As	14.08 ug/l	1.41	0.36	1000	
78 Se	1.20 ug/l	0.12	1.67	1000	
78 Se	1.94 ug/l	0.19	2.50	1000	
88 Sr	151.30 ug/l	15.16	0.56	1000	
88 Sr	151.60 ug/l	15.19	0.66	1000	
95 Mo	1.08 ug/l	0.11	1.89	1000	
106 (Cd)	-------- ug/l	#VALUE!	--------	#######	
107 Ag	0.14 ug/l	0.01	10.13	500	
108 (Cd)	-------- ug/l	#VALUE!	--------	#######	
111 Cd	1.19 ug/l	0.12	4.32	1000	
118 Sn	1.98 ug/l	0.20	1.07	1000	
121 Sb	0.76 ug/l	0.08	2.83	1000	
137 Ba	505.90 ug/l	50.69	2.03	1000	
205 Tl	0.53 ug/l	0.05	1.64	1000	
206 (Pb)	-------- ug/l	#VALUE!	--------	#######	
207 (Pb)	-------- ug/l	#VALUE!	--------	#######	
208 Pb	29.20 ug/l	2.93	0.44	1000	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1378180.80	0.81	1928380.00	71.5	70 - 120	
45 Sc	68967.04	0.53	92197.27	74.8	70 - 120	
45 Sc	94492.13	0.65	88900.77	106.3	70 - 120	
45 Sc	1034722.30	1.18	860562.44	120.2	70 - 120	IS Fai
72 Ge	13430.78	1.01	19733.91	68.1	70 - 120	IS Fai
72 Ge	40444.50	1.00	36760.26	110.0	70 - 120	
72 Ge	197981.55	1.02	163358.02	121.2	70 - 120	IS Fai
115 In	1155966.10	1.99	1074789.60	107.6	70 - 120	
159 Tb	2069166.50	0.48	1850943.00	111.8	70 - 120	
165 Ho	2090671.00	0.93	1889027.00	110.7	70 - 120	

ISTD Ref File : C:\ICPCHEM\1\DATA\11L15q00.B\005CALB.D\005CALB.D#

5 :Element Failures 0 :Max. Number of Failures Allowed
3 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Fail

Metals Analysis

URS Group
849 International Dr, Ste 320
Linthicum, MD 21090

Attn: Andrea Sansom
Project: 15302625.30000 ORA Ph II Camp Dodge
Sample ID: DGSW03DA03
Sample Collection Date: 11/1/2011

Surface Water
EQB

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

ARF: 66188
APPL ID: AY50043

Method	Analyte	Result	LOQ	LOD	DL	Units	DF	Prep Date	Analysis Date
6020	ANTIMONY (SB)	~~0.041J~~ 0.2U U,0	0.2	0.20	0.01	ug/L	1	11/14/2011	11/18/2011
6020	COPPER (CU)	0.19 J J,0	0.5	0.25	0.13	ug/L	1	11/14/2011	11/18/2011
SM2340B/Z	HARDNESS	1.0 U	1.0		1.0	mg/L	1	11/28/2011	11/28/2011
6020	LEAD (PB)	0.17 J	0.5	0.15	0.11	ug/L	1	11/14/2011	11/18/2011
6020	ZINC (ZN)	5.5 J	50.0	5.00	2.30	ug/L	1	11/14/2011	11/18/2011

J = Estimated value.

Printed: 11/29/2011 10:51:07 AM

APPL-F1-SC-NoMC-URS-REG MDLs

METALS BLANK

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Method	Analyte	Result	LOQ	LOD	DL	Units	Prep Date	Analysis Date	QC Group
6020	ANTIMONY (SB)	0.055 J	0.5	0.04	0.03	mg/Kg	11/28/11	12/16/11	f62DOD-AA111128-AY50187
6020	COPPER (CU)	0.05 U	0.5	0.05	0.04	mg/Kg	11/28/11	12/16/11	f62DOD-AA111128-AY50187
6020	LEAD (PB)	0.04 U	0.5	0.04	0.02	mg/Kg	11/28/11	12/16/11	f62DOD-AA111128-AY50187
6020	ZINC (ZN)	0.50 U	5.0	0.50	0.13	mg/Kg	11/28/11	12/16/11	f62DOD-AA111128-AY50187
6020	ANTIMONY (SB) (DI	0.037 J	0.2	0.20	0.01	ug/L	11/14/11	11/18/11	f62DOD-AA111114-AY50112
6020	COPPER (CU) (DIS	0.25 U	0.5	0.25	0.13	ug/L	11/14/11	11/18/11	f62DOD-AA111114-AY50112
6020	LEAD (PB) (DISSOL	0.15 U	0.5	0.15	0.11	ug/L	11/14/11	11/18/11	f62DOD-AA111114-AY50112
6020	ZINC (ZN) (DISSOL	5.00 U	50.0	5.00	2.30	ug/L	11/14/11	11/18/11	f62DOD-AA111114-AY50112

J = Estimated value.

Metals SC-Blank-URS-REG MDLs
Printed: 12/16/11 4:11:25 PM

Sample QC Report

MB - water

Data File: C:\ICPCHEM\1\DATA\11K18j01.B\024SMPL.D\024SMPL.D#
Date Acquired: Nov 18 2011 12:08 pm
Operator: NBS
Sample Name: 111114A-3015-BLK
Misc Info: 111114A-3015
Vial Number: 3103
Current Method: C:\ICPCHEM\1\METHODS\62A1118A.M
Calibration File: C:\ICPCHEM\1\CALIB\62A1118A.C
Last Cal Update: Nov 18 2011 10:40 am
Sample Type: Sample
Prep Dil Factor: 1.11
Total Dil Factor: 1.11

QC Elements

Element	Conc.	Corr. Conc.	RSD(%)	High Limit	Flag
7 (Li)	-------- ug/l	#VALUE!	--------	0	
9 Be	-0.01 ug/l	-0.01	57.31	1000	
11 B	-0.10 ug/l	-0.11	27.16	1000	
23 Na	7.68 ug/l	8.53	15.87	25000	
24 Mg	0.03 ug/l	0.03	682.38	50000	
27 Al	-0.09 ug/l	-0.10	161.81	20000	
39 K	8.92 ug/l	9.91	122.53	20000	
44 Ca	-10.91 ug/l	-12.12	28.96	50000	
47 Ti	0.03 ug/l	0.03	80.89	1000	
51 V	-0.01 ug/l	-0.01	213.54	1000	
52 Cr	0.00 ug/l	0.00	165.05	1000	
55 Mn	-0.02 ug/l	-0.02	59.11	1000	
56 Fe	0.04 ug/l	0.05	39.63	20000	
59 Co	0.00 ug/l	0.00	2740.50	1000	
60 Ni	0.00 ug/l	0.00	824.35	1000	
63 Cu	0.02 ug/l	0.02	90.54	1000	
65 Cu	0.01 ug/l	0.01	118.81	1000	
66 Zn	0.10 ug/l	0.11	42.01	1000	
75 As	0.01 ug/l	0.01	272.51	1000	
78 Se	0.01 ug/l	0.01	60.12	1000	
78 Se	0.25 ug/l	0.28	5.11	1000	
88 Sr	0.00 ug/l	0.00	533.60	1000	
88 Sr	0.00 ug/l	0.00	956.59	1000	
95 Mo	0.09 ug/l	0.10	13.58	1000	
106 (Cd)	-------- ug/l	#VALUE!	--------	#######	
107 Ag	0.04 ug/l	0.04	4.67	500	
108 (Cd)	-------- ug/l	#VALUE!	--------	#######	
111 Cd	0.01 ug/l	0.01	179.01	1000	
118 Sn	-0.01 ug/l	-0.01	92.56	1000	
121 Sb	0.03 ug/l	0.04	29.99	1000	.037
137 Ba	0.00 ug/l	0.00	156.25	1000	
205 Tl	0.00 ug/l	0.00	53.85	1000	
206 (Pb)	-------- ug/l	#VALUE!	--------	#######	
207 (Pb)	-------- ug/l	#VALUE!	--------	#######	
208 Pb	-0.21 ug/l	-0.23	2.31	1000	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	3228723.80	1.37	3235938.50	99.8	70 - 120	
45 Sc	244744.80	1.73	204426.16	119.7	70 - 120	
45 Sc	82612.45	3.76	72238.92	114.4	70 - 120	
45 Sc	1449895.10	2.19	1281777.80	113.1	70 - 120	
72 Ge	52759.76	1.52	43283.03	121.9	70 - 120	IS Fai
72 Ge	38194.03	1.78	32047.51	119.2	70 - 120	
72 Ge	204174.03	1.86	185969.94	109.8	70 - 120	
115 In	1292354.80	2.61	1167925.30	110.7	70 - 120	
159 Tb	1917936.40	1.23	1768807.80	108.4	70 - 120	
165 Ho	1971092.80	3.65	1805815.10	109.2	70 - 120	

ISTD Ref File : C:\ICPCHEM\1\DATA\11K18j01.B\005CALB.D\005CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed
1 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Fail

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\11L15q00.B\078SMPL.D\078SMPL.D#
Date Acquired: Dec 16 2011 02:13 am
Operator: NBS
Sample Name: 111128A-3050LM-BLK-1/10
Misc Info: 111128A-3050LLMIS
Vial Number: 4101
Current Method: C:\ICPCHEM\1\METHODS\62A1215D.M
Calibration File: C:\ICPCHEM\1\CALIB\62A1215D.C
Last Cal Update: Dec 15 2011 05:59 pm
Sample Type: Sample
Prep Dil Factor: 0.10
Total Dil Factor: 0.10

MB-soil

QC Elements

Element	Conc.	Corr. Conc.	RSD(%)	High Limit	Flag
7 (Li)	-------- ug/l	#VALUE!	--------	0	
9 Be	0.00 ug/l	0.00	41.72	1000	
11 B	0.09 ug/l	0.01	20.01	1000	
23 Na	12.43 ug/l	1.24	6.10	25000	
24 Mg	4.26 ug/l	0.43	1.46	50000	
27 Al	1.80 ug/l	0.18	2.15	20000	
39 K	-11.01 ug/l	-1.10	8.69	20000	
44 Ca	8.27 ug/l	0.83	10.96	50000	
47 Ti	0.09 ug/l	0.01	34.60	1000	
51 V	-0.21 ug/l	-0.02	22.98	1000	
52 Cr	0.02 ug/l	0.00	42.49	1000	
55 Mn	0.66 ug/l	0.07	2.87	1000	
56 Fe	7.29 ug/l	0.73	7.81	20000	
59 Co	0.00 ug/l	0.00	371.35	1000	
60 Ni	0.02 ug/l	0.00	50.22	1000	
63 Cu	0.01 ug/l	0.00	26.20	1000	
65 Cu	0.01 ug/l	0.00	93.42	1000	
66 Zn	-0.04 ug/l	0.00	47.46	1000	
75 As	-0.07 ug/l	-0.01	13.56	1000	
78 Se	0.04 ug/l	0.00	58.60	1000	
78 Se	0.15 ug/l	0.02	25.57	1000	
88 Sr	0.02 ug/l	0.00	30.45	1000	
88 Sr	0.02 ug/l	0.00	27.27	1000	
95 Mo	0.07 ug/l	0.01	1.90	1000	
106 (Cd)	-------- ug/l	#VALUE!	--------	#######	
107 Ag	0.00 ug/l	0.00	100.40	500	
108 (Cd)	-------- ug/l	#VALUE!	--------	#######	
111 Cd	0.01 ug/l	0.00	58.16	1000	
118 Sn	0.02 ug/l	0.00	66.25	1000	
121 Sb	0.55 ug/l	0.06	0.89	1000	.055 mg/kg
137 Ba	0.04 ug/l	0.00	10.40	1000	
205 Tl	0.03 ug/l	0.00	3.07	1000	
206 (Pb)	-------- ug/l	#VALUE!	--------	#######	
207 (Pb)	-------- ug/l	#VALUE!	--------	#######	
208 Pb	0.01 ug/l	0.00	21.29	1000	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1415270.40	0.24	1928380.00	73.4	70 - 120	
45 Sc	117905.71	0.49	92197.27	127.9	70 - 120	IS Fai
45 Sc	80358.53	1.94	88900.77	90.4	70 - 120	
45 Sc	841171.69	1.23	860562.44	97.7	70 - 120	
72 Ge	26106.57	0.38	19733.91	132.3	70 - 120	IS Fai
72 Ge	36697.56	1.66	36760.26	99.8	70 - 120	
72 Ge	169369.80	0.36	163358.02	103.7	70 - 120	
115 In	1162585.30	0.61	1074789.60	108.2	70 - 120	
159 Tb	2027087.50	0.56	1850943.00	109.5	70 - 120	
165 Ho	2073490.60	0.52	1889027.00	109.8	70 - 120	

ISTD Ref File : C:\ICPCHEM\1\DATA\11L15q00.B\005CALB.D\005CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed
2 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Fail

Laboratory Control Spike Recoveries

METALS DISSOLVED

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Method	Compound Name	Spike Lvl ug/L	SPK Res ug/L	DUP Res ug/L	SPK % Recov	DUP % Recov	RPD	RPD Max	QC Limits	Extract Date-Spk	Analysis Date-Spk	Extract Date-Dup	Analysis Date-Dup	QC Group
6020	ANTIMONY (SB) (DISSOLV	50.0	46.4	45.2	92.8	90.4	2.6	20	80-120	11/14/11	11/18/11	11/14/11	11/18/11	#62DOD-AA111114-AY501
6020	COPPER (CU) (DISSOLVE	50.0	44.4	44.8	88.8	89.6	0.9	20	80-120	11/14/11	11/18/11	11/14/11	11/18/11	#62DOD-AA111114-AY501
6020	LEAD (PB) (DISSOLVED)	50.0	47.0	47.4	94.0	94.8	0.8	20	80-120	11/14/11	11/18/11	11/14/11	11/18/11	#62DOD-AA111114-AY501
6020	ZINC (ZN) (DISSOLVED)	100.0	86.0	88.4	86.0	88.4	2.8	20	80-120	11/14/11	11/18/11	11/14/11	11/18/11	#62DOD-AA111114-AY501

Comments: _____

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APPL Standard LCSD

Laboratory Control Spike Recovery

METALS

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Method	Compound Name	Spike Level mg/Kg	SPK Result mg/Kg	SPK % Recovery	Recovery Limits	Extract Date	Analysis Date	QC Group
6020	ANTIMONY (SB)	2.50	2.6	104	80-120	11/28/11	12/16/11	#62DOD-AA111128-AY50187
6020	COPPER (CU)	2.50	2.5	100	80-120	11/28/11	12/16/11	#62DOD-AA111128-AY50187
6020	LEAD (PB)	2.50	2.7	108	80-120	11/28/11	12/16/11	#62DOD-AA111128-AY50187
6020	ZINC (ZN)	5.00	5.1	102	80-120	11/28/11	12/16/11	#62DOD-AA111128-AY50187

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Comments:

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APPL Standard LCS

METALS

Sample/Sample Duplicate Results

URS Group
849 International Dr, Ste 320
Linthicum, MD 21090

Attn: Andrea Sansom

Project: 15302625.30000 ORA Ph II Camp Dodge

Sample ID: AY50187
Client ID: DGSD03DA01

APPL Inc.
908 North Temperance Avenu
Clovis, CA 93611

ARF: 66214

Method	Analyte	Sample ID	Sample Result	Sample Dup Result	RPD	RPD Max	MDL	PQL	Units	Sample Extract Date	Sample Analysis Date	Sample Dup Extract Date	Sample Dup Analysis Date
6020	ANTIMONY (SB)	AY50187	0.085	0.072	NA	20	0.03	0.5	mg/Kg	11/28/11	12/16/11	11/28/11	12/16/11
6020	COPPER (CU)	AY50187	2.2	2.0	NA	20	0.04	0.5	mg/Kg	11/28/11	12/16/11	11/28/11	12/16/11
6020	LEAD (PB)	AY50187	2.9	2.8	3.5	20	0.02	0.5	mg/Kg	11/28/11	12/16/11	11/28/11	12/16/11
6020	ZINC (ZN)	AY50187	12.1	11.0	NA	20	0.13	5.0	mg/Kg	11/28/11	12/16/11	11/28/11	12/16/11

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Dup-SCII (NoMC)

Matrix Spike Recovery

METALS

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Sample ID: AY50187
Client ID: DGSD03DA01

Method	Compound Name	Spike Level mg/Kg	Matrix Result mg/Kg	SPK Result mg/Kg	SPK % Recovery	Recovery Limits	Extract Date	Analysis Date	QC Group	QC Sample
6020	ANTIMONY (SB)	9.99	0.085	8.7	86.2	80-120	11/28/11	12/16/11	62DOD-AA111128	AY50187
6020	COPPER (CU)	9.99	2.2	9.8	76.1 #	80-120	11/28/11	12/16/11	62DOD-AA111128	AY50187
6020	LEAD (PB)	9.99	2.9	10.6	77.1 #	80-120	11/28/11	12/16/11	62DOD-AA111128	AY50187
6020	ZINC (ZN)	19.98	12.1	26.7	73.1 #	80-120	11/28/11	12/16/11	62DOD-AA111128	AY50187

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= Recovery is outside QC limits.

Comments:

Printed: 12/16/11 4:20:52 PM
APPL MS SCII - URS

908 North Temperance Ave. ∇ Clovis, CA 93611 ∇ Phone 559-275-2175 ∇ Fax 559-275-4422

Certification Number: CA1312
NELAP Certification number: 05233CA
DoD-ELAP Certificate number: ADE-1410

Data Validation Report

December 19, 2011

12/20

URS Group, Inc.
849 International Drive, Suite 320
Linthicum, Maryland 21090

Attn: Andrea Sansom

Title: Report of Data: Case 66214

Project: 15302625.30000 ORA Phase II Camp Dodge, IA

Contract #: Prime contract # for DoD: W912DR-09-D-0003 TO 06
Subcontract: 260784 and 233697

Dear Ms. Sansom:

Samples were received November 5, 2011, in good condition. Written results for the requested analyses are provided on this December 19, 2011.

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.

If you have any questions or require further information, please contact your APPL Project Manager Diane Anderson at your convenience. Thank you for choosing APPL, Inc.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. These test results meet all requirements of NELAC and DoD QSM. Release of the hard copy has been authorized by the Laboratory Manager or her designee, as verified by the following signature.

Sharon Dehmlow, Laboratory Director
APPL, Inc.

SD/rp
Enclosure
cc: File

Number of pages in this report: 130

Sample Receipt Information

ARF: 66214

Project: 15302625.30000 ORA Phase II Camp Dodge, IA

Sample Receipt Information:

The samples were received on November 5, 2011, at 3.0°C, 1.0°C, and 1.0°C. The samples were assigned Analytical Request Form (ARF) number 66214. The sample numbers and requested analyses were compared to the chain of custody and email communication. ID discrepancies were noted and reported to the client. The hardness analysis of sample DGSD01DA04 was canceled by the client on November 21, 2011. No other exception was encountered.

Sample Table

CLIENT ID	APPL ID	Matrix	Date Sampled	Date Received
DGSD03DA01	AY50187	SOIL	11/3/2011	11/5/2011
DGSD03DA02	AY50188	SOIL	11/3/2011	11/5/2011
DGSD03DA03	AY50189	SOIL	11/3/2011	11/5/2011
DGSW01DB01	AY50190	WATER	11/3/2011	11/5/2011
DGSW01DB02	AY50191	WATER	11/3/2011	11/5/2011
DGSW01DA01	AY50192	WATER	11/4/2011	11/5/2011
DGSD01DA04	AY50193	WATER	11/4/2011	11/5/2011
DGSD02DA01	AY50194	SOIL	11/4/2011	11/5/2011
DGSD02DA02	AY50195	SOIL	11/4/2011	11/5/2011
DGSD02DA03	AY50196	SOIL	11/4/2011	11/5/2011
DGSD01DA01	AY50197	SOIL	11/4/2011	11/5/2011
DGSD01DA02	AY50198	SOIL	11/4/2011	11/5/2011
DGSD01DA03	AY50199	SOIL	11/4/2011	11/5/2011

Samples and blanks were screened for J-value responses between the detection limit (DL) and limit of quantitation (LOQ).

APPL's Laboratory control limits generated in house statistically do not meet the control limits listed in DoD QSM 4.2 for all analytes. Laboratory control spike recoveries for this project meet all control limits listed in the DoD QSM 4.2 except where noted. A copy of our in house generated control limits is available upon request. In addition, a copy of our LOQ control limits, established using 7 data points, are also available upon request.

Only the portion of the injection log relative to these samples is included. A full sequence log is available upon request.

Measurement uncertainty can be reported upon request.

Oversized fractions were sent to TerraSense, as instructed.

CASE NARRATIVE

EPA method 6020

Metals

Digestion Information:

The water samples were digested according to EPA method 3015. The soil samples were dried, sieved, manually ground, and incrementally sampled according to EPA method 8330B, Appendix A, then digested according to EPA method 3050B. No exception was encountered. All holding times were met.

Analysis Information:

Samples:

The samples were analyzed according to EPA method 6020 using an Agilent 7500cx ICP-MS. Hardness was determined using SM 2340B.

Calibrations:

Calibrations were performed according to the method for the initial calibration and the initial calibration verification. The initial calibration verification is prepared from a second source standard.

Blanks:

No target metal was detected at or above one-half the limit of quantitation (LOQ) in the method blanks.

Spikes:

Laboratory Control Spikes (LCS/LCSD), matrix spikes (MS), sample duplicate (DUP), post-digestion spike (PDS) and dilution test (DT) were used for quality assurance. All acceptance criteria were met.

Sample DGSD03DA01 was selected by the laboratory for DUP/MS analysis. In the MS, three analytes recovered below the 80% lower control limit: copper at 76.1%, lead at 77.1%, and zinc at 73.1%. In the DT, copper and zinc exceeded the 10% deviation limit at 14.2% and 15.1%. All acceptance criteria were met in the PDS.

Sample DGSW03DA01 from ARF 66188 was selected as the QC sample for the water analytical batch. All DUP/MS, PDS and DT were analyzed and reported on APPL report #66188.

Summary:

No other analytical exception is noted.

Renee Patterson

From: Sansom, Andrea [andrea.sansom@urs.com]
Sent: Monday, November 21, 2011 12:22 PM
To: Renee Patterson; mariem@accutest.com
Cc: Harrington, Jacquelyn; Tom Gallo "Gallo, Thomas E." "Gallo, Thomas E." <Tom.Gallo@arcadis-us.com> (Tom.Gallo@arcadis-us.com)
Subject: RE: ORA Login Status

APPL requested changes:

1. Please cancel hardness on:

DGSD01DA04	66214
KRSD03DA04	66291

2. I am hoping to have this sample shipped to you from Accutest for Metals analysis:

KRGWB1DA01	66291

Accutest requested changes:

1. For these samples on HOLD, please cancel AVS/SEM and proceed with TOC and grain size:

MCSD03DA-01	JA91988
MCSD04DA-01	JA91988

2. Please send this sample for metals to APPL using FEDEX account number 178692461 and reference number 15302618.54210.30000:

KRGWB1DA01	JA91984

3. Please cancel BLM metals on this sample:

KRGW06DA04	JA91984

URS
Andrea Sansom
Chemist
849 International Drive, Suite 320
Linthicum, MD 21090
410-487-8955
410-859-5202

From: Renee Patterson [mailto:rpatterson@applinc.com]
Sent: Friday, November 18, 2011 8:51 PM
To: Sansom, Andrea

APPL Sample Receipt Form

ARF# 66214

Sample	Container Type	Count	pH
AY50187	35 Plastic Bag	1	NA
AY50188	35 Plastic Bag	1	NA
AY50189	35 Plastic Bag	1	NA
AY50190	6 PL 500mL - HNO3	1	1.7
AY50191	6 PL 500mL - HNO3	1	1.7
AY50192	6 PL 500mL - HNO3	1	1.7
AY50193	6 PL 500mL - HNO3	1	1.7
AY50194	35 Plastic Bag	1	NA
AY50195	35 Plastic Bag	1	NA
AY50196	35 Plastic Bag	1	NA
AY50197	35 Plastic Bag	1	NA
AY50198	35 Plastic Bag	1	NA
AY50199	35 Plastic Bag	1	NA

Sample	Container Type	Count	pH

rectangular shape

" "

COOLER RECEIPT FORM

1) Project: 15302625.30000 CAMP DODGE Date Received: 11/5/11
2) Coolers: Number of Coolers: 3
3) YES NO Were coolers and samples screened for radioactivity?
4) YES NO Were custody seals on outside of cooler? How many? 6 Date on seal? 11/4/11
5) Name on seal? See Label
6) YES NO NA Were custody seals unbroken and intact at the time of arrival?
7) YES NO Did the cooler come with a shipping slip (air bill, etc.)? Carrier name: Fed Ex
8) Shipping slip numbers: 1) MASTER 8682 9161 6703 2) 3)
9) YES NO NA Was the shipping slip scanned into the database?
10) YES NO NA If cooler belongs to APPL, has it been logged into the ice chest database?
11) Describe type of packing in cooler (bubble wrap, popcorn, type of ice, etc.): Ziploc in wet ice
12) YES NO NA For hand delivered samples was sufficient ice present to start the cooling process?
13) YES NO Was a temperature blank included in the cooler?
14) Serial number of certified NIST thermometer used: A39267 Correction factor: 0
15) Cooler temp(s): 1) 3.0°C 2) 1.0°C 3) 1.0°C 4) 5) 6) 7) 8)

Chain of custody:
16) YES NO Was a chain of custody received?
17) YES NO Were the custody papers signed in the appropriate places?
18) YES NO Was the project identifiable from custody papers?
19) YES NO Did the chain of custody include date and time of sampling?
20) YES NO Is location where sample was taken listed on the chain of custody?

Sample Labels:
21) YES NO Were container labels in good condition?
22) YES NO Was the client ID on the label?
23) YES NO Was the date of sampling on the label?
24) YES NO Was the time of sampling on the label?
25) YES NO Did all container labels agree with custody papers?

Sample Containers:
26) YES NO Were all containers sealed in separate bags?
27) YES NO Did all containers arrive unbroken?
28) YES NO Was there any leakage from samples?
29) YES NO Were any of the lids cracked or broken?
30) YES NO Were correct containers used for the tests indicated?
31) YES NO Was a sufficient amount of sample sent for tests indicated?
32) YES NO NA Were bubbles present in volatile samples? If yes, the following were received with air bubbles:
Larger than a pea:
Smaller than a pea:

Preservation & Hold time:
33) YES NO NA Was a sufficient amount of holding time remaining to analyze the samples?
34) YES NO NA Do the sample containers contain the same preservative as what is stated on the COC?
35) YES NO NA Was the pH taken of all non-VOA preserved samples and written on the sample container?
36) YES NO NA Was the pH of acid preserved non-VOA samples < 2 & sodium hydroxide preserved samples > 12?
37) YES NO NA Unpreserved VOA Vials received?
38) YES NO NA Are unpreserved VOA vials noted in the ADD TEST FIELD on the ARF?

CUSTODY SEAL
APPL, Inc.
(559) 275-2175
Initials
Date 11/04/11

Lab notified if pH was not adequate:
Deficiencies: COC listed Sample ID as DGSD01DA02 and DGSD02DA02 but Label has ID as DGSD0102 and DGSD0202, both are missing "DA"

Signature of personnel receiving samples: Yong Jo Second reviewer:
Signature of project manager notified: Renee Date and Time of notification: 11-7-11
Name of client notified: Andrea via email Date and Time of notification: 11-7-11
Information given to client:
by whom (Initials):

URS Corporation

12120 Shamrock Plaza Suite 300, Omaha, NE 68154 (402) 334-8181 Fax (402) 334-1984

CHAIN OF CUSTODY RECORD

1°C

Page 1 of 1

Project Name CAMP DODGE	Project No. 15302625.30000
Project Location JOHNSTON, IA	Project Manager J. Harrington
Sampler(s) J. Allen, J. Harrington	

Analytical Parameters: Metals 6020A

Sample Date	Sample Time	Type Comp.	Type Grab	Sample Identification	Matrix	Containers No.	Containers Type	Metals 6020A	Remarks
11/4/11	0958	X		DGSD02DA01	Sediment	1	Large Bag	X	4°C
↓	↓	X		DGSD02DA02	↓	↓	↓	X	↓
↓	↓	X		DGSD02DA03	↓	↓	↓	X	↓

Signatures	Date	Time	Shipping Details	Special Instructions
Relinquished by: [signature]	11/4/11	1600	Method of Shipment FedEX	
Received by:			Airbill No. 868291616703 ~~15302625.30~~	
Relinquished by:			Lab Address APPL 908 N Temperance AVE Clovis, CA 93611	
Received for Laboratory by: Alicia [signature]	11/5/11	10:50		

Custody.frm/jdg 3-09-92

White copy - Laboratory Yellow copy - Laboratory Pink copy - WCC

125906

13

URS Corporation

12120 Shamrock Plaza Suite 300, Omaha, NE 68154 (402) 334-8181 Fax (402) 334-1984

CHAIN OF CUSTODY RECORD

1°C

Page 1 of 1

Project Name: CAMP DODGE	Project No.: 15302625.30000
Project Location: JOHNSTON, IA	Project Manager: J. Harrington
Sampler(s): J. Allen, J. Harrington	

Analytical Parameters: Metals 6020A

Sample Date	Sample Time	Type Comp.	Type Grab	Sample Identification	Matrix	Containers No.	Containers Type	Metals 6020A	Remarks
11/4/11	1300	X		DGSD01DA01	Sediment	1	Large Bag	X	4°C
↓	↓	↓		DGSD01DA02	↓	↓	↓	X	↓
↓	↓	↓		DGSD01DA03	↓	↓	↓	X	↓

Signatures	Date	Time	Shipping Details	Special Instructions
Relinquished by: [signature]	11/4/11	1600	Method of Shipment: Fed Ex	
Received by:			Airbill No.: 868291616703	
Relinquished by:			Lab Address: APPL 908 N Temperance Ave Clovis, CA 93611	
Received for Laboratory by: Alicia Alfter	11/05/11	10:50		

Custody.frm/jdg 3-09-92

White copy - Laboratory Yellow copy - Laboratory Pink copy - WCC

125904

14

Data Qualifying Codes

Two types of data qualifying codes or flags are applied in the course of the data review. The data validation flags indicate data that are not usable for decision-making, more than normally biased and/or variable, or not representative of field conditions. These codes and their definitions are presented below in the hierarchy stipulated in the USEPA Contract Laboratory Program National Functional Guidelines for Organic (June, 2008) and Inorganic (January, 2010) Data Review

Data Validation Flags

Flag	Interpretation
R	The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.
U	The analyte was analyzed for, but not detected at a level greater than or equal to the level of the adjusted Detection Limit (DL) for sample and method.
J	The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the Limit of Detection (LOD).
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
UJ	The analyte was not detected at a level greater than or equal to the adjusted DL. However, the reported adjusted DL is approximate and may be inaccurate or imprecise.
C	This qualifier applies to pesticide and Aroclor results when the identification has been confirmed by gas Chromatograph/Mass Spectrometer (GC/MS)
X	This qualifier applies to pesticide and Aroclor results when GC/MS analysis was attempted but was unsuccessful.

The other type of code used by URS is a "Reason Code". The reason code indicates the type of quality control failure that led to the application of the data validation flag.

Reason Codes

GC/MS Organics		GC and HPLC Organics		Inorganics and Conventionals	
Code	Interpretation	Code	Interpretation	Code	Interpretation
a	Incorrect or incomplete analytical sequence	a	Incorrect or incomplete analytical sequence	a	Incorrect or incomplete analytical sequence
b	Bubble found in vial >6mm	b	Instrument performance failure	b	Laboratory duplicate imprecision
c	Calibration failure; poor or unstable response	c	Calibration failure; poor or unstable response	c	Calibration failure
d	MS/MSD imprecision	d	MS/MSD imprecision	d	MS/MSD imprecision
e	LCSD imprecision	e	LCSD imprecision	e	LCSD imprecision
f	Field duplicate imprecision	f	Field duplicate imprecision	f	Field duplicate imprecision
g	Tuning failure or poor mass spec performance	g	Dual column confirmation imprecision	g	Duel isotope imprecision
h	Holding time violation	h	Holding time violation	h	Holding time violation
i	Internal standard failure	i	Internal standard failure	k	Cooler receipt temperature exceeds limits
k	Cooler receipt temperature exceeds limits	k	Cooler receipt temperature exceeds limits	l	LCS recovery failure
l	LCS recovery failure	l	LCS recovery failure	m	MS/MSD recovery failure
m	MS/MSD recovery failure	m	MS/MSD recovery failure	n	ICS failure
p	Poor chromatography	p	Poor chromatography	o	Calibration blank contamination
q	Concentration exceeded the linear range	q	Concentration exceeded the linear range	q	Concentration exceeded the linear range
r	Linearity failure in initial calibration	r	Linearity failure in initial calibration	r	Linearity failure in calibration or MSA
s	Surrogate failure	s	Surrogate failure	s	Serial dilution failure
t	TIC	t	Blender blank contamination	t	Blender blank contamination
w	Identification criteria failure	u	No confirmation column	u	BOD minimum depletion did not exceed 2mg/L
x	Field blank contamination	w	Retention time failure	v	Post-digestion spike failure
y	Trip blank contamination	x	Field blank contamination	w	CRDL Standard Failure
z	Method blank contamination	z	Method blank contamination	x	Field blank contamination
				z	Preparation/Method blank contamination

DATA VALIDATION REPORT - Level III Review

SDG No.:	**ARF 67737**	**Fraction:**	**Explosives, Metals, & Hardness**
Laboratory:	**APPL**	**Project:**	**Camp Dodge/15302625.30000**
Reviewer:	**Angela Yannone**	**Date:**	**09/05/12**

This report presents the findings of a review of the referenced data. The report consists of this summary, a listing of the samples included in the review, copies of data reports with data qualifying flags applied, the data review checklist, supporting documentation, and an explanation of the data qualifying flags employed. The review performed is based on the project-specific QAPP, and qualified according to the USEPA CLP National Functional Guidelines for Organic (June 2008) and Inorganic (January 2010) Superfund Data Review. Modifications reflect the level of review requested, the specifications of the project-specific QAPP, and the specifics of the analytical methods employed.

Major Anomalies: None.

Minor Anomalies: During the metals analysis, the following blanks displayed detections with an absolute value greater than the detection limit (DL) for the following analytes:

Date Analyzed	Time	Blank	Analyte	Concentration	Units
06/28/12	1334	Initial Calibration	Antimony	-0.02	µg/L
	1936	Method		-0.03	
	2030	Continuing Calibration		-0.01	
	2323			-0.02	
	2056	DGSW03WB03 (Equipment Blank)	Copper	0.37	
			Zinc	10.4	

The field sample results associated with the negative calibration blank detections for antimony were positive and greater than five times but less than ten times the absolute value of the blank detection were qualified J-,o; while non-detects were qualified UJ-,o. The field sample results associated with the positive equipment blank detections for copper and zinc were less than five times the concentration found in the blank and qualified U,x. When appropriate, the limit of detection (LOD) and/or limit of quantitation (LOQ) were elevated to the concentration detected. The matrix spike performed on field sample DGSW03WA01 displayed a percent recovery less than the lower control limit of 80% for zinc at 77.9%. The associated field sample results were previously qualified due to a blank detection; no further data qualifying action was required. The interference check standard displayed detections above the LOQ for copper (0.8742 µg/L) and antimony (1.757 µg/L). All investigative field samples displayed concentrations of calcium at levels approximate to those found in the interference check standard spiked sample. Positive associated field sample results less than three times the antimony and copper values reported in the interference check standard were previously qualified due to a blank detection; no further data qualifying action was taken. All investigative field samples displayed concentrations for calcium greater than the linear range of the instrument. Since the hardness calculation is based on magnesium and calcium concentrations, the associated hardness results were qualified J,q.

Correctable Anomalies: None.

Comments: On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of anomalies discussed above. If a given fraction was not discussed, all quality control criteria reviewed were acceptable for that parameter. All data are usable, as qualified, for their intended purpose based on the data reviewed.

Signed: Angela Yannone

Angela Yannone

Camp Dodge

Job #: 15302625.30000

Laboratory: APPL
SDG #: ARF 67737

Sample	Client ID	Sample Type	Collected	Matrix	Explosives	Metals	Hardness
AY61088	DGSW02WA01	Sample	10-May-12	Water	x	x	x
AY61089	DGSW03WB01	Sample	10-May-12	Water	x	x	x
AY61090	DGSW03WB02	Duplicate	10-May-12	Water	x	x	x
AY61091	DGSW03WB03	Equipment Blank	10-May-12	Water	x	x	x
AY61092	DGSW01WB01	Sample	10-May-12	Water		x	x
AY61093	DGSW03WA01	Sample	10-May-12	Water	x	x	x
AY61094	DGSW01WA01	Sample	10-May-12	Water		x	x

Camp Dodge
Duplicate Results
ARF 67737

Client Sample ID:				DGSW03WB01		DGSW03WB02					
Date Sampled:				5/10/12		5/10/12					
	Units	RL	5xRL	Sample Conc		Duplicate Conc		%RPD	Delta	2xRL	Pass/ Fail
Organics											
1,3,5-Trinitrobenzene	ug/L	0.5	2.5	0.3	U	0.3	U	0.0%	**0**	1	Pass
1,3-Dinotribenzene	ug/L	0.5	2.5	0.3	U	0.3	U	0.0%	**0**	1	Pass
2,4,6-Trinitrotoluene	ug/L	0.5	2.5	0.3	U	0.3	U	0.0%	**0**	1	Pass
2,4-Dinitrotoluene	ug/L	0.5	2.5	0.3	U	0.3	U	0.0%	**0**	1	Pass
2,6-Dinitrotoluene	ug/L	0.5	2.5	0.3	U	0.3	U	0.0%	**0**	1	Pass
2-Amino-4,6-Dinitrotoluene	ug/L	0.5	2.5	0.3	U	0.3	U	0.0%	**0**	1	Pass
2-Nitrotoluene	ug/L	0.5	2.5	0.3	U	0.3	U	0.0%	**0**	1	Pass
3-Nitrotoluene	ug/L	0.5	2.5	0.3	U	0.3	U	0.0%	**0**	1	Pass
4-Amino-2,6-Dinitrotoluene	ug/L	0.5	2.5	0.3	U	0.3	U	0.0%	**0**	1	Pass
4-Nitrotoluene	ug/L	0.5	2.5	0.3	U	0.3	U	0.0%	**0**	1	Pass
HMX	ug/L	0.5	2.5	0.3	U	0.3	U	0.0%	**0**	1	Pass
Nitrobenzene	ug/L	0.5	2.5	0.3	U	0.3	U	0.0%	**0**	1	Pass
Nitroglycerin	ug/L	0.5	2.5	0.3	U	0.3	U	0.0%	**0**	1	Pass
PETN	ug/L	2.5	12.5	1.5	U	1.5	U	0.0%	**0**	5	Pass
RDX	ug/L	0.5	2.5	0.3	U	0.3	U	0.0%	**0**	1	Pass
Tetryl	ug/L	0.5	2.5	0.3	U	0.3	U	0.0%	**0**	1	Pass
Inorganics											
Antimony	ug/L	0.2	1	0.16	J	0.17	J	6.1%	**0.01**	0.4	Pass
Copper	ug/L	0.5	2.5	0.95		0.86		9.9%	**0.09**	1	Pass
Hardness	ug/L	1	5	337		336		**0.3%**	1	2	Pass
Lead	ug/L	0.5	2.5	0.15	U	0.19	J	23.5%	**0.04**	1	Pass
Zinc	ug/L	50	250	14	J	20.1	J	35.8%	**6.1**	100	Pass

Control limit [sample]>5xRL use 35%

[sample]<5xRL use Delta<2xRL

EPA 8330B EXPLOSIVES-WATER

URS Group
849 International Dr, Ste 320
Linthicum, MD 21090

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Andrea Sansom

Project: 15302625.30000 ORA Phase II Camp Dodge

ARF: 67737

Sample ID: DGSW02WA01

APPL ID: AY61088

Sample Collection Date: 05/10/12

QCG: #833BW-120514A-167806

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 8330B	1,3,5-TRINITROBENZENE	0.300 U	0.50	0.300	0.130	ug/L	05/15/12	05/20/12
EPA 8330B	1,3-DINITROBENZENE	0.300 U	0.50	0.300	0.131	ug/L	05/15/12	05/20/12
EPA 8330B	2,4,6-TRINITROTOLUENE	0.300 U	0.50	0.300	0.133	ug/L	05/15/12	05/20/12
EPA 8330B	2,4-DINITROTOLUENE	0.300 U	0.50	0.300	0.125	ug/L	05/15/12	05/20/12
EPA 8330B	2,6-DINITROTOLUENE	0.300 U	0.50	0.300	0.125	ug/L	05/15/12	05/20/12
EPA 8330B	2-AMINO-4,6-DINITROTOLUENE	0.300 U	0.50	0.300	0.125	ug/L	05/15/12	05/20/12
EPA 8330B	2-NITROTOLUENE	0.300 U	0.50	0.300	0.126	ug/L	05/15/12	05/20/12
EPA 8330B	3-NITROTOLUENE	0.300 U	0.50	0.300	0.133	ug/L	05/15/12	05/20/12
EPA 8330B	4-AMINO-2,6-DINITROTOLUENE	0.300 U	0.50	0.300	0.100	ug/L	05/15/12	05/20/12
EPA 8330B	4-NITROTOLUENE	0.300 U	0.50	0.300	0.133	ug/L	05/15/12	05/20/12
EPA 8330B	HMX	0.300 U	0.50	0.300	0.115	ug/L	05/15/12	05/20/12
EPA 8330B	NITROBENZENE	0.300 U	0.50	0.300	0.126	ug/L	05/15/12	05/20/12
EPA 8330B	NITROGLYCERIN	0.300 U	0.50	0.300	0.130	ug/L	05/15/12	05/20/12
EPA 8330B	PETN	1.500 U	2.50	1.500	0.607	ug/L	05/15/12	05/20/12
EPA 8330B	RDX	0.300 U	0.50	0.300	0.123	ug/L	05/15/12	05/20/12
EPA 8330B	TETRYL	0.300 U	0.50	0.300	0.133	ug/L	05/15/12	05/20/12
EPA 8330B	SURROGATE: 1,2-DINITROBENZENE (	83.0	70-130			%	05/15/12	05/20/12

Quant Method: W110907.M
Run #: 0518_0000076
Instrument: Waldorf
Sequence: 120518
Dilution Factor: 1
Initials: RSM

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EPA 8330B EXPLOSIVES-WATER

URS Group
849 International Dr, Ste 320
Linthicum, MD 21090

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Andrea Sansom

Project: 15302625.30000 ORA Phase II Camp Dodge

ARF: 67737

Sample ID: DGSW03WB01

APPL ID: AY61089

Sample Collection Date: 05/10/12

QCG: #833BW-120514A-167806

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 8330B	1,3,5-TRINITROBENZENE	0.300 U	0.50	0.300	0.130	ug/L	05/15/12	05/20/12
EPA 8330B	1,3-DINITROBENZENE	0.300 U	0.50	0.300	0.131	ug/L	05/15/12	05/20/12
EPA 8330B	2,4,6-TRINITROTOLUENE	0.300 U	0.50	0.300	0.133	ug/L	05/15/12	05/20/12
EPA 8330B	2,4-DINITROTOLUENE	0.300 U	0.50	0.300	0.125	ug/L	05/15/12	05/20/12
EPA 8330B	2,6-DINITROTOLUENE	0.300 U	0.50	0.300	0.125	ug/L	05/15/12	05/20/12
EPA 8330B	2-AMINO-4,6-DINITROTOLUENE	0.300 U	0.50	0.300	0.125	ug/L	05/15/12	05/20/12
EPA 8330B	2-NITROTOLUENE	0.300 U	0.50	0.300	0.126	ug/L	05/15/12	05/20/12
EPA 8330B	3-NITROTOLUENE	0.300 U	0.50	0.300	0.133	ug/L	05/15/12	05/20/12
EPA 8330B	4-AMINO-2,6-DINITROTOLUENE	0.300 U	0.50	0.300	0.100	ug/L	05/15/12	05/20/12
EPA 8330B	4-NITROTOLUENE	0.300 U	0.50	0.300	0.133	ug/L	05/15/12	05/20/12
EPA 8330B	HMX	0.300 U	0.50	0.300	0.115	ug/L	05/15/12	05/20/12
EPA 8330B	NITROBENZENE	0.300 U	0.50	0.300	0.126	ug/L	05/15/12	05/20/12
EPA 8330B	NITROGLYCERIN	0.300 U	0.50	0.300	0.130	ug/L	05/15/12	05/20/12
EPA 8330B	PETN	1.500 U	2.50	1.500	0.607	ug/L	05/15/12	05/20/12
EPA 8330B	RDX	0.300 U	0.50	0.300	0.123	ug/L	05/15/12	05/20/12
EPA 8330B	TETRYL	0.300 U	0.50	0.300	0.133	ug/L	05/15/12	05/20/12
EPA 8330B	SURROGATE: 1,2-DINITROBENZENE (	86.3	70-130			%	05/15/12	05/20/12

Quant Method: W110907.M
Run #: 0518_0000077
Instrument: Waldorf
Sequence: 120518
Dilution Factor: 1
Initials: RSM

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EPA 8330B EXPLOSIVES-WATER

URS Group
849 International Dr, Ste 320
Linthicum, MD 21090

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Andrea Sansom

Project: 15302625.30000 ORA Phase II Camp Dodge

ARF: 67737

Sample ID: DGSW03WB02

APPL ID: AY61090

Sample Collection Date: 05/10/12

QCG: #833BW-120514A-167806

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 8330B	1,3,5-TRINITROBENZENE	0.300 U	0.50	0.300	0.130	ug/L	05/15/12	05/20/12
EPA 8330B	1,3-DINITROBENZENE	0.300 U	0.50	0.300	0.131	ug/L	05/15/12	05/20/12
EPA 8330B	2,4,6-TRINITROTOLUENE	0.300 U	0.50	0.300	0.133	ug/L	05/15/12	05/20/12
EPA 8330B	2,4-DINITROTOLUENE	0.300 U	0.50	0.300	0.125	ug/L	05/15/12	05/20/12
EPA 8330B	2,6-DINITROTOLUENE	0.300 U	0.50	0.300	0.125	ug/L	05/15/12	05/20/12
EPA 8330B	2-AMINO-4,6-DINITROTOLUENE	0.300 U	0.50	0.300	0.125	ug/L	05/15/12	05/20/12
EPA 8330B	2-NITROTOLUENE	0.300 U	0.50	0.300	0.126	ug/L	05/15/12	05/20/12
EPA 8330B	3-NITROTOLUENE	0.300 U	0.50	0.300	0.133	ug/L	05/15/12	05/20/12
EPA 8330B	4-AMINO-2,6-DINITROTOLUENE	0.300 U	0.50	0.300	0.100	ug/L	05/15/12	05/20/12
EPA 8330B	4-NITROTOLUENE	0.300 U	0.50	0.300	0.133	ug/L	05/15/12	05/20/12
EPA 8330B	HMX	0.300 U	0.50	0.300	0.115	ug/L	05/15/12	05/20/12
EPA 8330B	NITROBENZENE	0.300 U	0.50	0.300	0.126	ug/L	05/15/12	05/20/12
EPA 8330B	NITROGLYCERIN	0.300 U	0.50	0.300	0.130	ug/L	05/15/12	05/20/12
EPA 8330B	PETN	1.500 U	2.50	1.500	0.607	ug/L	05/15/12	05/20/12
EPA 8330B	RDX	0.300 U	0.50	0.300	0.123	ug/L	05/15/12	05/20/12
EPA 8330B	TETRYL	0.300 U	0.50	0.300	0.133	ug/L	05/15/12	05/20/12
EPA 8330B	SURROGATE: 1,2-DINITROBENZENE (	86.4	70-130			%	05/15/12	05/20/12

Quant Method: W110907.M
Run #: 0518_0000078
Instrument: Waldorf
Sequence: 120518
Dilution Factor: 1
Initials: RSM

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EPA 8330B EXPLOSIVES-WATER

URS Group
849 International Dr, Ste 320
Linthicum, MD 21090

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Andrea Sansom

Project: 15302625.30000 ORA Phase II Camp Dodge

ARF: 67737

Sample ID: DGSW03WB03

APPL ID: AY61091

Sample Collection Date: 05/10/12

QCG: #833BW-120514A-167806

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 8330B	1,3,5-TRINITROBENZENE	0.300 U	0.50	0.300	0.130	ug/L	05/15/12	05/20/12
EPA 8330B	1,3-DINITROBENZENE	0.300 U	0.50	0.300	0.131	ug/L	05/15/12	05/20/12
EPA 8330B	2,4,6-TRINITROTOLUENE	0.300 U	0.50	0.300	0.133	ug/L	05/15/12	05/20/12
EPA 8330B	2,4-DINITROTOLUENE	0.300 U	0.50	0.300	0.125	ug/L	05/15/12	05/20/12
EPA 8330B	2,6-DINITROTOLUENE	0.300 U	0.50	0.300	0.125	ug/L	05/15/12	05/20/12
EPA 8330B	2-AMINO-4,6-DINITROTOLUENE	0.300 U	0.50	0.300	0.125	ug/L	05/15/12	05/20/12
EPA 8330B	2-NITROTOLUENE	0.300 U	0.50	0.300	0.126	ug/L	05/15/12	05/20/12
EPA 8330B	3-NITROTOLUENE	0.300 U	0.50	0.300	0.133	ug/L	05/15/12	05/20/12
EPA 8330B	4-AMINO-2,6-DINITROTOLUENE	0.300 U	0.50	0.300	0.100	ug/L	05/15/12	05/20/12
EPA 8330B	4-NITROTOLUENE	0.300 U	0.50	0.300	0.133	ug/L	05/15/12	05/20/12
EPA 8330B	HMX	0.300 U	0.50	0.300	0.115	ug/L	05/15/12	05/20/12
EPA 8330B	NITROBENZENE	0.300 U	0.50	0.300	0.126	ug/L	05/15/12	05/20/12
EPA 8330B	NITROGLYCERIN	0.300 U	0.50	0.300	0.130	ug/L	05/15/12	05/20/12
EPA 8330B	PETN	1.500 U	2.50	1.500	0.607	ug/L	05/15/12	05/20/12
EPA 8330B	RDX	0.300 U	0.50	0.300	0.123	ug/L	05/15/12	05/20/12
EPA 8330B	TETRYL	0.300 U	0.50	0.300	0.133	ug/L	05/15/12	05/20/12
EPA 8330B	SURROGATE: 1,2-DINITROBENZENE (	79.2	70-130			%	05/15/12	05/20/12

Quant Method: W110907.M
Run #: 0518_0000079
Instrument: Waldorf
Sequence: 120518
Dilution Factor: 1
Initials: RSM

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EPA 8330B EXPLOSIVES-WATER

URS Group
849 International Dr, Ste 320
Linthicum, MD 21090

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Andrea Sansom

Project: 15302625.30000 ORA Phase II Camp Dodge

ARF: 67737

Sample ID: DGSW03WA01

APPL ID: AY61093

Sample Collection Date: 05/09/12

QCG: #833BW-120514A-167806

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 8330B	1,3,5-TRINITROBENZENE	0.300 U	0.50	0.300	0.130	ug/L	05/15/12	05/20/12
EPA 8330B	1,3-DINITROBENZENE	0.300 U	0.50	0.300	0.131	ug/L	05/15/12	05/20/12
EPA 8330B	2,4,6-TRINITROTOLUENE	0.300 U	0.50	0.300	0.133	ug/L	05/15/12	05/20/12
EPA 8330B	2,4-DINITROTOLUENE	0.300 U	0.50	0.300	0.125	ug/L	05/15/12	05/20/12
EPA 8330B	2,6-DINITROTOLUENE	0.300 U	0.50	0.300	0.125	ug/L	05/15/12	05/20/12
EPA 8330B	2-AMINO-4,6-DINITROTOLUENE	0.300 U	0.50	0.300	0.125	ug/L	05/15/12	05/20/12
EPA 8330B	2-NITROTOLUENE	0.300 U	0.50	0.300	0.126	ug/L	05/15/12	05/20/12
EPA 8330B	3-NITROTOLUENE	0.300 U	0.50	0.300	0.133	ug/L	05/15/12	05/20/12
EPA 8330B	4-AMINO-2,6-DINITROTOLUENE	0.300 U	0.50	0.300	0.100	ug/L	05/15/12	05/20/12
EPA 8330B	4-NITROTOLUENE	0.300 U	0.50	0.300	0.133	ug/L	05/15/12	05/20/12
EPA 8330B	HMX	0.300 U	0.50	0.300	0.115	ug/L	05/15/12	05/20/12
EPA 8330B	NITROBENZENE	0.300 U	0.50	0.300	0.126	ug/L	05/15/12	05/20/12
EPA 8330B	NITROGLYCERIN	0.300 U	0.50	0.300	0.130	ug/L	05/15/12	05/20/12
EPA 8330B	PETN	1.500 U	2.50	1.500	0.607	ug/L	05/15/12	05/20/12
EPA 8330B	RDX	0.300 U	0.50	0.300	0.123	ug/L	05/15/12	05/20/12
EPA 8330B	TETRYL	0.300 U	0.50	0.300	0.133	ug/L	05/15/12	05/20/12
EPA 8330B	SURROGATE: 1,2-DINITROBENZENE (	84.4	70-130			%	05/15/12	05/20/12

Quant Method: W110907.M
Run #: 0518_0000081
Instrument: Waldorf
Sequence: 120518
Dilution Factor: 1
Initials: RSM

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Metals Analysis

URS Group
849 International Dr, Ste 320
Linthicum, MD 21090

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Andrea Sansom

Project: 15302625.30000 ORA Phase II Camp Dodge

Value Changed

ARF: 67737

Sample ID: DGSW02WA01

APPL ID: AY61088

Sample Collection Date: 05/10/12

Method	Analyte	Result	LOQ	LOD	DL	Units	DF	Prep Date	Analysis Date
				ARY 7/15/12					
6020	ANTIMONY (SB) (DISSOLVE	0.15J J,O	0.2	0.20	0.01	ug/L	1	05/16/12	06/28/12
6020	COPPER (CU) (DISSOLVED)	1.1 U,X	~~0.5~~ 1.1	~~0.25~~ 1.1	0.13	ug/L	1	05/16/12	06/28/12
6020	LEAD (PB) (DISSOLVED)	0.68	0.5	0.15	0.11	ug/L	1	05/16/12	06/28/12
6020	ZINC (ZN) (DISSOLVED)	7.7 U,X	50.0	~~5.00~~ 7.7	2.30	ug/L	1	05/16/12	06/28/12

J = Estimated value.

Printed: 06/29/12 4:04:30 PM

APPL-F1-SC-NoMC-URS-REG MDLs

Metals Analysis

URS Group
849 International Dr, Ste 320
Linthicum, MD 21090

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Andrea Sansom
Project: 15302625.30000 ORA Phase II Camp Dodge

Value Changed

ARF: 67737
APPL ID: AY61089

Sample ID: DGSW03WB01
Sample Collection Date: 05/10/12

Method	Analyte	Result	LOQ	LOD	DL	Units	DF	Prep Date	Analysis Date
				ARV 8/15/12					
6020	ANTIMONY (SB) (DISSOLVE	0.16 J J,O	0.2	0.20	0.01	ug/L	1	05/16/12	06/28/12
6020	COPPER (CU) (DISSOLVED)	0.95 J U,X	~~0.5~~ .95	~~0.25~~ .95	0.13	ug/L	1	05/16/12	06/28/12
6020	LEAD (PB) (DISSOLVED)	0.15 U	0.5	0.15	0.11	ug/L	1	05/16/12	06/28/12
6020	ZINC (ZN) (DISSOLVED)	14.0 J U U,X	50.0	~~5.00~~ 14	2.30	ug/L	1	05/16/12	06/28/12

J = Estimated value.

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Linthicum, MD 21090

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Attn: Andrea Sansom
Project: 15302625.30000 ORA Phase II Camp Dodge

Value Changed

ARF: 67737

Sample ID: DGSW03WB02

APPL ID: AY61090

Sample Collection Date: 05/10/12

Method	Analyte	Result	LOQ	LOD	DL	Units	DF	Prep Date	Analysis Date
			ARY	8/15/12					
6020	ANTIMONY (SB) (DISSOLVE	0.17 J J-, 0	0.2	0.20	0.01	ug/L	1	05/16/12	06/28/12
6020	COPPER (CU) (DISSOLVED)	0.86 U, X	~~0.5~~ .86	~~0.25~~ .86	0.13	ug/L	1	05/16/12	06/28/12
6020	LEAD (PB) (DISSOLVED)	0.19 J	0.5	0.15	0.11	ug/L	1	05/16/12	06/28/12
6020	ZINC (ZN) (DISSOLVED)	20.1 ~~J~~ U, X	50.0	~~5.00~~ 20.1	2.30	ug/L	1	05/16/12	06/28/12

J = Estimated value.

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APPL-F1-SC-NoMC-URS-REG MDLs

Metals Analysis

URS Group
849 International Dr, Ste 320
Linthicum, MD 21090

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Andrea Sansom

Project: 15302625.30000 ORA Phase II Camp Dodge

ARF: 67737

Sample ID: DGSW03WB03

APPL ID: AY61091

Sample Collection Date: 05/10/12

Method	Analyte	Result	LOQ	LOD	DL	Units	DF	Prep Date	Analysis Date
6020	ANTIMONY (SB) (DISSOLVE	0.20 U UJ 0	0.2	0.20	0.01	ug/L	1	05/16/12	06/28/12
6020	COPPER (CU) (DISSOLVED)	0.37 J	0.5	0.25	0.13	ug/L	1	05/16/12	06/28/12
6020	LEAD (PB) (DISSOLVED)	0.15 U	0.5	0.15	0.11	ug/L	1	05/16/12	06/28/12
6020	ZINC (ZN) (DISSOLVED)	10.4 J	50.0	5.00	2.30	ug/L	1	05/16/12	06/28/12

J = Estimated value.

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APPL-F1-SC-NoMC-URS-REG MDLs

Metals Analysis

URS Group
849 International Dr, Ste 320
Linthicum, MD 21090

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Andrea Sansom
Project: 15302625.30000 ORA Phase II Camp Dodge

Value Changed

ARF: 67737

Sample ID: DGSW01WB01

APPL ID: AY61092

Sample Collection Date: 05/10/12

Method	Analyte	Result	LOQ	LOD	DL	Units	DF	Prep Date	Analysis Date
			APY 8/15/12						
6020	ANTIMONY (SB) (DISSOLVE	0.10 J J-, 0	0.2	0.20	0.01	ug/L	1	05/16/12	06/28/12
6020	COPPER (CU) (DISSOLVED)	0.76 U U, X	~~0.5~~ .76	~~0.25~~ .76	0.13	ug/L	1	05/16/12	06/28/12
6020	LEAD (PB) (DISSOLVED)	0.13 J	0.5	0.15	0.11	ug/L	1	05/16/12	06/28/12
6020	ZINC (ZN) (DISSOLVED)	9.5 U U, X	50.0	~~5.00~~ 9.5	2.30	ug/L	1	05/16/12	06/28/12

J = Estimated value.

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APPL-F1-SC-NoMC-URS-REG MDLs

Metals Analysis

URS Group
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Linthicum, MD 21090

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Andrea Sansom
Project: 15302625.30000 ORA Phase II Camp Dodge
Sample ID: DGSW03WA01
Sample Collection Date: 05/09/12

Value Changed

ARF: 67737
APPL ID: AY61093

Method	Analyte	Result	LOQ	LOD	DL	Units	DF	Prep Date	Analysis Date
			ARY 8/15/12						
6020	ANTIMONY (SB) (DISSOLVE	0.12 J J-, D	0.2	0.20	0.01	ug/L	1	05/16/12	06/28/12
6020	COPPER (CU) (DISSOLVED)	1.7 J U, X	~~0.5~~ 1.7	~~0.25~~ 1.7	0.13	ug/L	1	05/16/12	06/28/12
6020	LEAD (PB) (DISSOLVED)	0.32 J	0.5	0.15	0.11	ug/L	1	05/16/12	06/28/12
6020	ZINC (ZN) (DISSOLVED)	17.9 J V U, X	50.0	~~5.00~~ 17.9	2.30	ug/L	1	05/16/12	06/28/12

J = Estimated value.

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APPL-F1-SC-NoMC-URS-REG MDLs

Metals Analysis

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Linthicum, MD 21090

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Andrea Sansom

Project: 15302625.30000 ORA Phase II Camp Dodge

Value Changed

ARF: 67737

Sample ID: DGSW01WA01

APPL ID: AY61094

Sample Collection Date: 05/09/12

Method	Analyte	Result	LOQ	LOD	DL	Units	DF	Prep Date	Analysis Date
			ARY	8/15/12					
6020	ANTIMONY (SB) (DISSOLVE	0.20 J, D	0.2	0.20	0.01	ug/L	1	05/16/12	06/28/12
6020	COPPER (CU) (DISSOLVED)	0.77 U, X	~~0.5~~ .77	~~0.25~~ .77	0.13	ug/L	1	05/16/12	06/28/12
6020	LEAD (PB) (DISSOLVED)	0.15 U	0.5	0.15	0.11	ug/L	1	05/16/12	06/28/12
6020	ZINC (ZN) (DISSOLVED)	2.9 U, X	50.0	5.00	2.30	ug/L	1	05/16/12	06/28/12

J = Estimated value.

Printed: 06/29/12 4:04:30 PM

APPL-F1-SC-NoMC-URS-REG MDLs

Metals Analysis

URS Group
849 International Dr, Ste 320
Linthicum, MD 21090

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Andrea Sansom

Project: 15302625.30000 ORA Phase II Camp Dodge

ARF: 67737

Sample ID: DGSW02WA01

APPL ID: AY61088

Sample Collection Date: 05/10/12

Method	Analyte	Result	PQL	Units	Prep Date	Analysis Date
SM2340B	HARDNESS	335 J, Q	1.0	mg/L	07/02/12	07/02/12

Form 1 - APPL Standard
Metals - No MC

Printed: 07/02/12 9:36:21 AM

Metals Analysis

URS Group
849 International Dr, Ste 320
Linthicum, MD 21090

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Andrea Sansom
Project: 15302625.30000 ORA Phase II Camp Dodge
Sample ID: DGSW03WB01
Sample Collection Date: 05/10/12

ARF: 67737
APPL ID: AY61089

Method	Analyte	Result	PQL	Units	Prep Date	Analysis Date
SM2340B	HARDNESS	337 J, Q	1.0	mg/L	07/02/12	07/02/12

Form 1 - APPL Standard
Metals - No MC
Printed: 07/02/12 9:36:21 AM

Metals Analysis

URS Group
849 International Dr, Ste 320
Linthicum, MD 21090

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Andrea Sansom
Project: 15302625.30000 ORA Phase II Camp Dodge
Sample ID: DGSW03WB02
Sample Collection Date: 05/10/12

ARF: 67737
APPL ID: AY61090

Method	Analyte	Result	PQL	Units	Prep Date	Analysis Date
SM2340B	HARDNESS	336 J, Q	1.0	mg/L	07/02/12	07/02/12

Form 1 - APPL Standard
Metals - No MC
Printed: 07/02/12 9:36:21 AM

Metals Analysis

URS Group
849 International Dr, Ste 320
Linthicum, MD 21090

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Andrea Sansom

Project: 15302625.30000 ORA Phase II Camp Dodge

ARF: 67737

Sample ID: DGSW03WB03

APPL ID: AY61091

Sample Collection Date: 05/10/12

Method	Analyte	Result	PQL	Units	Prep Date	Analysis Date
SM2340B	HARDNESS	Not detected	1.0	mg/L	07/02/12	07/02/12

Form 1 - APPL Standard
Metals - No MC

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Metals Analysis

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Linthicum, MD 21090

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Andrea Sansom

Project: 15302625.30000 ORA Phase II Camp Dodge

ARF: 67737

Sample ID: DGSW01WB01

APPL ID: AY61092

Sample Collection Date: 05/10/12

Method	Analyte	Result	PQL	Units	Prep Date	Analysis Date
SM2340B	HARDNESS	337 J,a	1.0	mg/L	07/02/12	07/02/12

Form 1 - APPL Standard
Metals - No MC

Printed: 07/02/12 9:36:21 AM

Metals Analysis

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Clovis, CA 93611

Attn: Andrea Sansom

Project: 15302625.30000 ORA Phase II Camp Dodge

ARF: 67737

Sample ID: DGSW03WA01

APPL ID: AY61093

Sample Collection Date: 05/09/12

Method	Analyte	Result	PQL	Units	Prep Date	Analysis Date
SM2340B	HARDNESS	319 J, Q	1.0	mg/L	07/02/12	07/02/12

Form 1 - APPL Standard
Metals - No MC
Printed: 07/02/12 9:36:21 AM

Metals Analysis

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908 North Temperance Avenue
Clovis, CA 93611

Attn: Andrea Sansom

Project: 15302625.30000 ORA Phase II Camp Dodge

ARF: 67737

Sample ID: DGSW01WA01

APPL ID: AY61094

Sample Collection Date: 05/09/12

Method	Analyte	Result	PQL	Units	Prep Date	Analysis Date
SM2340B	HARDNESS	314 J,a	1.0	mg/L	07/02/12	07/02/12

Form 1 - APPL Standard
Metals - No MC
Printed: 07/02/12 9:36:21 AM

DATA VALIDATION WORKSHEET

Explosives

Reviewer: Angela Yannone
Date: 8/14/2012
DV Level: II **III** IV

Project Name: Camp Dodge
Project Number: 15302625.30000
Laboratory: APPL
SDG No.: ARF 67737
Test Name: Explosives
Method No.: 8330B

Review Document:

_X__ USEPA CLP National Functional Guidelines for Superfund Inorganic Methods Data Review
_X__ SW-846/DoD QSM v4.2
_X__ Project QAPP/SAP

1.0 Laboratory Deliverables		**Yes**	**No**	**NA**
1.1	Do Chain-of-Custody forms list all samples that were analyzed?	X		
1.2	Are all Chain-of-Custody forms signed, indicating sample chain-of-custody was maintained?	X		
1.3	Do sample preservation, collection and storage condition meet method requirement?	X		
	If samples were received with the cooler temperature exceeding 10°C, then flag J(+)/UJ(-).			
1.4	Were the sediment samples dryed and sieved appropiately?			X
1.5	Do the traffic Reports, chain-of-custody, and lab narrative indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data?		X	

Notes:

2.0 Holding Times		**Yes**	**No**	**NA**
2.1	Have any technical holding times, determined from date of sampling to date of analysis, been exceeded? If yes, J(+)/UJ(-). Extraction: (aqueous) 7 days and (soil) 14 days; and Analysis: 40 days.		X	
2.2	Have any technical holding time grossly (twice the holding time) been exceeded? If yes, J(+)/UJ(-) OR R(-) .		X	

Notes:

3.0 Blanks (Laboratory and Field)		**Yes**	**No**	**NA**
3.1	Were method blanks (MB) prepared at the appropriate frequency (one per 20 samples, per batch per matrix?)	X		
3.2	Do any method blanks have positive results? Action: If yes:		X	
	Blank Result: ≤LOD >LOD			
	Sample Result: ≥[LOD] <[LOD] <LOD ≥LOD, <[Blank] ≥[LOD], ≥[Blank]			
	Qualification: [LOD]"U" Judgement [LOD]"U" [Blank]U OR R Judgement			
3.3	Do any field equipment blanks/trip blanks have positive results? If yes, use same rules above.		X	

Notes:

4.0 Initial and Continuing Calibration		Yes	No	NA
4.1	Are the Quartlery LOD establishment forms provided? Is the signal/noise ratio of the LODV greater than 3:1?	X		
4.2	If not, is the determination repeated at a higher concentration?			X
4.3	Are at least five standards included in the calibration curve? If no, flag "R".	X		
4.4	Was a second source calibration verification analyzed for each calibration curve? If no, flag "R".	X		
4.5	Were continuing calibration standards analyzed every 12 hours or ten samples and at the end of the sequence? If no, flag "R".	X		
4.6	Are all calibration standard %RSD (<15%ICAL, r>0.995), second source (±20%) or %D(≤20%) within the control limits?	X		
For initial calibration: %RSD > 15% J(+) If RRF<0.05 J(+)/R(-)				
For second source: %D>20%, J(+)/R(-).				
For continuing calibration: Positive Bias - %D >+ 20%, J(+), only. Negative Bias - %D>-20%, but<50% J(+)/UJ(-)				

Notes:

5.0 Laboratory Control Sample (LCS)		Yes	No	NA
5.1	Is the LCS/LCSD recovery form present?	X		
5.2	Were LCS/LCSDs analyzed at the required frequency (one per 20 samples per batch) for each matrix?	X		
5.3	Are there any %Rs for LCS/LCSD recoveries outside the QC limits of 80-120%?		X	
	Action: If Yes, for %R > UCL, J(+) only; for %R < LCL,J(+)/R(-);			
5.4	Are there any RPD >20%?			X
	Action: If Yes, J(+) only.			

Notes:

6.0 Surrogate Recovery		Yes	No	NA
6.1	Are surrogate recoveries within acceptance criteria for all samples and method blanks?	X		
6.2	If No in Section 6.1, are these sample(s) or method blank(s) reanalyzed?			X
	Action: If any surrogate in the fraction is out of specification, there should be a reanalysis to confirm that the non-compliance is because of sample matrix effects rather than laboratory deficiencies.			
6.3	If No in Section 6.2, is any sample dilution factor greater than 10? (recoveries may be diluted out.)			X
	Action: for a %R > UCL, J(+) only; for a %R < LCL, but > 10%, J(+)/UJ(-); for any %R < 10%, J(+)/R(-).			

Notes:

7.0 Matrix Spike/Matrix Spike Duplicate (MS/MSD)		Yes	No	NA
7.1	Is the matrix spike/matrix spike duplicate recovery form present?	X		
7.2	Were matrix spikes analyzed at required frequency (one per 20 samples per batch) for each matrix?	X		
7.3	Are there any %R for matrix spike and matrix spike duplicate recoveries outside the QC limits?		X	
7.4	Are there any RPDs for matrix spike and matrix spike duplicate recoveries outside the QC limits? Action: %R or % RPD> UCL J(+); %R< LCL: J(+)/UJ(-) [or possible R(-) for <20%] to parent sample results for the specific outlier analyte(s) or class of analytes using professional judgement.		X	

Notes:

8.0 Field Duplicate		Yes	No	NA
8.1	Evaluate field duplicate results? For sample results > 5 x RL, a control limit of ≤35% RPD will be used. For sample results < 5 x RL, a control limit of 2 x RL will be used.	X		

Notes:

9.0 Compound Identification and Detection Limit Verification		Yes	No	NA
9.1	Are any target compounds detected in the field samples? If Yes,are all positive identifications confirmed in second column? Apply J flag if RPD >40% between first and second columns.		X	
9.2	Do detection limits meet those required by the project QAPP and were they properly adjusted for dilution factors and moisture (including adjustment of wet weight aliquot)?	X		

Notes:

10.0 Data Completeness		Yes	No	NA
10.1	Is % completeness within the control limits? (Control limit $95\%_{aq}$ and $90\%_{so}$)	X		
10.1.1	Number of samples: 5			
10.1.2	Number of target compounds in each analysis: 16			
10.1.3	Number of results rejected or not reported: 0			
	% Completeness = (10.1.1 x 10.1.2 - 10.1.3) x 100/(10.1.1 x 10.1.2)			
	% Completeness = 100			

Injection Log

Directory: Y:\CHEM32\WALDORF\DATA\120511\120516

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1	0	0516_0000017.D		8830B_CB 0.005 PPM 05/16/12		05/16/2012 19:22
2	0	0516_0000018.D		8830B_CB 0.01 PPM 05/16/12		05/16/2012 20:00
3	0	0516_0000019.D		8830B_CB 0.02 PPM 05/16/12		05/16/2012 20:37
4	0	0516_0000020.D		8830B_CB 0.05 PPM 05/16/12		05/16/2012 21:15
5	0	0516_0000021.D		8830B_CB 0.1 PPM 05/16/12		05/16/2012 21:52
6	0	0516_0000022.D		8830B_CB 0.2 PPM 05/16/12		05/16/2012 22:30
7	0	0516_0000023.D		8830B_CB 0.5 PPM 05/16/12		05/16/2012 23:07
8	0	0516_0000024.D		8830B_CB 1.0 PPM 05/16/12		05/16/2012 23:45
9	0	0516_0000025.D		8830B_MX-A 2.0 PPM 05/16/12		05/17/2012 00:22
10	0	0516_0000026.D		8830B_MX-B 2.0 PPM 05/16/12		05/17/2012 00:59
11	0	0516_0000027.D		8830B_SS 1.0 PPM 05/16/12		05/17/2012 01:37
12	0	0518_0000050.D		8330_CCV 1.0 PPM 05/18/12		05/19/2012 18:45
13	0	0518_0000057.D	0.016	120514WLCS1A 0.016 DF 05/14/12	water	05/19/2012 22:48
14	0	0518_0000060.D	0.016	AY61093W03_MS-1 0.016 DF 05/14/12	water	05/20/2012 00:30
15	0	0518_0000061.D	0.016	AY61093W03_MSD-1 0.016 DF 05/14/12	water	05/20/2012 01:08
16	0	0518_0000063.D		8330_CCV 1.0 PPM 05/18/12		05/20/2012 02:23
17	0	0518_0000068.D		8330_CCV 1.0 PPM 05/18/12		05/20/2012 16:02
18	0	0518_0000070.D	0.016	120514WBLK1A 0.016 DF 05/14/12	water	05/20/2012 17:08
19	0	0518_0000076.D	0.016	AY61088W01 0.016 DF 05/14/12	water	05/20/2012 20:52
20	0	0518_0000077.D	0.016	AY61089W02 0.016 DF 05/14/12	water	05/20/2012 21:30
21	0	0518_0000078.D	0.016	AY61090W02 0.016 DF 05/14/12	water	05/20/2012 22:07
22	0	0518_0000079.D	0.016	AY61091W01 0.016 DF 05/14/12	water	05/20/2012 22:45
23	0	0518_0000080.D		8330_CCV 1.0 PPM 05/18/12		05/20/2012 23:22
24	0	0518_0000081.D	0.016	AY61093W06 0.016 DF 05/14/12	water	05/20/2012 23:50
25	0	0518_0000091.D		8330_CCV 1.0 PPM 05/18/12		05/21/2012 06:05

Injection Log

Directory: Y:\CHEM32\STATLER\DATA\120514\120514

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1	0	0514_0000004.D		8330MX_A_CB 0.005 PPM 05/14/12		05/14/2012 12:35
2	0	0514_0000006.D		8330MX_A_CB 0.010 PPM 05/14/12		05/14/2012 13:58
3	0	0514_0000008.D		8330MX_A_CB 0.020 PPM 05/14/12		05/14/2012 15:21
4	0	0514_0000010.D		8330MX_A_CB 0.050 PPM 05/14/12		05/14/2012 16:44
5	0	0514_0000012.D		8330MX_A_CB 0.10 PPM 05/14/12		05/14/2012 18:07
6	0	0514_0000014.D		8330MX_A_CB 0.20 PPM 05/14/12		05/14/2012 19:30
7	0	0514_0000016.D		8330MX_A_CB 0.50 PPM 05/14/12		05/14/2012 20:53
8	0	0514_0000018.D		8330MX_A_CB 1.0 PPM 05/14/12		05/14/2012 22:16
9	0	0514_0000020.D		8330MX_A_CB 2.0 PPM 05/14/12		05/14/2012 23:39
10	0	0514_0000021.D		8330MX_B_CB 2.0 PPM 05/14/12		05/15/2012 00:20
11	0	0515_0000025.D		8330MX_A_SS 1.0 PPM 05/15/12		05/16/2012 01:40
12	0	0516_0000004.D		8330MX_B_SS 1.0 PPM 05/16/12		05/16/2012 13:54
13	0	0529_0000004.D		8330MIX-A_CCV 1.0 PPM 05/29/12		05/29/2012 10:28
14	0	0529_0000005.D	0.016	AY61088W01 0.016 DF 05/14/12	water	05/29/2012 11:09
15	0	0529_0000006.D	0.016	AY61090W02 0.016 DF 05/14/12	water	05/29/2012 11:51
16	0	0529_0000007.D	0.016	AY61091W01 0.016 DF 05/14/12	water	05/29/2012 12:32
17	0	0529_0000015.D		8330MIX-A_CCV 1.0 PPM 05/29/12		05/29/2012 18:04

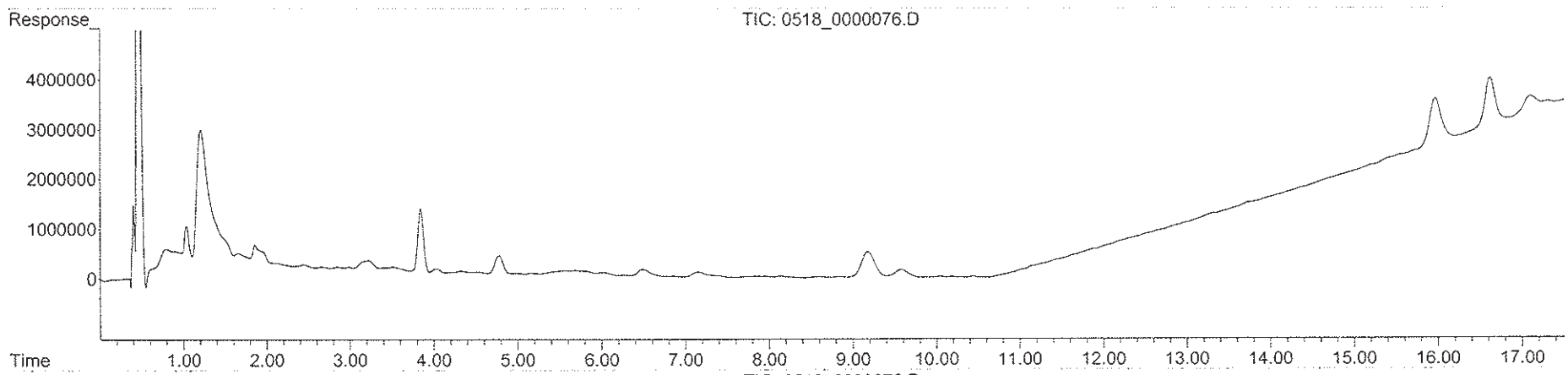
Quantitation Report (QT Reviewed)

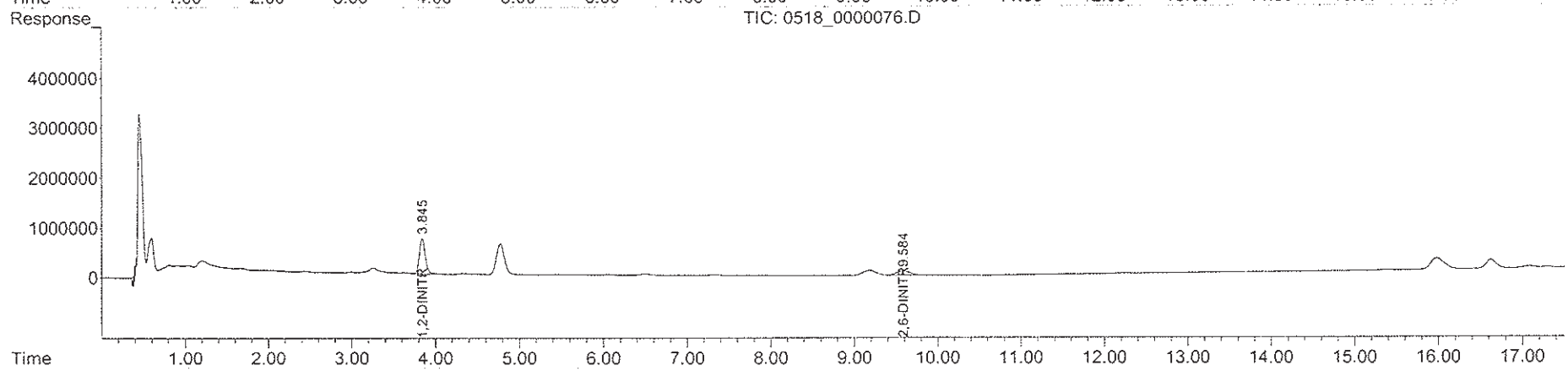
Data Path : Y:\CHEM32\WALDORF\DATA\120516\120518\
Data File : 0518_0000076.D
Signal(s) : Signal #1: DAD1B.ch Signal #2: DAD1A.ch
Acq On : 20-May-2012, 20:52:53
Operator : hm
Sample : AY61088W01 0.016 DF 05/14/12
Misc : water
ALS Vial : 8452 Sample Multiplier: 0.016

Integration File signal 1: Waldorf_Signal_1_110721.e
Integration File signal 2: Waldorf_Signal_2_110803.e
Quant Time: May 21 13:08:50 2012
Quant Method : Y:\CHEM32\WALDORF\DATA\120516\120518\W110907.M
Quant Title : 8330B - Soil - Waldorf
QLast Update : Thu May 17 07:45:58 2012
Response via : Initial Calibration
Integrator: ChemStation

DGSW02WA01

Volume Inj. : 40uL
Signal #1 Phase : 214nm Signal #2 Phase: 254nm
Signal #1 Info : ZORBAX Extend-C18 Signal #2 Info : ZORBAX Extend-C18 100x3.0mm 1.8-micron





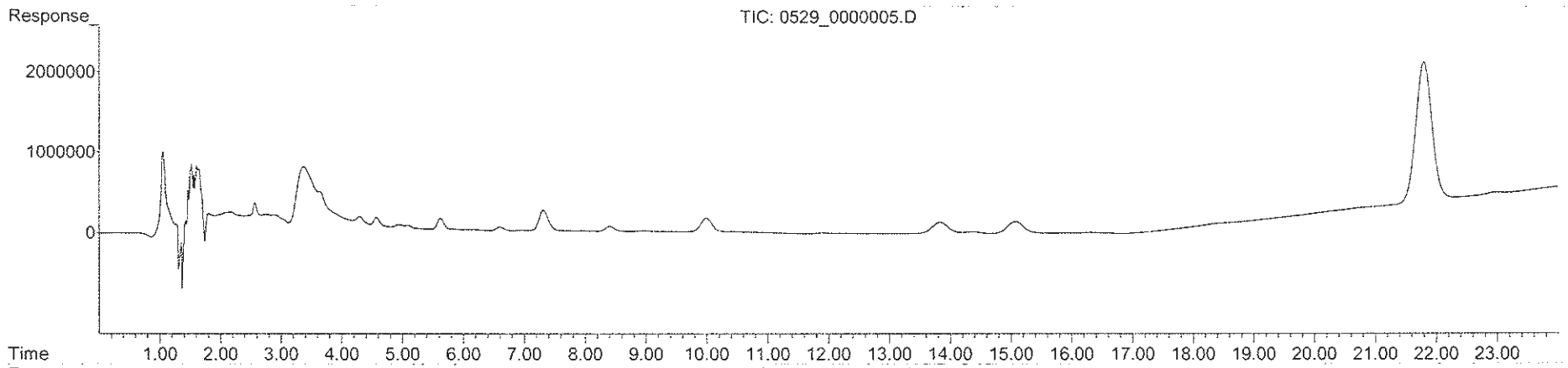
Quantitation Report (QT Reviewed)

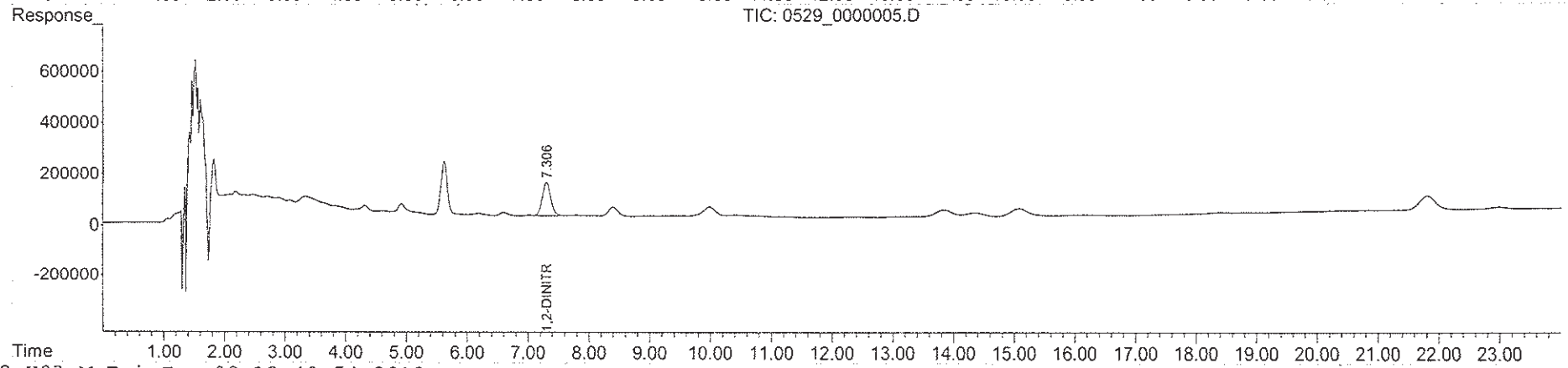
Data Path : Y:\CHEM32\STATLER\DATA\120514\120529\
Data File : 0529_0000005.D
Signal(s) : Signal #1: DAD1B.ch Signal #2: DAD1A.ch
Acq On : 29-May-2012, 11:09:53
Operator : HM
Sample : AY61088W01 0.016 DF 05/14/12
Misc : water
ALS Vial : 4096 Sample Multiplier: 0.016

Integration File signal 1: Statler_Signal_1_110914.e
Integration File signal 2: Statler_Signal_2_110914.e
Quant Time: Jun 08 12:49:46 2012
Quant Method : Y:\CHEM32\STATLER\DATA\120514\120529\STE2_X03.M
Quant Title : 8330B - STATLER
QLast Update : Tue May 15 08:12:28 2012
Response via : Initial Calibration
Integrator: ChemStation

DG 6/08/2012

Volume Inj. : 40uL
Signal #1 Phase : 214nm Signal #2 Phase: 254nm
Signal #1 Info : Acclaim Explosive Signal #2 Info : Acclaim Explosives E2 3um 3x150mm





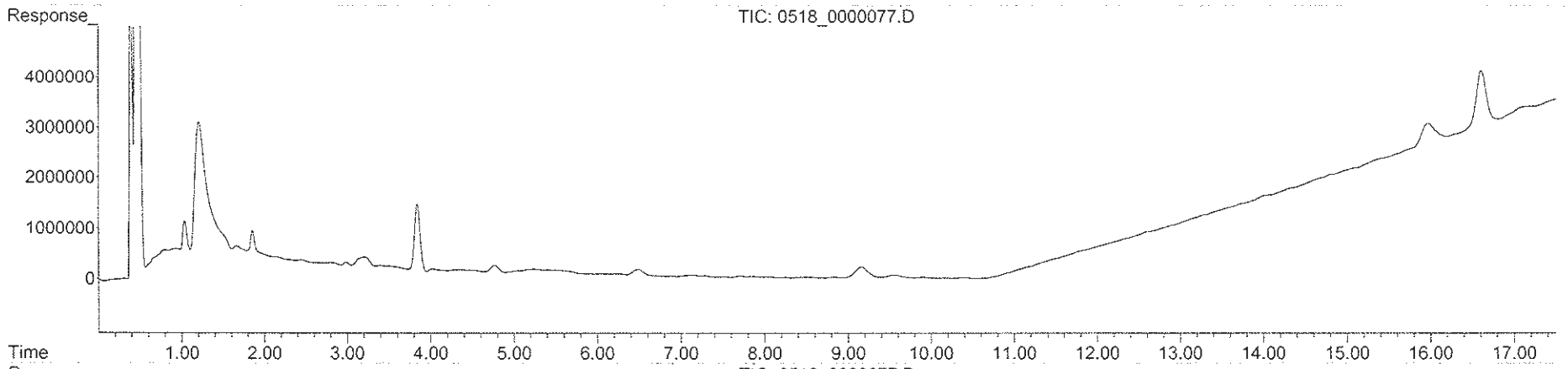
Quantitation Report (QT Reviewed)

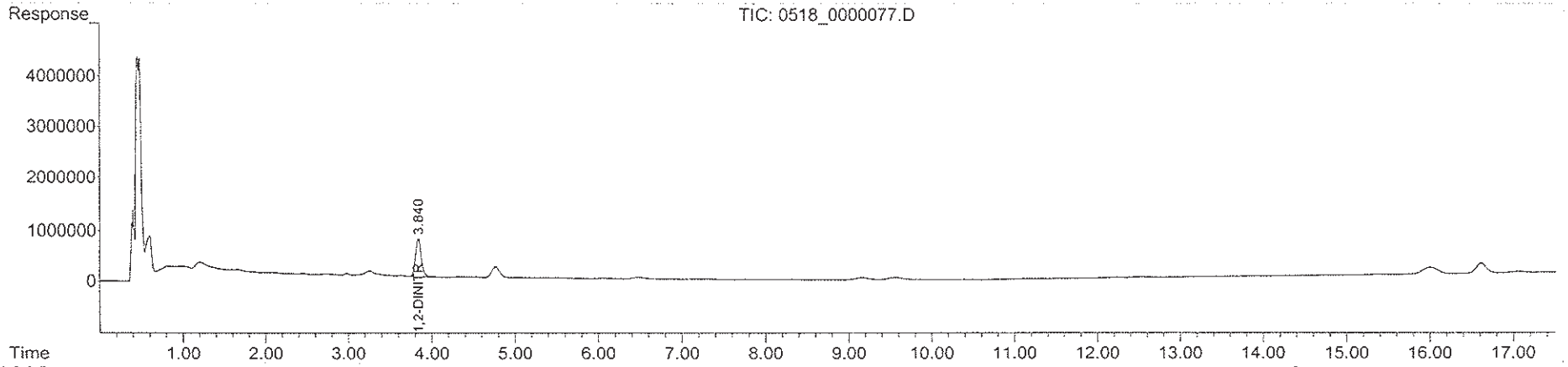
Data Path : Y:\CHEM32\WALDORF\DATA\120516\120518\
Data File : 0518_0000077.D
Signal(s) : Signal #1: DAD1B.ch Signal #2: DAD1A.ch
Acq On : 20-May-2012, 21:30:23
Operator : hm
Sample : AY61089W02 0.016 DF 05/14/12
Misc : water
ALS Vial : 8453 Sample Multiplier: 0.016

Integration File signal 1: Waldorf_Signal_1_110721.e
Integration File signal 2: Waldorf_Signal_2_110803.e
Quant Time: May 21 13:09:41 2012
Quant Method : Y:\CHEM32\WALDORF\DATA\120516\120518\W110907.M
Quant Title : 8330B - Soil - Waldorf
QLast Update : Thu May 17 07:45:58 2012
Response via : Initial Calibration
Integrator: ChemStation

DGSW03WD07

Volume Inj. : 40uL
Signal #1 Phase : 214nm Signal #2 Phase: 254nm
Signal #1 Info : ZORBAX Extend-C18 Signal #2 Info : ZORBAX Extend-C18 100x3.0mm 1.8-micron





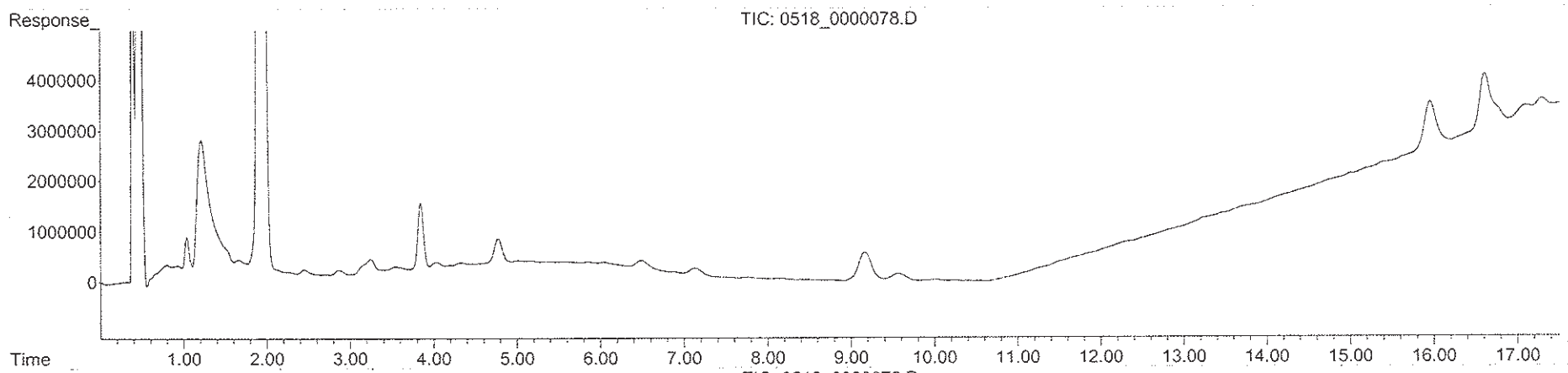
Quantitation Report (QT Reviewed)

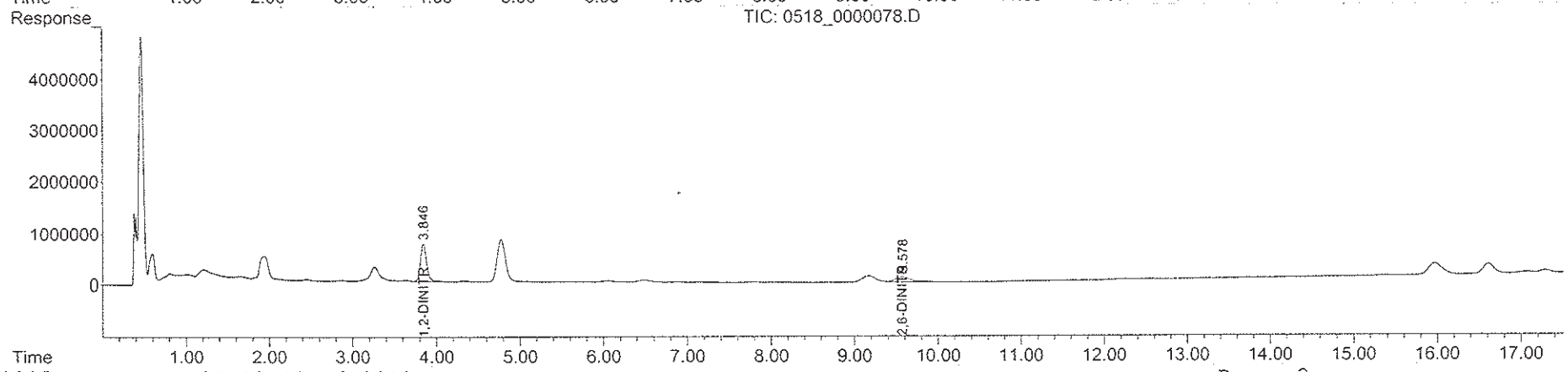
Data Path : Y:\CHEM32\WALDORF\DATA\120516\120518\
Data File : 0518_0000078.D
Signal(s) : Signal #1: DAD1B.ch Signal #2: DAD1A.ch
Acq On : 20-May-2012, 22:07:51
Operator : hm
Sample : AY61090W02 0.016 DF 05/14/12
Misc : water
ALS Vial : 8454 Sample Multiplier: 0.016

Integration File signal 1: Waldorf_Signal_1_110721.e
Integration File signal 2: Waldorf_Signal_2_110803.e
Quant Time: May 21 13:10:39 2012
Quant Method : Y:\CHEM32\WALDORF\DATA\120516\120518\W110907.M
Quant Title : 8330B - Soil - Waldorf
QLast Update : Thu May 17 07:45:58 2012
Response via : Initial Calibration
Integrator: ChemStation

AY61090W02

Volume Inj. : 40uL
Signal #1 Phase : 214nm Signal #2 Phase: 254nm
Signal #1 Info : ZORBAX Extend-C18 Signal #2 Info : ZORBAX Extend-C18 100x3.0mm 1.8-micron





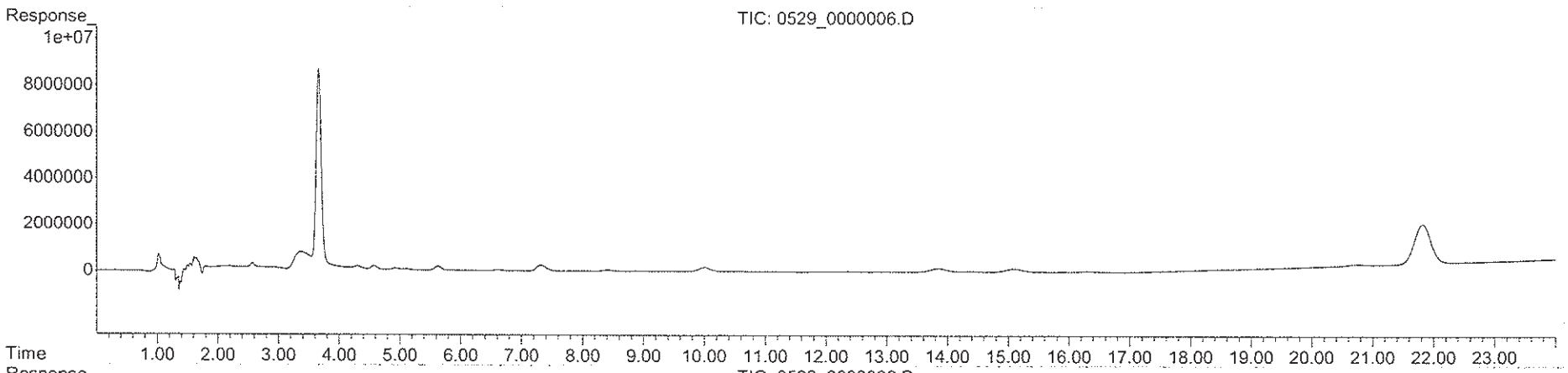
Quantitation Report (QT Reviewed)

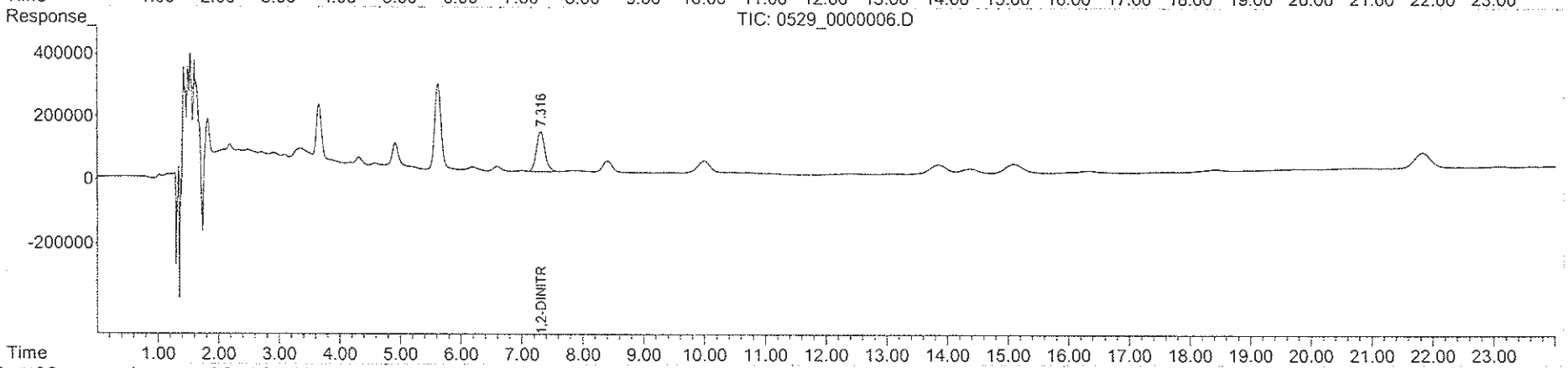
Data Path : Y:\CHEM32\STATLER\DATA\120514\120529\
Data File : 0529_0000006.D
Signal(s) : Signal #1: DAD1B.ch Signal #2: DAD1A.ch
Acq On : 29-May-2012, 11:51:24
Operator : HM
Sample : AY61090W02 0.016 DF 05/14/12
Misc : water
ALS Vial : 4097 Sample Multiplier: 0.016

Integration File signal 1: Statler_Signal_1_110914.e
Integration File signal 2: Statler_Signal_2_110914.e
Quant Time: Jun 08 12:50:20 2012
Quant Method : Y:\CHEM32\STATLER\DATA\120514\120529\STE2_X03.M
Quant Title : 8330B - STATLER
QLast Update : Tue May 15 08:12:28 2012
Response via : Initial Calibration
Integrator: ChemStation

DG8W03M302

Volume Inj. : 40uL
Signal #1 Phase : 214nm Signal #2 Phase: 254nm
Signal #1 Info : Acclaim Explosive Signal #2 Info : Acclaim Explosives E2 3um 3x150mm





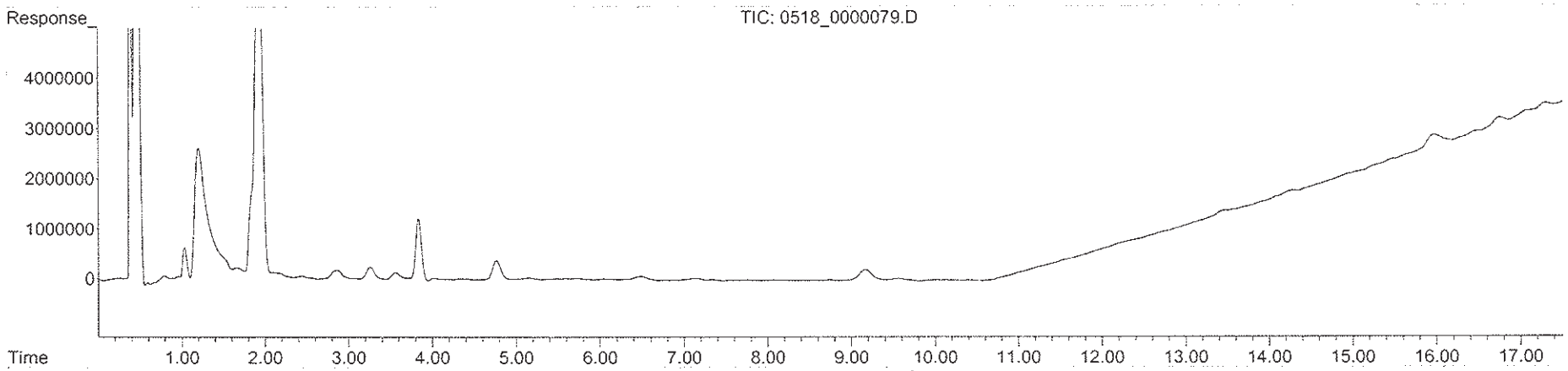
Quantitation Report (QT Reviewed)

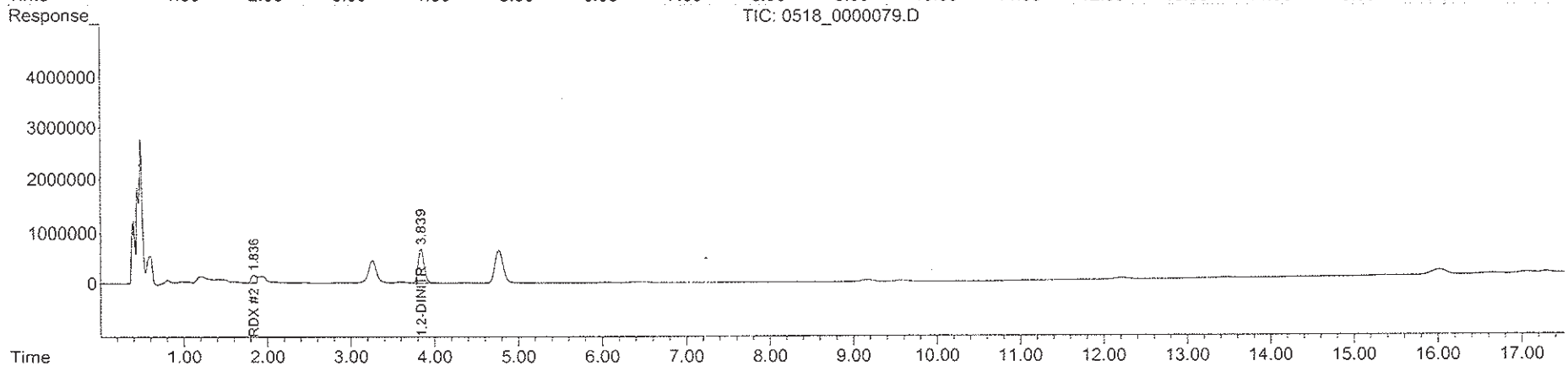
Data Path : Y:\CHEM32\WALDORF\DATA\120516\120518\
Data File : 0518_0000079.D
Signal(s) : Signal #1: DAD1B.ch Signal #2: DAD1A.ch
Acq On : 20-May-2012, 22:45:21
Operator : hm
Sample : AY61091W01 0.016 DF 05/14/12
Misc : water
ALS Vial : 8455 Sample Multiplier: 0.016

Integration File signal 1: Waldorf_Signal_1_110721.e
Integration File signal 2: Waldorf_Signal_2_110803.e
Quant Time: May 21 13:11:41 2012
Quant Method : Y:\CHEM32\WALDORF\DATA\120516\120518\W110907.M
Quant Title : 8330B - Soil - Waldorf
QLast Update : Thu May 17 07:45:58 2012
Response via : Initial Calibration
Integrator: ChemStation

DG3W03WB03

Volume Inj. : 40uL
Signal #1 Phase : 214nm Signal #2 Phase: 254nm
Signal #1 Info : ZORBAX Extend-C18 Signal #2 Info : ZORBAX Extend-C18 100x3.0mm 1.8-micron





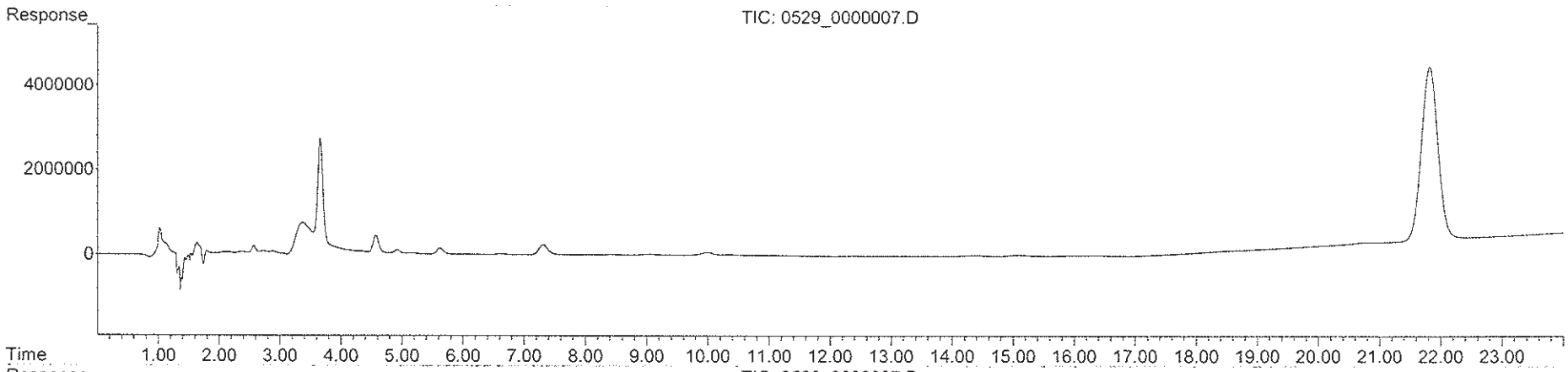
Quantitation Report (QT Reviewed)

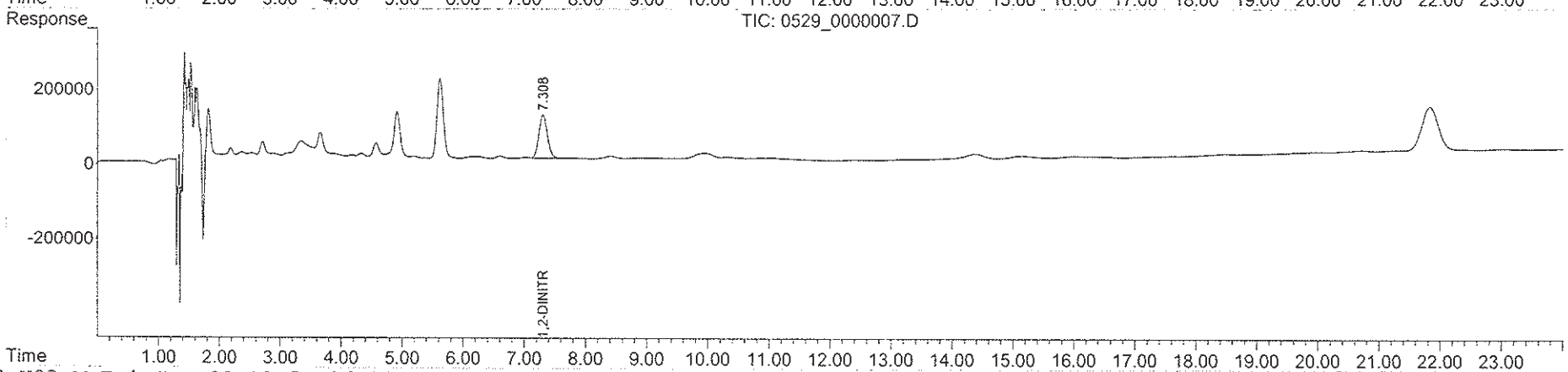
Data Path : Y:\CHEM32\STATLER\DATA\120514\120529\
Data File : 0529_0000007.D
Signal(s) : Signal #1: DAD1B.ch Signal #2: DAD1A.ch
Acq On : 29-May-2012, 12:32:54
Operator : HM
Sample : AY61091W01 0.016 DF 05/14/12
Misc : water
ALS Vial : 4098 Sample Multiplier: 0.016

Integration File signal 1: Statler_Signal_1_110914.e
Integration File signal 2: Statler_Signal_2_110914.e
Quant Time: Jun 08 12:51:11 2012
Quant Method : Y:\CHEM32\STATLER\DATA\120514\120529\STE2_X03.M
Quant Title : 8330B - STATLER
QLast Update : Tue May 15 08:12:28 2012
Response via : Initial Calibration
Integrator: ChemStation

DASW03WB03

Volume Inj. : 40uL
Signal #1 Phase : 214nm Signal #2 Phase: 254nm
Signal #1 Info : Acclaim Explosive Signal #2 Info : Acclaim Explosives E2 3um 3x150mm





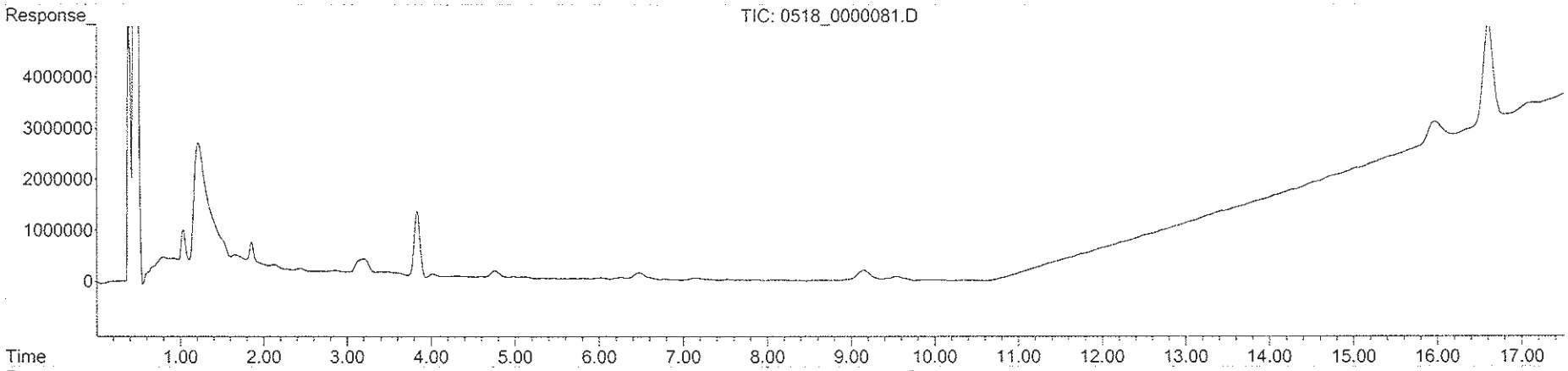
Quantitation Report (QT Reviewed)

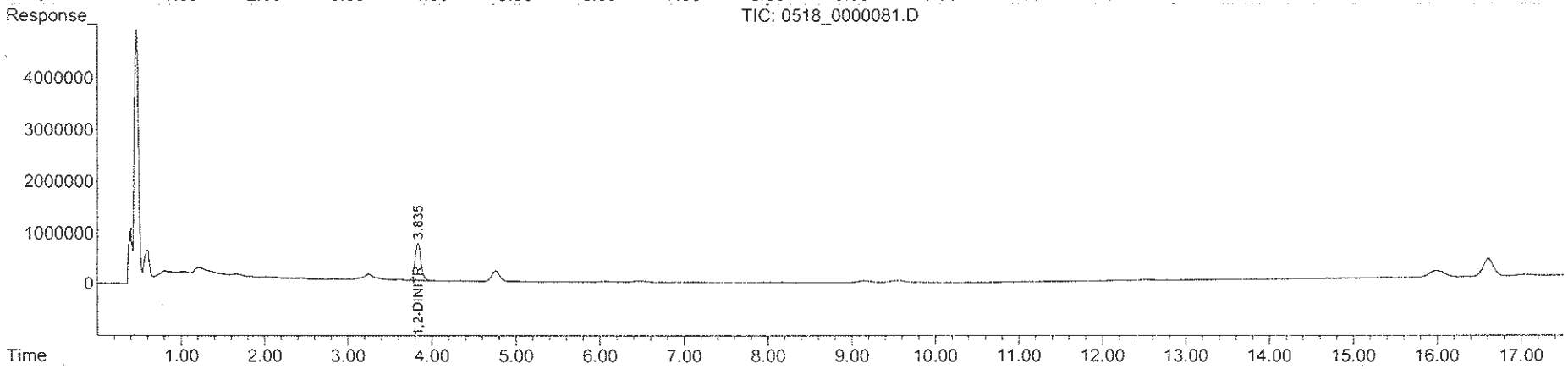
Data Path : Y:\CHEM32\WALDORF\DATA\120516\120518\
Data File : 0518_0000081.D
Signal(s) : Signal #1: DAD1B.ch Signal #2: DAD1A.ch
Acq On : 20-May-2012, 23:50:26
Operator : hm
Sample : AY61093W06 0.016 DF 05/14/12
Misc : water
ALS Vial : 8456 Sample Multiplier: 0.016

Integration File signal 1: Waldorf_Signal_1_110721.e
Integration File signal 2: Waldorf_Signal_2_110803.e
Quant Time: May 21 13:12:50 2012
Quant Method : Y:\CHEM32\WALDORF\DATA\120516\120518\W110907.M
Quant Title : 8330B - Soil - Waldorf
QLast Update : Thu May 17 07:45:58 2012
Response via : Initial Calibration
Integrator: ChemStation

DGSW03WA01

Volume Inj. : 40uL
Signal #1 Phase : 214nm Signal #2 Phase: 254nm
Signal #1 Info : ZORBAX Extend-C18 Signal #2 Info : ZORBAX Extend-C18 100x3.0mm 1.8-micron





Method Blank

EPA 8330B EXPLOSIVES-WATER

APPL Inc.
908 North Temperance Avenu
Clovis, CA 93611

Blank Name/QCG: **120514W-60810 - 167806**
Batch ID: #833BW-120514A

Sample Type	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
BLANK	1,3,5-TRINITROBENZENE	0.300 U	0.50	0.300	0.130	ug/L	05/14/12	05/20/12
BLANK	1,3-DINITROBENZENE	0.300 U	0.50	0.300	0.131	ug/L	05/14/12	05/20/12
BLANK	2,4,6-TRINITROTOLUENE	0.300 U	0.50	0.300	0.133	ug/L	05/14/12	05/20/12
BLANK	2,4-DINITROTOLUENE	0.300 U	0.50	0.300	0.125	ug/L	05/14/12	05/20/12
BLANK	2,6-DINITROTOLUENE	0.300 U	0.50	0.300	0.125	ug/L	05/14/12	05/20/12
BLANK	2-AMINO-4,6-DINITROTOLUENE	0.300 U	0.50	0.300	0.125	ug/L	05/14/12	05/20/12
BLANK	2-NITROTOLUENE	0.300 U	0.50	0.300	0.126	ug/L	05/14/12	05/20/12
BLANK	3-NITROTOLUENE	0.300 U	0.50	0.300	0.133	ug/L	05/14/12	05/20/12
BLANK	4-AMINO-2,6-DINITROTOLUENE	0.300 U	0.50	0.300	0.100	ug/L	05/14/12	05/20/12
BLANK	4-NITROTOLUENE	0.300 U	0.50	0.300	0.133	ug/L	05/14/12	05/20/12
BLANK	HMX	0.300 U	0.50	0.300	0.115	ug/L	05/14/12	05/20/12
BLANK	NITROBENZENE	0.300 U	0.50	0.300	0.126	ug/L	05/14/12	05/20/12
BLANK	NITROGLYCERIN	0.300 U	0.50	0.300	0.130	ug/L	05/14/12	05/20/12
BLANK	PETN	1.500 U	2.50	1.500	0.607	ug/L	05/14/12	05/20/12
BLANK	RDX	0.300 U	0.50	0.300	0.123	ug/L	05/14/12	05/20/12
BLANK	TETRYL	0.300 U	0.50	0.300	0.133	ug/L	05/14/12	05/20/12
BLANK	SURROGATE: 1,2-DINITROBENZ	82.5	70-130			%	05/14/12	05/20/12

Quant Method:W110907.M
Run #:0518_000007
Instrument:Waldorf
Sequence:120518
Initials:RSM

GC SC-Blank-REG MDLs
Printed: 06/08/12 2:52:16 PM

Matrix Spike Recoveries

EPA 8330B EXPLOSIVES-WATER

APPL ID: **120515W-61093 MS - 167806**
Batch ID: #833BW-120514A
Sample ID: AY61093
Client ID: DGSW03WA01

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Compound Name	Spike Lvl ug/L	Matrix Result ug/L	SPK Result ug/L	DUP Result ug/L	SPK % Recovery	DUP % Recovery	Recovery Limits	RPD %	RPD Limits
1,3,5-TRINITROBENZENE	8.00	ND	7.10	7.04	88.8	88.0	65-140	0.85	20
1,3-DINITROBENZENE	8.00	ND	7.44	7.34	93.0	91.8	45-160	1.4	20
2,4,6-TRINITROTOLUENE	8.00	ND	7.19	7.12	89.9	89.0	50-145	0.98	20
2,4-DINITROTOLUENE	8.00	ND	7.55	7.41	94.4	92.6	60-135	1.9	20
2,6-DINITROTOLUENE	8.00	ND	7.53	7.38	94.1	92.3	60-135	2.0	20
2-AMINO-4,6-DINITROTOLUENE	8.00	ND	7.26	7.07	90.8	88.4	50-155	2.7	20
2-NITROTOLUENE	8.00	ND	7.21	7.11	90.1	88.9	45-135	1.4	20
3-NITROTOLUENE	8.00	ND	7.22	7.09	90.3	88.6	50-130	1.8	20
4-AMINO-2,6-DINITROTOLUENE	8.00	ND	7.18	6.99	89.8	87.4	55-155	2.7	20
4-NITROTOLUENE	8.00	ND	7.29	7.16	91.1	89.5	50-130	1.8	20
HMX	8.00	ND	7.56	7.45	94.5	93.1	80-115	1.5	20
NITROBENZENE	8.00	ND	7.20	7.13	90.0	89.1	50-140	0.98	20
NITROGLYCERIN	8.00	ND	7.87	7.80	98.4	97.5	70-130	0.89	20
PETN	8.00	ND	8.21	8.02	103	100	65-115	2.3	20
RDX	8.00	ND	7.15	7.06	89.4	88.3	50-160	1.3	20
TETRYL	8.00	ND	5.09	5.11	63.6	63.9	20-175	0.39	20
SURROGATE: 1,2-DINITROBENZENE (S)	8.00	NA	7.61	7.48	95.1	93.5	70-130		

Comments:

Primary	SPK	DUP
Quant Method :	W110907.M	W110907.M
Extraction Date :	05/15/12	05/15/12
Analysis Date :	05/20/12	05/20/12
Instrument :	Waldorf	Waldorf
Run :	0518_0000060	0518_0000061
Initials :	RSM	

Printed: 06/08/12 2:52:25 PM
APPL MSD SCII

DATA VALIDATION WORKSHEET
INORGANIC - ICPMS (Sb, Cu, Pb, Zn)

SDG No.: ARF 67737
Project No.: 15302625.30000

Project: Camp Dodge
Reviewer: Angela Yannone
Date: August 14, 2012

_X_ USEPA CLP National Functional Guidelines for Superfund Inorganic Methods Data Review
_X_ SW-846/DoD QSM v4.2
_X_ Project QAPP/SAP

1.0 Chain of Custody/Sample Condition/Raw Data		Yes	No	NA
1.1	Do Chain-of-Custody forms list all samples which were analyzed?	X		
1.2	Are all Chain-of-Custody forms signed, indicating sample chain-of-custody was maintained?	X		
1.3	Do the traffic Reports, chain-of-custody, and lab narrative indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data?		X	
1.4	Does sample preservation, collection and storage meet method requirement? (For metal: water samples: with Nitric Acid to pH < 2, and soil/sediment samples: 4 ^{O}C $\pm$ 2 ^{O}C). Action: Professional judgement or J-(+)/R(-)	X		
1.5	Are the digestion logs present and complete with pH values, sample weights, dilutions, final volumes. % solids (for soil samples), and preparation dates? For any missing or incomplete documentation, contact the laboratory for explanation/resubmittal.	X		
1.6	Were the sediment samples dryed and sieved appropiately?	X		
1.7	Are the measurement read out records legible and complete (properly labeled, and include all samples and QC)?	X		

Note: _____

2.0 Holding Time		Yes	No	NA
2.1	Have any technical holding times of 6 months, determined from date of collection to date of analysis, been exceeded?		X	
	Action: Use professional judgement, then J-(+)/R(-)			

Note: _____

3.0 Instrument Calibration

		Yes	No	NA
3.1	Are the Quartlery LOD establishment forms provided for each instrument?	X		
3.2	Is the signal/noise ratio less than 3:1? If not, is the determination repeated at a higher concentration?			X
3.3	Are sufficient standards of a blank + one standard & a RL standard OR 3 standards and a blank with one standard at the RL included in the calibration curve? If not, qualify with "R".	X		
3.3.a	If more than one standard is used, are the correlation coefficients > 0.995? Action: J(+)/UJ(-).	X		
3.4	Was an initial calibration check standard (ICV) analyzed immediately after instrument system had been calibrated? Action: If no, all associated data are rejected "R".	X		
3.5	Was continuing calibration (CCV) analyzed at a minimum frequency of 10% (every 10 samples) during and at the end of the analytical run? If not, document and flag based on professional judgement.	X		
3.6	Are all calibration standard percent recoveries within the control limits of 90%-110%? ICV and CCV:		X	
	< 75% / 75%-89% / 111%-125% / 125%<%R<160% / >160%			
	Action: J-(+)/R(-) / J-(+)/UJ(-) / J+(+) / J+(+)(maybe R(+)) / R(+)			
3.7	Was the high-level check standard included within 10% of the true value?	X		

Note: _____

4.0 Blanks

		Yes	No	NA
4.1	Were method blank (MB) prepared at the appropriate frequency (one / 20 samples, batch, or matrix)?	X		
4.2	Were calibration blanks (ICB and CCBs) analyzed immediately after each ICV and CCVs?	X		
4.3	Are there reported ICB/CCBs values > DL? If yes, refer to action table.	X		
4.4	Are there negative ICB/CCB blank results with the absolute value > DL? If yes, refer to action table.	X		
4.5	Are there reported MB values > DL? If yes, refer to action table.		X	
4.6	Are there negative method blank results with the absolute value > LOD? If yes, refer to action table.		X	
4.7	Are there reported field blank or equipment blank > ± DL? If yes, refer to action table.	X		

Blank Type	Blank Concentration	Sample Concentration		Report Concentrations	Validation Flag
ICB/CCB MB/EQB	positive > LOQ	[sample] < 5x [blank]	DL < [sample] < LOD	LOD	U
			LOD < [sample] < LOQ	[sample], elevate LOD	U
			LOQ < [sample]	[sample], elevate LOD & LOQ	U
		[sample] < 10x [blank]	LOQ < [sample]	[sample]	J+
	positive ≤ LOQ	[sample] < 5x [blank]	DL < [sample] < LOD	LOD	U
			LOD < [sample] < LOQ	[sample], elevate LOD	U
			LOQ < [sample]	[sample], elevate LOD & LOQ	U
	|negative| > LOD	[sample] < 10x LOQ		[sample]	J-/UJ
ICB/CCB	|negative| > DL	[sample] < 10x LOQ		[sample]	J-/UJ

Note: When appropiate, elevate LODs/LOQs to concentration detected

5.0 Laboratory Control Sample (LCS)

		Yes	No	NA
5.1	Was an LCS prepared and analyzed at the correct frequency (one / 20 samples, batch, or matrix)? Action: If no, J(+)/R(-) any sample not associated with LCS results.	X		
5.2	Is any LCS recovery outside the control limits?		X	
	% Recoveries: <40% 40%-LCL% >UCL,<130% >150%			
	J-(+)/R(-) J-(+)/UJ(-) J+(+) R(+/-)			

Note:

6.0 ICP Interference Check Sample (ICS)

		Yes	No	NA
6.1	Was ICS analyzed at beginning of each ICP run and every 12 hours?	X		
6.2	Are the ICS AB recoveries within 80% - 120%?	X		
6.3	Are the results for unspiked analytes (in ICS A) <LOQ?		X	
6.4	If not, are the associated sample Al, Ca, Fe, and Mg concentrations less than the level in the ICS?		X	
	Action: Not Spiked Analytes Spiked analytes			
	False negative False Positive < 50% 50%-79% 120%			
	≥DL, but <10x |-[ICS]| ≥DL			
	J-(+)/UJ(-) J+(+) R(-) J-(+)/UJ(-) J+(+)			

Note:

7.0 Laboratory Duplicates (MD)

		Yes	No	NA
7.1	Were Laboratory duplicates prepared and analyzed at the correct frequency (one / 20 samples, batch, or matrix)? If no, J(+), using professional judgement, analytes not associated with duplicate results.	X		
7.2	Are all RPDs less than 20%? If no, qualify all associated field samples J(+)/UJ(-) for the batch.	X		

Note:

8.0 Matrix/Matrix Spike Duplicate

		Yes	No	NA
8.1	Was a spiked sample prepared and analyzed at the correct frequency (one / 20 samples, batch, or matrix)? If not, J(+) with professional judgement.	X		
8.2	Are any MS/MSD recovery outside the control limits?		X	
	For all analytes with sample concentration ,4x spike concentration:			
	Matrix Spike %R <30% 30%-74% >125%			
	No PDS, Action: J-(+)/R(-, reanalyze) J-(+)/UJ(-) J+(+)			
	Matrix Spike %R <30% 30%-74% >125%			
	PDS%R <75% ≥75% <75% ≥75% <125% ≥125%			
	Action J-(+)/R(-) J(+)/UJ(-) J-(+)/UJ(-) J(+)/UJ(-) J(+) J+(+)			
8.3	Are all RPDs less than 20%? If no, qualify all associated field samples J(+) for the batch.			X

Note:

9.0 ICP/AA Serial Dilutions (Not for Mercury Analysis)

		Yes	No	NA
9.1	Were serial dilutions performed?	X		
9.2	Was a five-fold dilution performed?	X		
9.3	Were results agree within 10% for [sample] > 50 X DL in the original sample? If no, J(+)/UJ(-)	X		
9.4	Where dilution test fails or [sample]<50xLOD, was a post-digestion spike performed? Note any recoveries greater than ±25%D in DV report, but no data qualifying action is required.	X		
9.5	When both dilution test and post-digestion spikes do not pass, was a method of standard additions used to quantitate the reported sample concentration? If not, ask lab to comment.	X		

Note: _____

10.0 Field Duplicate Samples

		Yes	No	NA
10.1	Were any field duplicates submitted for metal analysis?	X		
	For sample results > 5 x RL, a control limit of ≤35% RPD will be used. For sample results < 5 x RL, a control limit of 2 x RL will be used.			
10.2	Are all analyte duplicate results within control limits? If not, J(+) the parent samples.	X		

Note: _____

11.0 Result Verification/ Internal Standards/ Tune

		Yes	No	NA
11.1	Are all DLs/RLs equal to or less than the reporting limits specified?	X		
11.2	Were all results and detection limits for solid-matrix samples reported on a dry-weight basis?			X
11.3	Were all dilutions reflected in the positive results and detection limits?	X		
11.4	Is there an Internal Standard associated with all analytes? R(+/-)	X		
11.5	Were the Internal Standard recoveries within 65-125%. Action: J(+)/UJ(-)	X		
11.6	Was a tune performed? If not, R(+/-) all associated samples.	X		
11.7	Were the tunes run at a minimum of four times with RSD < 5% for analytes in solution? Action: J(+)/UJ(-)	X		
11.8	Were the tune mass calibrations < 0.1 amu from the true value? Action: J(+)/UJ(-)	X		
11.9	Was the resolution check peak width < 0.9 amu at 10% peak height? Action: J(+)/UJ(-)	X		

Note: _____

12.0 Completeness Calculation

		Yes	No	NA
12.1	Is % completeness within the control limits? (Control limit 90%)	X		
12.2	Number of samples: 7			
12.3	Number of target compounds in each analysis: 4			
12.4	Number of results rejected and not reported: 0			
	% Completeness = (12.1.1 x 12.1.2 - 12.1.3) x 100/(12.1.1 x 12.1.2)			
	% Completeness = 100%			

DATA VALIDATION WORKSHEET

Hardness

Reviewer: Angela Yannone
Date: 8/14/2012
DV Level: II III IV
Review Document:
X Region IX Guidelines for Data Review of CLP Analytical Services Inorganic Data Packages
X Project QAPP/SAP

Project Name: Camp Dodge
Project Number: 15302625.30000
Laboratory: APPL
SDG No.: ARF 67737
Test Name: Hardness
Method No.: SM 2340B

1.0 Laboratory Deliverables

		Yes	No	NA
1.1	Do Chain-of-Custody forms list all samples that were analyzed?	X		
1.2	Are all Chain-of-Custody forms signed, indicating sample chain-of-custody was maintained?	X		
1.3	Do sample preservation, collection and storage condition meet method requirement?	X		
	Water: pH<2 Soil/Sediment samples: 4°C + 2°C). Action: Professional judgement or J-(+)/R(-)			
1.4	Do the traffic Reports, chain-of-custody, and lab narrative indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data?		X	

Notes:

2.0 Holding Time

		Yes	No	NA
2.1	Have any technical holding times of 6 months, determined from date of collection to date of analysis, been exceeded? Action: Use professional judgement, then J-(+)/R(-)		X	

Note:

3.0 Instrument Calibration

		Yes	No	NA
3.1	Are the Quartlery LOD establishment forms provided for each instrument?	X		
3.2	Is the signal/noise ratio less than 3:1? If not, is the determination repeated at a higher concentration?			X
3.3	Are sufficient standards of a blank + one standard & a RL standard OR 3 standards and a blank with one standard at the RL included in the calibration curve? If not, qualify with "R".	X		
3.3.a	If more than one standard is used, are the correlation coefficients > 0.995? Action: J(+)/UJ(-).	X		
3.4	Was an initial calibration check standard (ICV) analyzed immediately after instrument system had been calibrated? Action: If no, all associated data are rejected "R".	X		
3.5	Was continuing calibration (CCV) analyzed at a minimum frequency of 10% (every 10 samples) during and at the end of the analytical run? If not, document and flag based on professional judgement.	X		
3.6	Are all calibration standard percent recoveries within the control limits of 90%-110%? ICV and CCV: < 75% — 75%-89% — 111%-125% — 125%<%R<160% — >160% Action: J-(+)/R(-) — J-(+)/UJ(-) — J+(+) — J+(+)(maybe R(+)) — R(+)		X	
3.7	Was the high-level check standard included within 10% of the true value?	X		

Note:

11.0 Result Verification/ Internal Standards/ Tune		Yes	No	NA
11.1	Are all DLs/RLs equal to or less than the reporting limits specified?	X		
11.2	Were all results and detection limits for solid-matrix samples reported on a dry-weight basis?			X
11.3	Were all dilutions reflected in the positive results and detection limits?	X		
11.4	Is there an Internal Standard associated with all analytes? R(+/-)	X		
11.5	Were the Internal Standard recoveries within 65-125%. Action: J(+)/UJ(-)	X		
11.6	Was a tune performed? If not, R(+/-) all associated samples.	X		
11.7	Were the tunes run at a minimum of four times with RSD < 5% for analytes in solution? Action: J(+)/UJ(-)	X		
11.8	Were the tune mass calibrations < 0.1 amu from the true value? Action: J(+)/UJ(-)	X		
11.9	Was the resolution check peak width < 0.9 amu at 10% peak height? Action: J(+)/UJ(-)	X		

Note:

6.0 Compound Identification and Detection Limit Verification		Yes	No	NA
6.1	Do detection limits meet those required by the project QAPP and were they properly adjusted for dilution factors and moisture (including adjustment of wet weight aliquot)?	X		
6.2	Did the concentratrion of magnesium and/or calcium exceed the linear range of the instrument? If so, J(+).		X	
6.3	If a concentration exceeded the linear range of the instument, was a dilution performed?			X

Notes:

7.0 Data Completeness		Yes	No	NA
7.1	Is % completeness for certainty? (Control limit 90%)	X		
7.1.1	Number of samples: 7			
7.1.2	Number of target compounds in each analysis: 1			
7.1.3	Number of results that are uncertain at comparison criteria standard: 0			
	% Completeness = (7.1.1 x 7.1.2 - 7.1.3) x 100/(7.1.1 x 7.1.2)			
	% Completeness = 100			

Hardness Calculation

$$\frac{M_{CaCO_3}}{M_{Ca}} = \frac{100.088}{40.08} = 2.497$$

$$\frac{M_{CaCO_3}}{M_{Mg}} = \frac{100.088}{24.305} = 4.118$$

$$[CaCO_3]=2.497[Ca^{2+}]+4.118[Mg^{2+}]$$

Field Samples:

Sample ID:	DGSW02WA01	
	$[Ca^{2+}]$	92312.99
	$[Mg^{2+}]$	25486.34
Calculated	Hardness:	335
Reported	Hardness:	335

Sample ID:	DGSW01WB01	
	$[Ca^{2+}]$	92557.41
	$[Mg^{2+}]$	25686.32
Calculated	Hardness:	337
Reported	Hardness:	337

Sample ID:	DGSW03WB01	
	$[Ca^{2+}]$	92912.93
	$[Mg^{2+}]$	25597.44
Calculated	Hardness:	337
Reported	Hardness:	337

Sample ID:	DGSW03WA01	
	$[Ca^{2+}]$	88346.72
	$[Mg^{2+}]$	23808.73
Calculated	Hardness:	319
Reported	Hardness:	319

Sample ID:	DGSW03WB02	
	$[Ca^{2+}]$	93068.47
	$[Mg^{2+}]$	25275.25
Calculated	Hardness:	336
Reported	Hardness:	336

Sample ID:	DGSW01WA01	
	$[Ca^{2+}]$	87135.73
	$[Mg^{2+}]$	23508.76
Calculated	Hardness:	314
Reported	Hardness:	314

6020/200.8 Injection Log

Directory: K:\ICP-MS Optimus\raw data output csv\

RunID	Injected		Sample Name	Misc Info	FileName	Multiplier
1	28 Jun 2012	12:48	Calibration Blank		120628Arev	1.
2	28 Jun 2012	12:54	120628 Standard 1		120628Arev	1.
3	28 Jun 2012	13:01	120628 Standard 2		120628Arev	1.
4	28 Jun 2012	13:08	120628 Standard 3		120628Arev	1.
5	28 Jun 2012	13:14	120628 Standard 4		120628Arev	1.
6	28 Jun 2012	13:21	ICV 120628		120628Arev	1.
8	28 Jun 2012	13:34	ICB 120628		120628Arev	1.
9	28 Jun 2012	13:41	CCV 120628		120628Arev	1.
10	28 Jun 2012	13:48	CCB 120628		120628Arev	1.
11	28 Jun 2012	13:54	LDR-1000ppb 120628		120628Arev	1.
12	28 Jun 2012	14:07	ICSA 120628		120628Arev	1.
13	28 Jun 2012	14:14	ICSAB 120628		120628Arev	1.
14	28 Jun 2012	14:27	CCV 120628		120628Arev	1.
15	28 Jun 2012	14:41	CCB 120628		120628Arev	1.
50	28 Jun 2012	18:49	CCV 120628		120628Arev	1.
51	28 Jun 2012	19:03	CCB 120628		120628Arev	1.
55	28 Jun 2012	19:36	120516A-3015-BLK		120628Arev	1.
58	28 Jun 2012	19:56	120516A-3015-LCS		120628Arev	1.
61	28 Jun 2012	20:16	CCV 120628		120628Arev	1.
62	28 Jun 2012	20:30	CCB 120628		120628Arev	1.
63	28 Jun 2012	20:36	AY61088W03		120628Arev	1.
64	28 Jun 2012	20:43	AY61089W03		120628Arev	1.
65	28 Jun 2012	20:50	AY61090W03		120628Arev	1.
66	28 Jun 2012	20:56	AY61091W03		120628Arev	1.
67	28 Jun 2012	21:03	AY61092W01		120628Arev	1.
68	28 Jun 2012	21:09	AY61093W07		120628Arev	1.
69	28 Jun 2012	21:16	AY61093W07 DUP		120628Arev	1.
70	28 Jun 2012	21:23	AY61093W07 MS		120628Arev	1.
71	28 Jun 2012	21:29	AY61093W07-A		120628Arev	1.
72	28 Jun 2012	21:36	AY61093W07-1/5		120628Arev	5.
73	28 Jun 2012	21:43	CCV 120628		120628Arev	1.
74	28 Jun 2012	21:56	CCB 120628		120628Arev	1.
75	28 Jun 2012	22:03	AY61094W01		120628Arev	1.
85	28 Jun 2012	23:10	CCV 120628		120628Arev	1.
86	28 Jun 2012	23:23	CCB 120628		120628Arev	1.

A.P.P.L. INC.
3
BLANKS

Lab Name: APPL, Inc. Contract #: URS Group

ARF No. 67737
Prep Blank Matrix: Water Concentration Units (ug/L or mg/kg): ug/L

Analysis Date: 06/28/2012

Analyte		Initial Calibration Blank 13:34	Continuing Calibration Blank 20:30	21:56	23:23	Preparation Blank 19:36	M
			1	2	3		
Copper		0.25U	0.25U	0.25U	0.25U	0.25U	
Lead		0.15U	0.15U	0.15U	0.15U	0.15U	
Antimony		0.02J	-0.01J	0.20U	-0.02J	0.20U	
Zinc		5.00U	5.00U	5.00U	5.00U	5.00U	

6/28 6/28

Form III-IN

CCB QC Report

Data File: C:\ICPCHEM\1\DATA\12F28m00.B\011_CCB.D\011_CCB.D#
Date Acquired: Jun 28 2012 01:34 pm
Operator: NBS
Sample Name: ICB 120628
Misc Info:
Vial Number: 1102
Current Method: C:\ICPCHEM\1\METHODS\62A0628A.M
Calibration File: C:\ICPCHEM\1\CALIB\62A0628A.C
Last Cal Update: Jun 28 2012 01:18 pm
Sample Type: CCB
Total Dil Factor: 1.00

QC Elements

Element	Conc.		RSD(%)	High Limit	Flag
7 (Li)	--------	ug/l	--------	#######	
9 Be	0.00	ug/l	53.32	0.12	
11 B	2.11	ug/l	7.12	15.00	
23 Na	31.80	ug/l	7.63	77.10	
24 Mg	0.16	ug/l	124.06	7.50	
27 Al	-0.03	ug/l	506.93	3.96	
39 K	3.57	ug/l	145.65	19.20	
44 Ca	-11.54	ug/l	56.95	90.00	
47 Ti	3.65	ug/l	173.63	0.78	Fail
51 V	-0.02	ug/l	18.87	0.21	
52 Cr	0.00	ug/l	623.76	0.12	
55 Mn	0.01	ug/l	17.80	0.18	
56 Fe	-0.10	ug/l	15.88	40.80	
59 Co	0.00	ug/l	2222.50	0.09	
60 Ni	0.00	ug/l	109.74	0.48	
63 Cu	-0.01	ug/l	152.92	0.39	
65 Cu	0.00	ug/l	538.05	0.39	
66 Zn	-0.01	ug/l	131.28	6.90	
75 As	-0.03	ug/l	32.85	0.27	
78 Se	0.00	ug/l	579.36	0.30	
78 Se	0.15	ug/l	44.99	0.30	
88 Sr	0.02	ug/l	22.61	0.03	
88 Sr	0.00	ug/l	180.31	0.03	
95 Mo	-0.02	ug/l	10.32	0.21	
106 (Cd)	--------	ug/l	--------	#######	
107 Ag	-0.40	ug/l	3.22	0.09	
108 (Cd)	--------	ug/l	--------	#######	
111 Cd	0.00	ug/l	35.32	0.06	
118 Sn	0.02	ug/l	36.92	#######	
118 Sn	0.02	ug/l	59.61	#######	
118 Sn	0.01	ug/l	20.87	0.30	
121 Sb	-0.02	ug/l	18.40	0.03	
137 Ba	0.00	ug/l	371.39	0.12	
205 Tl	0.01	ug/l	16.19	0.03	
206 (Pb)	--------	ug/l	--------	#######	
207 (Pb)	--------	ug/l	--------	#######	
208 Pb	0.00	ug/l	11.58	0.33	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	701945.38	0.48	677089.19	103.7	70 - 120	
45 Sc	2100164.80	0.86	2053281.00	102.3	70 - 120	
45 Sc	287278.69	0.44	276090.34	104.1	70 - 120	
45 Sc	5768927.00	0.46	5721539.00	100.8	70 - 120	
72 Ge	523380.28	0.16	520315.50	100.6	70 - 120	
72 Ge	174123.34	1.97	174769.02	99.6	70 - 120	
72 Ge	1252062.00	0.47	1272535.40	98.4	70 - 120	
115 In	3980994.00	0.14	3948470.00	100.8	70 - 120	
115 In	1883426.80	0.55	1898160.40	99.2	70 - 120	
115 In	8326051.50	1.04	8414744.00	98.9	70 - 120	
159 Tb	10587921.00	0.80	10866975.00	97.4	70 - 120	
165 Ho	9728119.00	0.38	10056917.00	96.7	70 - 120	

ISTD Ref File : C:\ICPCHEM\1\DATA\12F28m00.B\004CALB.D\004CALB.D#

1 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

CCB QC Report

Data File: C:\ICPCHEM\1\DATA\12F28m00.B\086_CCB.D\086_CCB.D#
Date Acquired: Jun 28 2012 09:56 pm
Operator: NBS
Sample Name: CCB 120628
Misc Info:
Vial Number: 1102
Current Method: C:\ICPCHEM\1\METHODS\62A0628A.M
Calibration File: C:\ICPCHEM\1\CALIB\62A0628A.C
Last Cal Update: Jun 28 2012 01:18 pm
Sample Type: CCB
Total Dil Factor: 1.00

QC Elements

Element	Conc.		RSD(%)	High Limit	Flag
7 (Li)	--------	ug/l	--------	#######	
9 Be	-0.01	ug/l	27.78	0.12	
11 B	2.87	ug/l	2.57	15.00	
23 Na	21.82	ug/l	2.73	77.10	
24 Mg	0.00	ug/l	813.48	7.50	
27 Al	2.11	ug/l	8.44	3.96	
39 K	-29.76	ug/l	11.00	19.20	
44 Ca	-27.91	ug/l	24.36	90.00	
47 Ti	-0.05	ug/l	0.16	0.78	
51 V	-0.02	ug/l	42.45	0.21	
52 Cr	0.00	ug/l	97.07	0.12	
55 Mn	0.01	ug/l	143.93	0.18	
56 Fe	-0.23	ug/l	42.94	40.80	
59 Co	0.00	ug/l	50.79	0.09	
60 Ni	-0.03	ug/l	46.63	0.48	
63 Cu	-0.09	ug/l	5.41	0.39	
65 Cu	-0.09	ug/l	13.11	0.39	
66 Zn	-0.07	ug/l	56.58	6.90	
75 As	-0.04	ug/l	26.57	0.27	
78 Se	-0.01	ug/l	93.88	0.30	
78 Se	-0.38	ug/l	56.47	0.30	
88 Sr	0.01	ug/l	85.92	0.03	
88 Sr	0.01	ug/l	39.19	0.03	
95 Mo	-0.03	ug/l	3.72	0.21	
106 (Cd)	--------	ug/l	--------	#######	
107 Ag	-0.44	ug/l	0.19	0.09	
108 (Cd)	--------	ug/l	--------	#######	
111 Cd	0.00	ug/l	56.66	0.06	
118 Sn	0.03	ug/l	34.02	#######	
118 Sn	0.02	ug/l	50.15	#######	
118 Sn	0.02	ug/l	13.45	0.30	
121 Sb	0.00	ug/l	663.49	0.03	
137 Ba	0.00	ug/l	294.38	0.12	
205 Tl	0.00	ug/l	42.29	0.03	
206 (Pb)	--------	ug/l	--------	#######	
207 (Pb)	--------	ug/l	--------	#######	
208 Pb	-0.01	ug/l	38.82	0.33	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	189142.23	3.35	677089.19	27.9	70 - 120	IS Fai.
45 Sc	2110596.00	0.84	2053281.00	102.8	70 - 120	
45 Sc	301529.03	0.44	276090.34	109.2	70 - 120	
45 Sc	5679007.50	0.34	5721539.00	99.3	70 - 120	
72 Ge	534371.06	1.52	520315.50	102.7	70 - 120	
72 Ge	187957.06	0.50	174769.02	107.5	70 - 120	
72 Ge	1282123.40	0.68	1272535.40	100.8	70 - 120	
115 In	4064854.50	0.11	3948470.00	102.9	70 - 120	
115 In	2054151.60	0.52	1898160.40	108.2	70 - 120	
115 In	8783600.00	1.08	8414744.00	104.4	70 - 120	
159 Tb	11400865.00	0.26	10866975.00	104.9	70 - 120	
165 Ho	10876471.00	0.52	10056917.00	108.1	70 - 120	

ISTD Ref File : C:\ICPCHEM\1\DATA\12F28m00.B\004CALB.D\004CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed
1 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Fail

CCB QC Report

Data File: C:\ICPCHEM\1\DATA\12F28m00.B\073_CCB.D\073_CCB.D#
Date Acquired: Jun 28 2012 08:30 pm
Operator: NBS
Sample Name: CCB 120628
Misc Info:
Vial Number: 1102
Current Method: C:\ICPCHEM\1\METHODS\62A0628A.M
Calibration File: C:\ICPCHEM\1\CALIB\62A0628A.C
Last Cal Update: Jun 28 2012 01:18 pm
Sample Type: CCB
Total Dil Factor: 1.00

QC Elements

Element	Conc.		RSD(%)	High Limit	Flag
7 (Li)	--------	ug/l	--------	#######	
9 Be	-0.01	ug/l	67.29	0.12	
11 B	2.84	ug/l	3.40	15.00	
23 Na	-10.51	ug/l	9.75	77.10	
24 Mg	-0.16	ug/l	110.04	7.50	
27 Al	1.00	ug/l	19.57	3.96	
39 K	-33.28	ug/l	10.48	19.20	
44 Ca	-26.46	ug/l	13.87	90.00	
47 Ti	-0.02	ug/l	208.62	0.78	
51 V	-0.01	ug/l	6.52	0.21	
52 Cr	0.00	ug/l	281.72	0.12	
55 Mn	0.01	ug/l	19.01	0.18	
56 Fe	-0.15	ug/l	29.89	40.80	
59 Co	0.00	ug/l	56.47	0.09	
60 Ni	-0.02	ug/l	26.41	0.48	
63 Cu	-0.07	ug/l	9.11	0.39	
65 Cu	-0.06	ug/l	19.96	0.39	
66 Zn	-0.03	ug/l	132.16	6.90	
75 As	-0.02	ug/l	47.74	0.27	
78 Se	-0.02	ug/l	64.56	0.30	
78 Se	-0.06	ug/l	178.39	0.30	
88 Sr	0.03	ug/l	15.09	0.03	
88 Sr	0.00	ug/l	100.26	0.03	
95 Mo	-0.03	ug/l	19.35	0.21	
106 (Cd)	--------	ug/l	--------	#######	
107 Ag	-0.44	ug/l	0.18	0.09	
108 (Cd)	--------	ug/l	--------	#######	
111 Cd	0.00	ug/l	993.18	0.06	
118 Sn	0.02	ug/l	32.03	#######	
118 Sn	0.07	ug/l	96.98	#######	
118 Sn	0.02	ug/l	21.84	0.30	
121 Sb	-0.01	ug/l	38.77	0.03	
137 Ba	0.01	ug/l	28.90	0.12	
205 Tl	0.03	ug/l	8.92	0.03	Fail
206 (Pb)	--------	ug/l	--------	#######	
207 (Pb)	--------	ug/l	--------	#######	
208 Pb	0.00	ug/l	77.46	0.33	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	196237.84	1.49	677089.19	29.0	70 - 120	IS Fai
45 Sc	2077567.90	0.80	2053281.00	101.2	70 - 120	
45 Sc	290876.84	0.59	276090.34	105.4	70 - 120	
45 Sc	5581604.00	0.06	5721539.00	97.6	70 - 120	
72 Ge	516357.94	0.36	520315.50	99.2	70 - 120	
72 Ge	181666.81	1.84	174769.02	103.9	70 - 120	
72 Ge	1258804.00	0.45	1272535.40	98.9	70 - 120	
115 In	3975825.50	0.39	3948470.00	100.7	70 - 120	
115 In	1971143.50	0.51	1898160.40	103.8	70 - 120	
115 In	8598390.00	0.87	8414744.00	102.2	70 - 120	
159 Tb	11258814.00	0.73	10866975.00	103.6	70 - 120	
165 Ho	10733070.00	0.93	10056917.00	106.7	70 - 120	

ISTD Ref File : C:\ICPCHEM\1\DATA\12F28m00.B\004CALB.D\004CALB.D#

1 :Element Failures 0 :Max. Number of Failures Allowed
1 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Fail

CCB QC Report

Data File: C:\ICPCHEM\1\DATA\12F28m00.B\099_CCB.D\099_CCB.D#
Date Acquired: Jun 28 2012 11:23 pm
Operator: NBS
Sample Name: CCB 120628
Misc Info:
Vial Number: 1102
Current Method: C:\ICPCHEM\1\METHODS\62A0628A.M
Calibration File: C:\ICPCHEM\1\CALIB\62A0628A.C
Last Cal Update: Jun 28 2012 01:18 pm
Sample Type: CCB
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	High Limit	Flag
7 (Li)	-------- ug/l	--------	#######	
9 Be	-0.01 ug/l	145.93	0.12	
11 B	0.74 ug/l	12.89	15.00	
23 Na	22.71 ug/l	10.73	77.10	
24 Mg	-0.05 ug/l	372.57	7.50	
27 Al	2.39 ug/l	19.05	3.96	
39 K	-26.46 ug/l	31.82	19.20	
44 Ca	-27.90 ug/l	10.75	90.00	
47 Ti	-0.05 ug/l	39.65	0.78	
51 V	-0.02 ug/l	33.30	0.21	
52 Cr	-0.01 ug/l	18.41	0.12	
55 Mn	0.01 ug/l	45.74	0.18	
56 Fe	-0.27 ug/l	25.15	40.80	
59 Co	0.00 ug/l	18.28	0.09	
60 Ni	-0.03 ug/l	7.92	0.48	
63 Cu	-0.10 ug/l	8.02	0.39	
65 Cu	-0.08 ug/l	14.46	0.39	
66 Zn	-0.05 ug/l	70.39	6.90	
75 As	-0.03 ug/l	44.67	0.27	
78 Se	-0.02 ug/l	51.28	0.30	
78 Se	-0.18 ug/l	118.72	0.30	
88 Sr	0.02 ug/l	50.60	0.03	
88 Sr	0.01 ug/l	24.27	0.03	
95 Mo	-0.03 ug/l	8.54	0.21	
106 (Cd)	-------- ug/l	--------	#######	
107 Ag	-0.44 ug/l	0.89	0.09	
108 (Cd)	-------- ug/l	--------	#######	
111 Cd	0.00 ug/l	507.32	0.06	
118 Sn	0.03 ug/l	50.54	#######	
118 Sn	0.03 ug/l	78.90	#######	
118 Sn	0.02 ug/l	37.34	0.30	
121 Sb	-0.02 ug/l	10.09	0.03	
137 Ba	0.01 ug/l	69.54	0.12	
205 Tl	0.00 ug/l	22.91	0.03	
206 (Pb)	-------- ug/l	--------	#######	
207 (Pb)	-------- ug/l	--------	#######	
208 Pb	-0.01 ug/l	22.22	0.33	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	174083.91	1.36	677089.19	25.7	70 - 120	IS Fail
45 Sc	2029329.10	0.48	2053281.00	98.8	70 - 120	
45 Sc	292873.75	0.69	276090.34	106.1	70 - 120	
45 Sc	5461392.50	0.40	5721539.00	95.5	70 - 120	
72 Ge	519090.38	0.62	520315.50	99.8	70 - 120	
72 Ge	183719.39	1.94	174769.02	105.1	70 - 120	
72 Ge	1241999.00	0.47	1272535.40	97.6	70 - 120	
115 In	3979142.30	0.81	3948470.00	100.8	70 - 120	
115 In	1999231.90	0.04	1898160.40	105.3	70 - 120	
115 In	8708342.00	0.19	8414744.00	103.5	70 - 120	
159 Tb	11388522.00	0.26	10866975.00	104.8	70 - 120	
165 Ho	10816103.00	0.12	10056917.00	107.5	70 - 120	

ISTD Ref File : C:\ICPCHEM\1\DATA\12F28m00.B\004CALB.D\004CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed
1 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:

Analytes: Pass
ISTD: Fail

Sample QC Report

Data File:	C:\ICPCHEM\1\DATA\12F28m00.B\065SMPL.D\065SMPL.D#
Date Acquired:	Jun 28 2012 07:36 pm
Operator:	NBS
Sample Name:	120516A-3015-BLK
Misc Info:	120516A-3015
Vial Number:	2401
Current Method:	C:\ICPCHEM\1\METHODS\62A0628A.M
Calibration File:	C:\ICPCHEM\1\CALIB\62A0628A.C
Last Cal Update:	Jun 28 2012 01:18 pm
Sample Type:	Sample
Prep Dil Factor:	1.11
Total Dil Factor:	1.11

QC Elements

Element	Conc.	Corr. Conc.	RSD(%)	High Limit	Flag
7 (Li)	-------- ug/l	#VALUE!	--------	0	
9 Be	-0.01 ug/l	-0.01	19.21	1000	
11 B	1.02 ug/l	1.14	5.79	1000	
23 Na	79.71 ug/l	88.56	2.71	25000	
24 Mg	0.47 ug/l	0.53	31.11	50000	
27 Al	0.61 ug/l	0.67	39.49	20000	
39 K	-3.02 ug/l	-3.35	284.33	20000	
44 Ca	-14.56 ug/l	-16.18	21.00	50000	
47 Ti	-0.03 ug/l	-0.03	192.85	1000	
51 V	-0.03 ug/l	-0.03	15.94	1000	
52 Cr	0.00 ug/l	0.00	2986.60	1000	
55 Mn	0.15 ug/l	0.17	11.72	1000	
56 Fe	-0.03 ug/l	-0.04	136.85	20000	
59 Co	0.00 ug/l	0.00	92.92	1000	
60 Ni	0.00 ug/l	0.01	365.76	1000	
63 Cu	-0.03 ug/l	-0.03	71.57	1000	
65 Cu	-0.02 ug/l	-0.02	226.07	1000	
66 Zn	0.65 ug/l	0.73	8.39	1000	
75 As	-0.03 ug/l	-0.04	16.38	1000	
78 Se	-0.01 ug/l	-0.01	38.21	1000	
78 Se	0.32 ug/l	0.35	134.68	1000	
88 Sr	0.06 ug/l	0.06	15.27	1000	
88 Sr	0.04 ug/l	0.04	15.58	1000	
95 Mo	-0.03 ug/l	-0.04	6.83	1000	
106 (Cd)	-------- ug/l	#VALUE!	--------	#######	
107 Ag	-0.44 ug/l	-0.49	0.08	500	
108 (Cd)	-------- ug/l	#VALUE!	--------	#######	
111 Cd	0.01 ug/l	0.01	116.28	1000	
118 Sn	0.02 ug/l	0.03	28.30	#######	
118 Sn	0.02 ug/l	0.02	8.56	#######	
118 Sn	0.01 ug/l	0.01	10.43	1000	
121 Sb	-0.03 ug/l	-0.03	19.68	1000	
137 Ba	0.02 ug/l	0.02	54.03	1000	
205 Tl	0.00 ug/l	0.00	46.77	1000	
206 (Pb)	-------- ug/l	#VALUE!	--------	#######	
207 (Pb)	-------- ug/l	#VALUE!	--------	#######	
208 Pb	0.00 ug/l	0.00	122.13	1000	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	199329.55	0.34	677089.19	29.4	70 - 120	IS Fai
45 Sc	2029733.80	0.36	2053281.00	98.9	70 - 120	
45 Sc	275829.88	0.92	276090.34	99.9	70 - 120	
45 Sc	5536926.50	0.33	5721539.00	96.8	70 - 120	
72 Ge	508630.75	0.73	520315.50	97.8	70 - 120	
72 Ge	173347.11	0.35	174769.02	99.2	70 - 120	
72 Ge	1233018.40	0.87	1272535.40	96.9	70 - 120	
115 In	3859568.80	0.35	3948470.00	97.7	70 - 120	
115 In	1861115.80	0.51	1898160.40	98.0	70 - 120	
115 In	8245042.50	0.38	8414744.00	98.0	70 - 120	
159 Tb	10719118.00	0.73	10866975.00	98.6	70 - 120	
165 Ho	10162148.00	0.25	10056917.00	101.0	70 - 120	

ISTD Ref File : C:\ICPCHEM\1\DATA\12F28m00.B\004CALB.D\004CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed
1 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Fail

A.P.P.L. INC.
4
ICP INTERFERENCE CHECK SAMPLE

Lab Name: A.P.P.L. INC.
Contract: URS Group
ARF No.: 67737
SDG: 67737
ICP ID Number: Optimus
ICS Source: Environmental Express

Analysis Date: 06/28/12
Concentration Units: ug/L

Analyte	True		Initial Found		
	Sol A	Sol AB	Sol A 14:07	Sol AB 14:14	%R(1)
Copper (Cu)		250	0.8742 >	215	86.0
Lead (Pb)		500	0.4671 <	426.6	85.3
Antimony (Sb)		250	1.757 >	236.8	94.7
Zinc (Zn)		500	1.745 <	469.1	93.8

All samples
calcium levels >

✓

(1) Control Limits: Metals 80-120

Sample QC Report

Data File:	C:\ICPCHEM\1\DATA\12F28m00.B\087SMPL.D\087SMPL.D#
Date Acquired:	Jun 28 2012 10:03 pm
Operator:	NBS
Sample Name:	AY61094W01
Misc Info:	120516A-3015
Vial Number:	2507
Current Method:	C:\ICPCHEM\1\METHODS\62A0628A.M
Calibration File:	C:\ICPCHEM\1\CALIB\62A0628A.C
Last Cal Update:	Jun 28 2012 01:18 pm
Sample Type:	Sample
Prep Dil Factor:	1.11
Total Dil Factor:	1.11

QC Elements

Element	Conc.		Corr. Conc.	RSD(%)	High Limit	Flag
7 (Li)	--------	ug/l	#VALUE!	--------	0	
9 Be	-0.01	ug/l	-0.01	60.97	1000	
11 B	31.79	ug/l	35.32	0.74	1000	
23 Na	5504.00	ug/l	6114.94	1.05	25000	
24 Mg	21160.00	ug/l	23508.76	0.73	50000	
27 Al	3.21	ug/l	3.57	24.10	20000	
39 K	1258.00	ug/l	1397.64	1.26	20000	
44 Ca	78430.00	ug/l	87135.73	1.67	50000	>Cal
47 Ti	0.14	ug/l	0.16	16.04	1000	
51 V	2.81	ug/l	3.12	2.80	1000	
52 Cr	0.19	ug/l	0.21	7.63	1000	
55 Mn	2.57	ug/l	2.86	1.25	1000	
56 Fe	2.78	ug/l	3.09	3.94	20000	
59 Co	0.13	ug/l	0.15	9.16	1000	
60 Ni	0.86	ug/l	0.96	1.71	1000	
63 Cu	0.70	ug/l	0.77	0.94	1000	
65 Cu	0.78	ug/l	0.87	7.20	1000	
66 Zn	2.66	ug/l	2.95	0.77	1000	
75 As	1.36	ug/l	1.51	2.18	1000	
78 Se	1.84	ug/l	2.04	0.88	1000	
78 Se	2.49	ug/l	2.76	16.34	1000	
88 Sr	177.80	ug/l	197.54	0.46	1000	
88 Sr	173.10	ug/l	192.31	0.57	1000	
95 Mo	1.75	ug/l	1.95	2.30	1000	
106 (Cd)	--------	ug/l	#VALUE!	--------	#######	
107 Ag	-0.44	ug/l	-0.48	0.49	500	
108 (Cd)	--------	ug/l	#VALUE!	--------	#######	
111 Cd	0.03	ug/l	0.04	38.51	1000	
118 Sn	0.17	ug/l	0.19	16.29	#######	
118 Sn	0.14	ug/l	0.15	12.87	#######	
118 Sn	0.10	ug/l	0.12	6.48	1000	
121 Sb	0.18	ug/l	0.20	0.62	1000	
137 Ba	102.50	ug/l	113.88	0.48	1000	
205 Tl	0.05	ug/l	0.05	5.38	1000	
206 (Pb)	--------	ug/l	#VALUE!	--------	#######	
207 (Pb)	--------	ug/l	#VALUE!	--------	#######	
208 Pb	-0.01	ug/l	-0.01	21.20	1000	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	153247.61	2.51	677089.19	22.6	70 - 120	IS Fai
45 Sc	1864781.40	0.48	2053281.00	90.8	70 - 120	
45 Sc	266721.38	0.87	276090.34	96.6	70 - 120	
45 Sc	5184818.50	0.37	5721539.00	90.6	70 - 120	
72 Ge	465813.06	1.46	520315.50	89.5	70 - 120	
72 Ge	167750.78	0.31	174769.02	96.0	70 - 120	
72 Ge	1159009.90	0.63	1272535.40	91.1	70 - 120	
115 In	3581908.50	0.49	3948470.00	90.7	70 - 120	
115 In	1821532.00	0.20	1898160.40	96.0	70 - 120	
115 In	8127158.00	0.47	8414744.00	96.6	70 - 120	
159 Tb	10777510.00	0.06	10866975.00	99.2	70 - 120	
165 Ho	10348646.00	0.70	10056917.00	102.9	70 - 120	

ISTD Ref File : C:\ICPCHEM\1\DATA\12F28m00.B\004CALB.D\004CALB.D#

1 :Element Failures 0 :Max. Number of Failures Allowed
1 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Fail

Sample QC Report

Data File:	C:\ICPCHEM\1\DATA\12F28m00.B\074SMPL.D\074SMPL.D#
Date Acquired:	Jun 28 2012 08:36 pm
Operator:	NBS
Sample Name:	AY61088W03
Misc Info:	120516A-3015
Vial Number:	2409
Current Method:	C:\ICPCHEM\1\METHODS\62A0628A.M
Calibration File:	C:\ICPCHEM\1\CALIB\62A0628A.C
Last Cal Update:	Jun 28 2012 01:18 pm
Sample Type:	Sample
Prep Dil Factor:	1.11
Total Dil Factor:	1.11

QC Elements

Element	Conc.	Corr. Conc.	RSD(%)	High Limit	Flag
7 (Li)	-------- ug/l	#VALUE!	--------	0	
9 Be	0.00 ug/l	-0.01	99.64	1000	
11 B	37.24 ug/l	41.37	1.00	1000	
23 Na	6031.00 ug/l	6700.44	1.70	25000	
24 Mg	22940.00 ug/l	25486.34	1.18	50000	
27 Al	5.44 ug/l	6.04	4.06	20000	
39 K	1085.00 ug/l	1205.44	1.54	20000	
44 Ca	83090.00 ug/l	92312.99	1.23	50000	>Cal
47 Ti	0.16 ug/l	0.18	27.44	1000	
51 V	2.78 ug/l	3.08	3.50	1000	
52 Cr	0.22 ug/l	0.24	4.34	1000	
55 Mn	2.14 ug/l	2.37	0.23	1000	
56 Fe	8.72 ug/l	9.69	2.00	20000	
59 Co	0.18 ug/l	0.20	2.21	1000	
60 Ni	0.89 ug/l	0.99	2.68	1000	
63 Cu	0.99 ug/l	1.10	1.13	1000	
65 Cu	1.01 ug/l	1.12	5.86	1000	
66 Zn	6.94 ug/l	7.71	2.36	1000	
75 As	1.35 ug/l	1.50	3.32	1000	
78 Se	2.02 ug/l	2.24	4.89	1000	
78 Se	2.02 ug/l	2.24	4.35	1000	
88 Sr	188.20 ug/l	209.09	0.72	1000	
88 Sr	184.80 ug/l	205.31	0.69	1000	
95 Mo	1.85 ug/l	2.06	2.21	1000	
106 (Cd)	-------- ug/l	#VALUE!	--------	#######	
107 Ag	-0.43 ug/l	-0.48	0.16	500	
108 (Cd)	-------- ug/l	#VALUE!	--------	#######	
111 Cd	0.05 ug/l	0.06	25.33	1000	
118 Sn	0.20 ug/l	0.22	11.88	#######	
118 Sn	0.19 ug/l	0.21	25.27	#######	
118 Sn	0.15 ug/l	0.17	13.53	1000	
121 Sb	0.13 ug/l	0.15	4.93	1000	
137 Ba	105.30 ug/l	116.99	0.61	1000	
205 Tl	0.09 ug/l	0.09	4.21	1000	
206 (Pb)	-------- ug/l	#VALUE!	--------	#######	
207 (Pb)	-------- ug/l	#VALUE!	--------	#######	
208 Pb	0.61 ug/l	0.68	0.60	1000	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	171394.59	3.24	677089.19	25.3	70 - 120	IS Fai
45 Sc	1890533.60	0.54	2053281.00	92.1	70 - 120	
45 Sc	266928.63	1.42	276090.34	96.7	70 - 120	
45 Sc	5247118.00	0.28	5721539.00	91.7	70 - 120	
72 Ge	468669.00	0.07	520315.50	90.1	70 - 120	
72 Ge	164194.92	0.99	174769.02	93.9	70 - 120	
72 Ge	1161502.10	1.11	1272535.40	91.3	70 - 120	
115 In	3610318.00	0.22	3948470.00	91.4	70 - 120	
115 In	1822534.90	0.83	1898160.40	96.0	70 - 120	
115 In	8143149.50	0.23	8414744.00	96.8	70 - 120	
159 Tb	10831681.00	0.54	10866975.00	99.7	70 - 120	
165 Ho	10324285.00	0.14	10056917.00	102.7	70 - 120	

ISTD Ref File : C:\ICPCHEM\1\DATA\12F28m00.B\004CALB.D\004CALB.D#

1 :Element Failures 0 :Max. Number of Failures Allowed
1 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Fail

Sample QC Report

Data File:	C:\ICPCHEM\1\DATA\12F28m00.B\075SMPL.D\075SMPL.D#
Date Acquired:	Jun 28 2012 08:43 pm
Operator:	NBS
Sample Name:	AY61089W03
Misc Info:	120516A-3015
Vial Number:	2410
Current Method:	C:\ICPCHEM\1\METHODS\62A0628A.M
Calibration File:	C:\ICPCHEM\1\CALIB\62A0628A.C
Last Cal Update:	Jun 28 2012 01:18 pm
Sample Type:	Sample
Prep Dil Factor:	1.11
Total Dil Factor:	1.11

QC Elements

Element	Conc.		Corr. Conc.	RSD(%)	High Limit	Flag
7 (Li)	--------	ug/l	#VALUE!	--------	0	
9 Be	-0.01	ug/l	-0.01	34.00	1000	
11 B	32.89	ug/l	36.54	0.66	1000	
23 Na	6078.00	ug/l	6752.66	0.86	25000	
24 Mg	23040.00	ug/l	25597.44	0.46	50000	
27 Al	5.23	ug/l	5.81	6.00	20000	
39 K	1115.00	ug/l	1238.77	1.88	20000	
44 Ca	83630.00	ug/l	92912.93	2.35	50000	>Cal
47 Ti	0.33	ug/l	0.36	28.29	1000	
51 V	2.72	ug/l	3.02	2.78	1000	
52 Cr	0.64	ug/l	0.71	3.01	1000	
55 Mn	1.68	ug/l	1.86	2.75	1000	
56 Fe	8.72	ug/l	9.69	2.08	20000	
59 Co	0.18	ug/l	0.20	4.73	1000	
60 Ni	1.30	ug/l	1.44	1.98	1000	
63 Cu	0.86	ug/l	0.95	1.95	1000	
65 Cu	0.88	ug/l	0.98	3.83	1000	
66 Zn	12.62	ug/l	14.02	2.57	1000	
75 As	1.37	ug/l	1.52	1.39	1000	
78 Se	2.02	ug/l	2.24	1.84	1000	
78 Se	2.14	ug/l	2.38	12.65	1000	
88 Sr	189.40	ug/l	210.42	0.64	1000	
88 Sr	184.30	ug/l	204.76	0.80	1000	
95 Mo	1.88	ug/l	2.09	2.02	1000	
106 (Cd)	--------	ug/l	#VALUE!	--------	#######	
107 Ag	-0.43	ug/l	-0.48	0.39	500	
108 (Cd)	--------	ug/l	#VALUE!	--------	#######	
111 Cd	0.03	ug/l	0.03	23.54	1000	
118 Sn	0.23	ug/l	0.25	7.48	#######	
118 Sn	0.25	ug/l	0.28	6.32	#######	
118 Sn	0.22	ug/l	0.25	3.15	1000	
121 Sb	0.14	ug/l	0.16	7.34	1000	
137 Ba	104.60	ug/l	116.21	0.78	1000	
205 Tl	0.06	ug/l	0.07	5.50	1000	
206 (Pb)	--------	ug/l	#VALUE!	--------	#######	
207 (Pb)	--------	ug/l	#VALUE!	--------	#######	
208 Pb	0.05	ug/l	0.06	2.59	1000	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	171902.61	2.14	677089.19	25.4	70 - 120	IS Fai
45 Sc	1918277.60	0.45	2053281.00	93.4	70 - 120	
45 Sc	269160.69	0.67	276090.34	97.5	70 - 120	
45 Sc	5296423.50	0.34	5721539.00	92.6	70 - 120	
72 Ge	474896.97	1.44	520315.50	91.3	70 - 120	
72 Ge	165905.06	0.54	174769.02	94.9	70 - 120	
72 Ge	1167366.60	0.37	1272535.40	91.7	70 - 120	
115 In	3673066.00	1.15	3948470.00	93.0	70 - 120	
115 In	1829749.60	0.31	1898160.40	96.4	70 - 120	
115 In	8159997.50	0.07	8414744.00	97.0	70 - 120	
159 Tb	10763034.00	0.26	10866975.00	99.0	70 - 120	
165 Ho	10239942.00	0.89	10056917.00	101.8	70 - 120	

ISTD Ref File : C:\ICPCHEM\1\DATA\12F28m00.B\004CALB.D\004CALB.D#

1 :Element Failures 0 :Max. Number of Failures Allowed
1 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: **Fail**
ISTD: **Fail**

Sample QC Report

Data File:	C:\ICPCHEM\1\DATA\12F28m00.B\076SMPL.D\076SMPL.D#
Date Acquired:	Jun 28 2012 08:50 pm
Operator:	NBS
Sample Name:	AY61090W03
Misc Info:	120516A-3015
Vial Number:	2411
Current Method:	C:\ICPCHEM\1\METHODS\62A0628A.M
Calibration File:	C:\ICPCHEM\1\CALIB\62A0628A.C
Last Cal Update:	Jun 28 2012 01:18 pm
Sample Type:	Sample
Prep Dil Factor:	1.11
Total Dil Factor:	1.11

QC Elements

Element	Conc.		Corr. Conc.	RSD(%)	High Limit	Flag
7 (Li)	--------	ug/l	#VALUE!	--------	0	
9 Be	-0.01	ug/l	-0.01	58.45	1000	
11 B	35.53	ug/l	39.47	1.49	1000	
23 Na	5984.00	ug/l	6648.22	1.46	25000	
24 Mg	22750.00	ug/l	25275.25	1.51	50000	
27 Al	7.01	ug/l	7.79	1.72	20000	
39 K	1144.00	ug/l	1270.98	1.69	20000	
44 Ca	83770.00	ug/l	93068.47	1.68	50000	>Cal
47 Ti	0.20	ug/l	0.22	52.41	1000	
51 V	2.80	ug/l	3.11	3.38	1000	
52 Cr	0.41	ug/l	0.46	4.26	1000	
55 Mn	2.43	ug/l	2.70	3.98	1000	
56 Fe	5.67	ug/l	6.29	2.60	20000	
59 Co	0.16	ug/l	0.17	4.60	1000	
60 Ni	1.27	ug/l	1.41	2.34	1000	
63 Cu	0.78	ug/l	0.86	0.82	1000	
65 Cu	0.82	ug/l	0.91	2.70	1000	
66 Zn	18.11	ug/l	20.12	1.37	1000	
75 As	1.33	ug/l	1.47	1.57	1000	
78 Se	1.91	ug/l	2.12	0.39	1000	
78 Se	1.99	ug/l	2.21	13.81	1000	
88 Sr	187.00	ug/l	207.76	1.11	1000	
88 Sr	181.90	ug/l	202.09	0.25	1000	
95 Mo	1.83	ug/l	2.04	1.77	1000	
106 (Cd)	--------	ug/l	#VALUE!	--------	#######	
107 Ag	-0.42	ug/l	-0.47	0.58	500	
108 (Cd)	--------	ug/l	#VALUE!	--------	#######	
111 Cd	0.05	ug/l	0.05	22.71	1000	
118 Sn	0.12	ug/l	0.13	7.31	#######	
118 Sn	0.11	ug/l	0.13	10.12	#######	
118 Sn	0.10	ug/l	0.11	5.64	1000	
121 Sb	0.15	ug/l	0.17	1.59	1000	
137 Ba	102.90	ug/l	114.32	0.71	1000	
205 Tl	0.09	ug/l	0.10	4.22	1000	
206 (Pb)	--------	ug/l	#VALUE!	--------	#######	
207 (Pb)	--------	ug/l	#VALUE!	--------	#######	
208 Pb	0.18	ug/l	0.19	2.01	1000	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	174009.28	4.12	677089.19	25.7	70 - 120	IS Fai
45 Sc	1935688.60	0.34	2053281.00	94.3	70 - 120	
45 Sc	269924.84	1.68	276090.34	97.8	70 - 120	
45 Sc	5368193.00	1.14	5721539.00	93.8	70 - 120	
72 Ge	476557.94	0.51	520315.50	91.6	70 - 120	
72 Ge	165294.53	0.59	174769.02	94.6	70 - 120	
72 Ge	1182060.90	0.31	1272535.40	92.9	70 - 120	
115 In	3659560.30	0.65	3948470.00	92.7	70 - 120	
115 In	1825837.30	0.79	1898160.40	96.2	70 - 120	
115 In	8264057.00	0.02	8414744.00	98.2	70 - 120	
159 Tb	10895857.00	0.61	10866975.00	100.3	70 - 120	
165 Ho	10427723.00	0.58	10056917.00	103.7	70 - 120	

ISTD Ref File : C:\ICPCHEM\1\DATA\12F28m00.B\004CALB.D\004CALB.D#

1 :Element Failures 0 :Max. Number of Failures Allowed
1 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Fail

Sample QC Report

Data File:	C:\ICPCHEM\1\DATA\12F28m00.B\077SMPL.D\077SMPL.D#
Date Acquired:	Jun 28 2012 08:56 pm
Operator:	NBS
Sample Name:	AY61091W03
Misc Info:	120516A-3015
Vial Number:	2412
Current Method:	C:\ICPCHEM\1\METHODS\62A0628A.M
Calibration File:	C:\ICPCHEM\1\CALIB\62A0628A.C
Last Cal Update:	Jun 28 2012 01:18 pm
Sample Type:	Sample
Prep Dil Factor:	1.11
Total Dil Factor:	1.11

QC Elements

Element	Conc.	Corr. Conc.	RSD(%)	High Limit	Flag
7 (Li)	-------- ug/l	#VALUE!	--------	0	
9 Be	-0.01 ug/l	-0.01	24.72	1000	
11 B	5.08 ug/l	5.64	0.42	1000	
23 Na	178.50 ug/l	198.31	3.97	25000	
24 Mg	7.18 ug/l	7.97	10.38	50000	
27 Al	3.62 ug/l	4.02	16.95	20000	
39 K	-20.19 ug/l	-22.43	8.63	20000	
44 Ca	156.20 ug/l	173.54	2.61	50000	
47 Ti	0.37 ug/l	0.41	48.34	1000	
51 V	0.02 ug/l	0.02	38.53	1000	
52 Cr	0.35 ug/l	0.38	3.31	1000	
55 Mn	0.10 ug/l	0.11	4.54	1000	
56 Fe	3.70 ug/l	4.11	2.57	20000	
59 Co	0.08 ug/l	0.09	12.11	1000	
60 Ni	0.19 ug/l	0.22	7.91	1000	
63 Cu	0.34 ug/l	0.38	3.44	1000	
65 Cu	0.34 ug/l	0.38	2.53	1000	
66 Zn	9.36 ug/l	10.40	0.31	1000	
75 As	-0.03 ug/l	-0.04	29.32	1000	
78 Se	-0.01 ug/l	-0.01	153.77	1000	
78 Se	0.35 ug/l	0.39	56.91	1000	
88 Sr	0.21 ug/l	0.24	7.55	1000	
88 Sr	0.21 ug/l	0.23	3.38	1000	
95 Mo	-0.03 ug/l	-0.03	36.61	1000	
106 (Cd)	-------- ug/l	#VALUE!	--------	#######	
107 Ag	-0.43 ug/l	-0.48	0.83	500	
108 (Cd)	-------- ug/l	#VALUE!	--------	#######	
111 Cd	0.03 ug/l	0.03	28.24	1000	
118 Sn	0.68 ug/l	0.75	3.86	#######	
118 Sn	0.66 ug/l	0.73	8.53	#######	
118 Sn	0.64 ug/l	0.71	4.57	1000	
121 Sb	-0.02 ug/l	-0.02	7.79	1000	
137 Ba	0.75 ug/l	0.83	5.56	1000	
205 Tl	0.04 ug/l	0.05	11.37	1000	
206 (Pb)	-------- ug/l	#VALUE!	--------	#######	
207 (Pb)	-------- ug/l	#VALUE!	--------	#######	
208 Pb	0.05 ug/l	0.05	8.52	1000	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	178615.66	2.38	677089.19	26.4	70 - 120	IS Fai
45 Sc	1960467.30	0.76	2053281.00	95.5	70 - 120	
45 Sc	276734.63	1.41	276090.34	100.2	70 - 120	
45 Sc	5410876.00	0.33	5721539.00	94.6	70 - 120	
72 Ge	490036.16	0.30	520315.50	94.2	70 - 120	
72 Ge	172036.64	0.99	174769.02	98.4	70 - 120	
72 Ge	1193419.30	0.33	1272535.40	93.8	70 - 120	
115 In	3756983.50	1.00	3948470.00	95.2	70 - 120	
115 In	1864364.10	0.27	1898160.40	98.2	70 - 120	
115 In	8393896.00	0.29	8414744.00	99.8	70 - 120	
159 Tb	10924077.00	0.54	10866975.00	100.5	70 - 120	
165 Ho	10516714.00	0.83	10056917.00	104.6	70 - 120	

ISTD Ref File : C:\ICPCHEM\1\DATA\12F28m00.B\004CALB.D\004CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed
1 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Fail

Sample QC Report

Data File:	C:\ICPCHEM\1\DATA\12F28m00.B\078SMPL.D\078SMPL.D#
Date Acquired:	Jun 28 2012 09:03 pm
Operator:	NBS
Sample Name:	AY61092W01
Misc Info:	120516A-3015
Vial Number:	2501
Current Method:	C:\ICPCHEM\1\METHODS\62A0628A.M
Calibration File:	C:\ICPCHEM\1\CALIB\62A0628A.C
Last Cal Update:	Jun 28 2012 01:18 pm
Sample Type:	Sample
Prep Dil Factor:	1.11
Total Dil Factor:	1.11

QC Elements

Element	Conc.		Corr. Conc.	RSD(%)	High Limit	Flag
7 (Li)	--------	ug/l	#VALUE!	--------	0	
9 Be	-0.01	ug/l	-0.01	19.98	1000	
11 B	31.52	ug/l	35.02	0.90	1000	
23 Na	5997.00	ug/l	6662.67	0.17	25000	
24 Mg	23120.00	ug/l	25686.32	0.42	50000	
27 Al	5.72	ug/l	6.36	10.66	20000	
39 K	1101.00	ug/l	1223.21	0.91	20000	
44 Ca	83310.00	ug/l	92557.41	0.36	50000	>Cal
47 Ti	0.16	ug/l	0.18	28.29	1000	
51 V	2.69	ug/l	2.99	1.11	1000	
52 Cr	0.21	ug/l	0.23	2.57	1000	
55 Mn	2.06	ug/l	2.29	1.11	1000	
56 Fe	4.52	ug/l	5.02	0.35	20000	
59 Co	0.16	ug/l	0.17	6.14	1000	
60 Ni	0.90	ug/l	1.00	3.69	1000	
63 Cu	0.68	ug/l	0.76	1.98	1000	
65 Cu	0.73	ug/l	0.81	1.76	1000	
66 Zn	8.60	ug/l	9.55	1.28	1000	
75 As	1.31	ug/l	1.45	5.44	1000	
78 Se	2.00	ug/l	2.22	3.95	1000	
78 Se	2.19	ug/l	2.43	6.66	1000	
88 Sr	189.70	ug/l	210.76	0.63	1000	
88 Sr	182.30	ug/l	202.54	0.58	1000	
95 Mo	1.82	ug/l	2.02	4.96	1000	
106 (Cd)	--------	ug/l	#VALUE!	--------	#######	
107 Ag	-0.43	ug/l	-0.48	0.29	500	
108 (Cd)	--------	ug/l	#VALUE!	--------	#######	
111 Cd	0.04	ug/l	0.05	15.23	1000	
118 Sn	0.08	ug/l	0.09	3.97	#######	
118 Sn	0.09	ug/l	0.10	13.47	#######	
118 Sn	0.07	ug/l	0.08	5.55	1000	
121 Sb	0.09	ug/l	0.10	4.72	1000	
137 Ba	104.50	ug/l	116.10	0.35	1000	
205 Tl	0.04	ug/l	0.05	6.68	1000	
206 (Pb)	--------	ug/l	#VALUE!	--------	#######	
207 (Pb)	--------	ug/l	#VALUE!	--------	#######	
208 Pb	0.12	ug/l	0.13	1.72	1000	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	172263.36	0.61	677089.19	25.4	70 - 120	IS Fai
45 Sc	1941332.50	0.60	2053281.00	94.5	70 - 120	
45 Sc	272823.75	0.32	276090.34	98.8	70 - 120	
45 Sc	5397761.00	0.35	5721539.00	94.3	70 - 120	
72 Ge	478564.25	0.09	520315.50	92.0	70 - 120	
72 Ge	172100.94	0.91	174769.02	98.5	70 - 120	
72 Ge	1179528.30	1.07	1272535.40	92.7	70 - 120	
115 In	3675636.50	0.52	3948470.00	93.1	70 - 120	
115 In	1848227.30	0.52	1898160.40	97.4	70 - 120	
115 In	8251479.00	0.58	8414744.00	98.1	70 - 120	
159 Tb	11023971.00	0.78	10866975.00	101.4	70 - 120	
165 Ho	10507196.00	1.04	10056917.00	104.5	70 - 120	

ISTD Ref File : C:\ICPCHEM\1\DATA\12F28m00.B\004CALB.D\004CALB.D#

1 :Element Failures 0 :Max. Number of Failures Allowed
1 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Fail

Sample QC Report

Data File:	C:\ICPCHEM\1\DATA\12F28m00.B\079SMPL.D\079SMPL.D#
Date Acquired:	Jun 28 2012 09:09 pm
Operator:	NBS
Sample Name:	AY61093W07
Misc Info:	120516A-3015
Vial Number:	2502
Current Method:	C:\ICPCHEM\1\METHODS\62A0628A.M
Calibration File:	C:\ICPCHEM\1\CALIB\62A0628A.C
Last Cal Update:	Jun 28 2012 01:18 pm
Sample Type:	Sample
Prep Dil Factor:	1.11
Total Dil Factor:	1.11

QC Elements

Element	Conc.		Corr. Conc.	RSD(%)	High Limit	Flag
7 (Li)	--------	ug/l	#VALUE!	--------	0	
9 Be	-0.01	ug/l	-0.01	49.66	1000	
11 B	31.11	ug/l	34.56	0.75	1000	
23 Na	5625.00	ug/l	6249.38	1.24	25000	
24 Mg	21430.00	ug/l	23808.73	0.85	50000	
27 Al	5.53	ug/l	6.15	8.64	20000	
39 K	1376.00	ug/l	1528.74	0.44	20000	
44 Ca	79520.00	ug/l	88346.72	0.47	50000	>Cal
47 Ti	0.38	ug/l	0.42	29.76	1000	
51 V	2.90	ug/l	3.23	0.62	1000	
52 Cr	0.21	ug/l	0.24	7.09	1000	
55 Mn	4.01	ug/l	4.45	0.12	1000	
56 Fe	4.87	ug/l	5.41	1.38	20000	
59 Co	0.15	ug/l	0.17	4.04	1000	
60 Ni	1.12	ug/l	1.24	4.18	1000	
63 Cu	1.54	ug/l	1.72	0.67	1000	
65 Cu	1.57	ug/l	1.74	3.44	1000	
66 Zn	16.17	ug/l	17.96	2.63	1000	
75 As	1.48	ug/l	1.65	3.46	1000	
78 Se	1.82	ug/l	2.02	3.08	1000	
78 Se	2.20	ug/l	2.44	2.98	1000	
88 Sr	178.60	ug/l	198.42	0.71	1000	
88 Sr	174.70	ug/l	194.09	1.41	1000	
95 Mo	1.82	ug/l	2.02	2.92	1000	
106 (Cd)	--------	ug/l	#VALUE!	--------	#######	
107 Ag	-0.43	ug/l	-0.48	0.82	500	
108 (Cd)	--------	ug/l	#VALUE!	--------	#######	
111 Cd	0.07	ug/l	0.08	4.79	1000	
118 Sn	0.14	ug/l	0.16	11.06	#######	
118 Sn	0.12	ug/l	0.13	18.01	#######	
118 Sn	0.13	ug/l	0.14	3.00	1000	
121 Sb	0.11	ug/l	0.12	1.27	1000	
137 Ba	102.90	ug/l	114.32	0.75	1000	
205 Tl	0.05	ug/l	0.05	7.17	1000	
206 (Pb)	--------	ug/l	#VALUE!	--------	#######	
207 (Pb)	--------	ug/l	#VALUE!	--------	#######	
208 Pb	0.29	ug/l	0.32	1.43	1000	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	165350.63	2.03	677089.19	24.4	70 - 120	IS Fai
45 Sc	1932592.00	0.34	2053281.00	94.1	70 - 120	
45 Sc	272747.19	0.58	276090.34	98.8	70 - 120	
45 Sc	5373217.50	0.38	5721539.00	93.9	70 - 120	
72 Ge	477844.25	0.75	520315.50	91.8	70 - 120	
72 Ge	167613.19	1.63	174769.02	95.9	70 - 120	
72 Ge	1180562.60	0.79	1272535.40	92.8	70 - 120	
115 In	3665849.80	0.60	3948470.00	92.8	70 - 120	
115 In	1830295.60	0.79	1898160.40	96.4	70 - 120	
115 In	8173959.00	0.52	8414744.00	97.1	70 - 120	
159 Tb	10866438.00	0.43	10866975.00	100.0	70 - 120	
165 Ho	10345247.00	0.45	10056917.00	102.9	70 - 120	

ISTD Ref File : C:\ICPCHEM\1\DATA\12F28m00.B\004CALB.D\004CALB.D#

1 :Element Failures 0 :Max. Number of Failures Allowed
1 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:

Analytes: Fail
ISTD: Fail

METALS BLANK

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Method	Analyte	Result	LOQ	LOD	DL	Units	Prep Date	Analysis Date	QC Group
6020	ANTIMONY (SB) (DI	0.20 U	0.2	0.20	0.01	ug/L	05/16/12	06/28/12	#62DOD-120516A-AY61093
6020	COPPER (CU) (DIS	0.25 U	0.5	0.25	0.13	ug/L	05/16/12	06/28/12	#62DOD-120516A-AY61093
6020	LEAD (PB) (DISSOL	0.15 U	0.5	0.15	0.11	ug/L	05/16/12	06/28/12	#62DOD-120516A-AY61093
6020	ZINC (ZN) (DISSOL	5.00 U	50.0	5.00	2.30	ug/L	05/16/12	06/28/12	#62DOD-120516A-AY61093

Sb -0.03

Metals SC-Blank-URS-REG MDLs
Printed: 06/29/12 4:02:48 PM

Matrix Spike Recovery

METALS

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Sample ID: AY61093
Client ID: DGSW03WA01

Method	Compound Name	Spike Level ug/L	Matrix Result ug/L	SPK Result ug/L	SPK % Recovery	Recovery Limits	Extract Date	Analysis Date	QC Group	QC Sample
6020	ANTIMONY (SB) (DISSOLVED)	50.0	0.12	50.3	100	80-120	05/16/12	06/28/12	#62DOD-120516A	AY61093
6020	COPPER (CU) (DISSOLVED)	50.0	1.7	48.5	93.6	80-120	05/16/12	06/28/12	#62DOD-120516A	AY61093
6020	LEAD (PB) (DISSOLVED)	50.0	0.32	54.6	109	80-120	05/16/12	06/28/12	#62DOD-120516A	AY61093
6020	ZINC (ZN) (DISSOLVED)	100	17.9	95.8	77.9 #	80-120	05/16/12	06/28/12	#62DOD-120516A	AY61093

lower limit 80

= Recovery is outside QC limits.

Comments:

Printed: 06/29/12 4:04:02 PM
APPL MS SCII - URS

METALS

Sample/Sample Duplicate Results

URS Group
849 International Dr, Ste 320
Linthicum, MD 21090

Attn: Andrea Sansom

Sample ID: AY61093
Client ID: DGSW03WA01

APPL Inc.
908 North Temperance Avenu
Clovis, CA 93611

Project: 15302625.30000 ORA Phase II Camp Dodge

ARF: 67737

Method	Analyte	Sample ID	Sample Result	Sample Dup Result	RPD	RPD Max	MDL	PQL	Units	Sample Extract Date	Sample Analysis Date	Sample Dup Extract Date	Sample Dup Analysis Date
6020	ANTIMONY (SB) (	AY61093	0.12	0.13	NA	20	0.01	0.2	ug/L	05/16/12	06/28/12	05/16/12	06/28/12
6020	COPPER (CU) (DI	AY61093	1.7	1.2	NA	20	0.13	0.5	ug/L	05/16/12	06/28/12	05/16/12	06/28/12
6020	LEAD (PB) (DISSO	AY61093	0.32	0.20	NA	20	0.11	0.5	ug/L	05/16/12	06/28/12	05/16/12	06/28/12
6020	ZINC (ZN) (DISSO	AY61093	17.9	30.4	NA	20	2.30	50.0	ug/L	05/16/12	06/28/12	05/16/12	06/28/12

Printed: 06/29/12 4:03:59 PM
Dup-SCII (NoMC)

A.P.P.L. INC.
9
ICP SERIAL DILUTION

CLIENT SAMPLE NO.
DGSW03WA01

Lab Name: A.P.P.L. INC.
Contract: URS Group
ARF No.: 67737
SDG: 67737
Matrix: water

Analysis Date: 06/28/12
Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	%D	Q	M
Copper (Cu)	1.71384		1.2927		NA		
Lead (Pb)	0.324453		0.4190572		NA		
Antimony (Sb)	0.12099		0.930188		NA		
Zinc (Zn)	17.9487		19.41552		NA		

Comments:

06/28/12 21:09 AY61093W07

06/28/12 21:36 AY61093W07-1/5

A.P.P.L. INC.
5B
POST DIGEST SPIKE SAMPLE RECOVERY

CLIENT SAMPLE NO.
DGSW03WA01

Lab Name: A.P.P.L. INC. Contract: URS Group

ARF No.: 67737 SDG: 67737

Analysis Date: 06/28/12 Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Copper (Cu)	75-125	239.76		1.71384		277.500	85.8		
Lead (Pb)	75-125	261.627		0.324453		277.500	94.2		
Antimony (Sb)	75-125	253.968		0.12099		277.500	91.5		
Zinc (Zn)	75-125	470.529		17.9487		555.000	81.5		

Comments:

06/28/12 21:09 AY61093W07

06/28/12 21:29 AY61093W07-A

908 North Temperance Ave. ∇ Clovis, CA 93611 ∇ Phone 559-275-2175 ∇ Fax 559-275-4422

Certification Number: CA1312
NELAP Certification number: 05233CA
DoD-ELAP Certificate number: ADE-1410

Summary Report

received
7/5/12

July 2, 2012

URS Group, Inc.
430 National Business Parkway, Suite 400
Annapolis Junction, Maryland 20701

Attn: Andrea Sansom

Title: Report of Data: Case 67737

Project: 15302625.30000 ORAP Camp Dodge, IA

Contract #: Prime contract # for DoD: W912DR-09-D-0003 TO 008
Subcontract: 260784

Dear Ms. Sansom:

Seven water samples were received May 11, 2012, in good condition. Written results for the requested analyses are provided on this July 2, 2012.

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.

If you have any questions or require further information, please contact your APPL Project Manager, Diane Anderson, at your convenience. Thank you for choosing APPL, Inc.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. These test results meet all requirements of NELAC and DoD QSM. Release of the hard copy has been authorized by the Laboratory Manager or her designee, as verified by the following signature.

Sharon Dehmlow, Laboratory Director
APPL, Inc.

SD/sdm
Enclosure
cc: File

Number of pages in this report: 39

EPA Method 8330B

Energetics

Sample Preparation:

The samples were extracted according to EPA method 3535A. All holding times were met.

Analysis:

The samples were analyzed according to EPA Method 8330B using an Agilent 1290 HPLC with DA detector. Manual integrations were performed in accordance to APPL's SOP. The following analytes were manually integrated: For Waldorf: PETN in data file 0516_0000024, 0516_0000026, 0518_0000050 and 0518_0000068. For Statler: 1,2-Dinitrobenzene in data file 0514_0000004, RDX in data file 0514_0000004, Tetryl in data file 0514_0000004, 2,6-Dinitrotoluene in data file 0514_0000006, 2-Nitrotoluene in data file 0514_0000004, 0514_0000006, 4-Nitrotoluene in data file 0514_0000004, 0514_0000006, 3-Nitrotoluene in data file 0514_0000004, 0514_0000006, 4-Amino-2,6-Dinitrotoluene in data file 0514_0000004, 2-Amino-4,6-Dinitrotoluene in data file 0514_0000004. Chromatograms of before and after manual integration are enclosed.

Quality Control/Assurance:

Spike Recovery

A Laboratory Control Spike (LCS) was used for quality assurance. All acceptance criteria were met.

Sample DGSW03WA01 was selected by the client for MS/MSD analysis. All MS/MSD acceptance criteria were met.

Method blanks:

The method blank contained no target analyte at or above one-half the limit of quantitation (LOQ).

Surrogates:

Surrogate recoveries are summarized on the Form 2 & 8. All surrogates had acceptable recoveries.

Calibration:

All calibration criteria were met.

Summary:

No other analytical problem was encountered.

EPA method 6020 and SM 2340B

Metals and Hardness

Digestion Information:

The water samples were digested according to EPA method 3015. No exception was encountered. All holding times were met

Analysis Information:

Samples:

The samples were analyzed according to EPA method 6020 using an Agilent 7500cx ICP-MS. Hardness was calculated using Standard Method 2340B.

Calibrations:

Calibrations were performed according to the method for the initial calibration and the initial calibration verification. The initial calibration verification is prepared from a second source standard.

Blanks:

No target metal was detected above one-half the LOQ in the method blank.

Spikes:

Laboratory Control Spike (LCS), Matrix Spike (MS), Sample Duplicate (DUP), Post-Digestion Spike (PDS), and Dilution Test (DT) were used for quality assurance. All LCS acceptance criteria were met.

Sample DGSW03WA01 was selected by the client for DUP/MS analysis. In the MS, zinc recovered below the 80% lower control limit at 77.9%. All other acceptance criteria were met in the DUP, MS, PDS, and DT.

Summary:

No other analytical exception is noted. The data generated are acceptable.

Dodge

COOLER RECEIPT FORM

1) Project: 15302625.30000 ORA Phase II Camp ~~Dodge~~ Date Received: 5/11/12 vl 5/11/12

2) Coolers: Number of Coolers: 2

3) YES NO Were coolers and samples screened for radioactivity?

4) YES NO Were custody seals on outside of cooler? How many? 4 Date on seal? 5/10/12

5) Name on seal? See Label

6) YES NO NA Were custody seals unbroken and intact at the time of arrival?

7) YES NO Did the cooler come with a shipping slip (air bill, etc.)? Carrier name: Fed Ex

8) Shipping slip numbers: 1) 8006 7438 3406 2) 8006 7438 3417 3)

9) YES NO NA Was the shipping slip scanned into the database?

10) YES NO NA If cooler belongs to APPL, has it been logged into the ice chest database?

11) Describe type of packing in cooler (bubble wrap, popcorn, type of ice, etc.): bubble bag, Ziploc in wet ice

12) YES NO NA For hand delivered samples was sufficient ice present to start the cooling process?

13) YES NO Was a temperature blank included in the cooler?

14) Serial number of certified NIST thermometer used: 439267 Correction factor: 0

15) Cooler temp(s): 1) 2.5°C 2) 2.5°C 3) 4) 5) 6) 7) 8)

Chain of custody:

16) YES NO Was a chain of custody received?

17) YES NO Were the custody papers signed in the appropriate places?

18) YES NO Was the project identifiable from custody papers?

19) YES NO Did the chain of custody include date and time of sampling?

20) YES NO Is location where sample was taken listed on the chain of custody?

Sample Labels:

21) YES NO Were container labels in good condition?

22) YES NO Was the client ID on the label?

23) YES NO Was the date of sampling on the label?

24) YES NO Was the time of sampling on the label?

25) YES NO Did all container labels agree with custody papers?

Sample Containers:

26) YES NO Were all containers sealed in separate bags?

27) YES NO Did all containers arrive unbroken?

28) YES NO Was there any leakage from samples?

29) YES NO Were any of the lids cracked or broken?

30) YES NO Were correct containers used for the tests indicated?

31) YES NO Was a sufficient amount of sample sent for tests indicated?

32) YES NO NA Were bubbles present in volatile samples? If yes, the following were received with air bubbles:

Larger than a pea:

Smaller than a pea:

Preservation & Hold time:

33) YES NO NA Was a sufficient amount of holding time remaining to analyze the samples?

34) YES NO NA Do the sample containers contain the same preservative as what is stated on the COC?

35) YES NO NA Was the pH taken of all non-VOA preserved samples and written on the sample container?

36) YES NO NA Was the pH of acid preserved non-VOA samples < 2 & sodium hydroxide preserved samples > 12?

37) YES NO NA Unpreserved VOA Vials received?

38) YES NO NA Are unpreserved VOA vials noted in the ADD TEST FIELD on the ARF?

CUSTODY SEAL
Initials: R.H
Date: 5-10-12

Lab notified if pH was not adequate:

Deficiencies:

Signature of personnel receiving samples: [signature] Second reviewer: [signature]

Signature of project manager notified: Date and Time of notification:

Name of client notified: Date and Time of notification:

Information given to client:

by whom (Initials):

67737 25

URS Corporation

12120 Shamrock Plaza Suite 300, Omaha, NE 68154 (402) 334-8181 Fax (402) 334-1984

CHAIN OF CUSTODY RECORD

Project Name: Camp Dodge

Project No.: 15302625.30000

Project Location: Johnston, IA

Project Manager: J. Hemington

Sampler(s): J. Hemington, R. Herold, J. Allen, A. Sheridan

Analytical Parameters: Explosives (8330B), Metals/hardness (6020A + SM2340B)

Sample Date	Sample Time	Type Comp.	Type Grab	Sample Identification	Matrix	Containers No.	Containers Type	Explosives (8330B)	Metals/hardness (6020A + SM2340B)	Remarks
5/9/12	1000	X		DGSW03W-A01 ms/msd	Aq	6	1-Liter Amber	X		4°C
	↓			↓		1	500mL HDPE	X		HNO3
↓	1235			DGSW01W-A01		1	500mL HDPE	X		HNO3
5/10/12	1341	X		DGSW02W-A01	Aq	2	1-Liter Amber	X		4°C
	↓			↓		1	500mL HDPE	X		HNO3
	1035			DGSW03W-B01		2	1-Liter Amber	X		
	↓			↓		1	500mL HDPE	X		HNO3
	0800			DGSW03W-B02		2	1-Liter Amber	X		
	↓			↓		1	500mL HDPE	X		HNO3
	1100			DGSW03W-B03		2	1-Liter Amber	X		
	↓			↓		1	500mL HDPE	X		HNO3
↓	1420	↓		DGSW01W-B01	↓	1	500mL HDPE	X		HNO3

Signatures	Date	Time	Shipping Details	Special Instructions
Relinquished by:	5/10/12	1700	Method of Shipment: Fed Ex Air	Metals/hardness samples filtered with a 0.45µm filter
Received by:			Airbill No.: 800674383406	
Relinquished by:			Lab Address: APPL 908 N Temperance Ave Clovis, CA 93611	
Received for Laboratory by:	05/11/12	1120		

2.5

URS Corporation

12120 Shamrock Plaza Suite 300, Omaha, NE 68154 (402) 334-8181 Fax (402) 334-1984

CHAIN OF CUSTODY RECORD

Project Name: CAMP DODGE

Project No.: 15302625.30000

Project Location: JOHNSON, IA

Project Manager: J. HARRINGTON

Sampler(s): J. HARRINGTON, R HEROLD, J. ALLEN, A. SHERIDAN

Analytical Parameters: EXPLOSIVES 8330 PB; METALS/HARDNESS 6020A/SM2340B

Sample Date	Sample Time	Type Comp.	Type Grab	Sample Identification	Matrix	Containers No.	Containers Type	EXPLOSIVES 8330 PB	METALS/HARDNESS 6020A/SM2340B									Remarks
5/9/12	1000	X		DGSW03WA01	A9	2	1-LITER AMBER	X										4°C
↓	↓	X		DGSW03WA01 MS/MSD	↓	4	↓	X										4°C
↓	↓	X		DGSW03WA01 MS/MSD	↓	1	500ml Poly		X									HNO_3
↓	1235	X		DGSW01WA01	↓	1	↓		X									HNO_3

Signatures	Date	Time	Shipping Details	Special Instructions
Relinquished by: [signature]	5/10/12	1700	Method of Shipment: FED EX AIR	METALS AND HARDNESS SAMPLES WERE FIELD FILTERED WITH A 0.45 mm filter
Received by:			Airbill No.: 8006 7438 3417	
Relinquished by:			Lab Address: APPL 908 N TEMPERANCE AVE CLOVIS, CA 93611	
Received for Laboratory by: [signature]	5/11/12	1120		

Custody.frm/jdg 3-09-92

White copy - Laboratory Yellow copy - Laboratory Pink copy - WCC

196611

Data Qualifying Codes

Two types of data qualifying codes or flags are applied in the course of the data review. The data validation flags indicate data that are not usable for decision-making, more than normally biased and/or variable, or not representative of field conditions. These codes and their definitions are presented below in the hierarchy stipulated in the USEPA Contract Laboratory Program National Functional Guidelines for Organic (June, 2008) and Inorganic (January, 2010) Data Review

Data Validation Flags

Flag	Interpretation
R	The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.
U	The analyte was analyzed for, but not detected at a level greater than or equal to the level of the adjusted Detection Limit (DL) for sample and method.
J+	Inorganic analyte present. Reported value may not be accurate or precise, but the result may be biased high.
J-	Inorganic analyte present. Reported value may not be accurate or precise, but the result may be biased low.
J	The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the Limit of Detection (LOD).
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
UJ	The analyte was not detected at a level greater than or equal to the adjusted DL. However, the reported adjusted DL is approximate and may be inaccurate or imprecise.
C	This qualifier applies to pesticide and Aroclor results when the identification has been confirmed by gas Chromatograph/Mass Spectrometer (GC/MS)
X	This qualifier applies to pesticide and Aroclor results when GC/MS analysis was attempted but was unsuccessful.

The other type of code used by URS is a "Reason Code". The reason code indicates the type of quality control failure that led to the application of the data validation flag.

Reason Codes

GC/MS Organics		GC and HPLC Organics		Inorganics and Conventionals	
Code	Interpretation	Code	Interpretation	Code	Interpretation
a	Incorrect or incomplete analytical sequence	a	Incorrect or incomplete analytical sequence	a	Incorrect or incomplete analytical sequence
b	Bubble found in vial >6mm	b	Instrument performance failure	b	Laboratory duplicate imprecision
c	Calibration failure; poor or unstable response	c	Calibration failure; poor or unstable response	c	Calibration failure
d	MS/MSD imprecision	d	MS/MSD imprecision	d	MS/MSD imprecision
e	LCSD imprecision	e	LCSD imprecision	e	LCSD imprecision
f	Field duplicate imprecision	f	Field duplicate imprecision	f	Field duplicate imprecision
g	Tuning failure or poor mass spec performance	g	Dual column confirmation imprecision	g	Duel isotope imprecision
h	Holding time violation	h	Holding time violation	h	Holding time violation
i	Internal standard failure	i	Internal standard failure	k	Cooler receipt temperature exceeds limits
k	Cooler receipt temperature exceeds limits	k	Cooler receipt temperature exceeds limits	l	LCS recovery failure
l	LCS recovery failure	l	LCS recovery failure	m	MS/MSD recovery failure
m	MS/MSD recovery failure	m	MS/MSD recovery failure	n	ICS failure
p	Poor chromatography	p	Poor chromatography	o	Calibration blank contamination
q	Concentration exceeded the linear range	q	Concentration exceeded the linear range	q	Concentration exceeded the linear range
r	Linearity failure in initial calibration	r	Linearity failure in initial calibration	r	Linearity failure in calibration or MSA
s	Surrogate failure	s	Surrogate failure	s	Serial dilution failure
t	TIC	t	Blender blank contamination	t	Carboy Lot detection
w	Identification criteria failure	u	No confirmation column	u	BOD minimum depletion did not exceed 2mg/L
x	Field blank contamination	w	Retention time failure	v	Post-digestion spike failure
y	Trip blank contamination	x	Field blank contamination	w	CRDL Standard Failure
z	Method blank contamination	z	Method blank contamination	x	Field blank contamination
				z	Preparation/Method blank contamination

DATA VALIDATION REPORT - Level III Review

SDG No.:	**ARF 67748**	**Fraction:**	**Explosives, Metals, & Hardness**
Laboratory:	**APPL**	**Project:**	**Camp Dodge/15302625.30000**
Reviewer:	**Angela Yannone**	**Date:**	**09/04/12**

This report presents the findings of a review of the referenced data. The report consists of this summary, a listing of the samples included in the review, copies of data reports with data qualifying flags applied, the data review checklist, supporting documentation, and an explanation of the data qualifying flags employed. The review performed is based on the project-specific QAPP, and qualified according to the USEPA CLP National Functional Guidelines for Organic (June 2008) and Inorganic (January 2010) Superfund Data Review. Modifications reflect the level of review requested, the specifications of the project-specific QAPP, and the specifics of the analytical methods employed.

Major Anomalies: None.

Minor Anomalies: During the metals analysis, the following blanks displayed detections with an absolute value greater than the detection limit:

Date Analyzed	Time	Blank	Analyte	Concentration	Units
06/02/12	1245	Initial Calibration	Antimony	0.09	µg/L
	1834	Continuing Calibration		-0.02	
	2008			-0.01	
06/28/12	2056	DGSW03WB03 (Equipment Blank)	Copper	0.37	
			Zinc	10.4	

The field sample result for antimony associated with the positive calibration blank was positive and greater than five times and less than ten times the blank detection was qualified J+,o. The field sample results associated with the positive equipment blank detections for copper and zinc were less than five times the concentrations found in the blank and qualified U,x. When appropriate, the limit of detection (LOD) and/or the limit of quantitation (LOQ) were elevated to the concentration detected. The interference check standard displayed detections above the LOQ for copper (0.9346 µg/L) and antimony (2.134 µg/L). The field sample displayed a concentration of calcium at a level approximate to that found in the interference check standard spiked sample. The positive associated field sample results less than three times the antimony and copper values reported in the interference check standard were previously qualified due to a blank detection; no further data qualifying action was taken.

Correctable Anomalies: None.

Comments: The cooler was received by the laboratory at a temperature of 1.5 ^{o}C; which is less than the lower control limit of 2 ^{o}C. The laboratory did not indicate the sample was frozen and the container was intact, no data qualifying action was necessary. On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of anomalies discussed above. If a given fraction was not discussed, all

Camp Dodge

Job #: 15302625.30000

Laboratory: APPL
SDG #: ARF 67748

Sample	Client ID	Sample Type	Collected	Matrix	Explosives	Metals	Hardness
AY61156	DGSW02WB01	Sample	11-May-12	Water	x	x	x

EPA 8330B EXPLOSIVES-WATER

URS Group
849 International Dr, Ste 320
Linthicum, MD 21090

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Andrea Sansom
Project: 15302625.30000 ORA Phase II Camp Dodge
Sample ID: DGSW02WB01
Sample Collection Date: 05/11/12

ARF: 67748
APPL ID: AY61156
QCG: #833BW-120516A-167888

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 8330B	1,3,5-TRINITROBENZENE	0.300 U	0.50	0.300	0.130	ug/L	05/16/12	05/23/12
EPA 8330B	1,3-DINITROBENZENE	0.300 U	0.50	0.300	0.131	ug/L	05/16/12	05/23/12
EPA 8330B	2,4,6-TRINITROTOLUENE	0.300 U	0.50	0.300	0.133	ug/L	05/16/12	05/23/12
EPA 8330B	2,4-DINITROTOLUENE	0.300 U	0.50	0.300	0.125	ug/L	05/16/12	05/23/12
EPA 8330B	2,6-DINITROTOLUENE	0.300 U	0.50	0.300	0.125	ug/L	05/16/12	05/23/12
EPA 8330B	2-AMINO-4,6-DINITROTOLUENE	0.300 U	0.50	0.300	0.125	ug/L	05/16/12	05/23/12
EPA 8330B	2-NITROTOLUENE	0.300 U	0.50	0.300	0.126	ug/L	05/16/12	05/23/12
EPA 8330B	3-NITROTOLUENE	0.300 U	0.50	0.300	0.133	ug/L	05/16/12	05/23/12
EPA 8330B	4-AMINO-2,6-DINITROTOLUENE	0.300 U	0.50	0.300	0.100	ug/L	05/16/12	05/23/12
EPA 8330B	4-NITROTOLUENE	0.300 U	0.50	0.300	0.133	ug/L	05/16/12	05/23/12
EPA 8330B	HMX	0.300 U	0.50	0.300	0.115	ug/L	05/16/12	05/23/12
EPA 8330B	NITROBENZENE	0.300 U	0.50	0.300	0.126	ug/L	05/16/12	05/23/12
EPA 8330B	NITROGLYCERIN	0.300 U	0.50	0.300	0.130	ug/L	05/16/12	05/23/12
EPA 8330B	PETN	1.500 U	2.50	1.500	0.607	ug/L	05/16/12	05/23/12
EPA 8330B	RDX	0.300 U	0.50	0.300	0.123	ug/L	05/16/12	05/23/12
EPA 8330B	TETRYL	0.300 U	0.50	0.300	0.133	ug/L	05/16/12	05/23/12
EPA 8330B	SURROGATE: 1,2-DINITROBENZENE (	85.6	70-130			%	05/16/12	05/23/12

Quant Method: W110907.M
Run #: 0521_0000084
Instrument: Waldorf
Sequence: 120521
Dilution Factor: 1
Initials: RSM

Printed: 06/12/12 8:07:45 AM
APPL-F1-SC-NoMC-REG MDLs

Metals Analysis

URS Group
849 International Dr, Ste 320
Linthicum, MD 21090

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Andrea Sansom
Project: 15302625.30000 ORA Phase II Camp Dodge
Sample ID: DGSW02WB01
Sample Collection Date: 05/11/12

Value Changed

ARF: 67748
APPL ID: AY61156

Method	Analyte	Result	LOQ	LOD	DL	Units	DF	Prep Date	Analysis Date
				ARY 8/21/12					
6020	ANTIMONY (SB) (DISSOLVE	0.59 J+O	0.2	0.20	0.01	ug/L	1	05/21/12	06/02/12
6020	COPPER (CU) (DISSOLVED)	0.94 U, X	~~0.5~~ .94	~~0.25~~ .94	0.13	ug/L	1	05/21/12	06/02/12
6020	LEAD (PB) (DISSOLVED)	0.15U	0.5	0.15	0.11	ug/L	1	05/21/12	06/02/12
6020	ZINC (ZN) (DISSOLVED)	8.1J U, X	50.0	~~5.00~~ 8.1	2.30	ug/L	1	05/21/12	06/02/12

J = Estimated value.

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APPL-F1-SC-NoMC-URS-REG MDLs

Metals Results

ARF: 67748

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

URS Group
849 International Dr, Ste 320
Linthicum, MD 21090

Attn: Andrea Sansom

Method	Analyte	Result	PQL	Units	Prep Date	Analysis Date
APPL ID: AY61156	-Client Sample ID: DGSW02WB01		-Sample Collection Date: 05/11/12		Project: 15302625.30000 ORA Ph	
SM2340B	HARDNESS	348	1.0	mg/L	06/08/12	06/08/12

Printed: 06/08/12 12:58:44 PM

DATA VALIDATION WORKSHEET

Explosives

Reviewer:	Angela Yannone	**Project Name:**	Camp Dodge
Date:	8/15/2012	**Project Number:**	15302625.30000
DV Level:	II **III** IV	**Laboratory:**	APPL
Review Document:		**SDG No.:**	ARF 67748
_X__	USEPA CLP National Functional Guidelines for Superfund Inorganic Methods Data Review	**Test Name:**	Explosives
_X__	SW-846/DoD QSM v4.2	**Method No.:**	8330B
_X__	Project QAPP/SAP		

1.0 Laboratory Deliverables		**Yes**	**No**	**NA**
1.1	Do Chain-of-Custody forms list all samples that were analyzed?	X		
1.2	Are all Chain-of-Custody forms signed, indicating sample chain-of-custody was maintained?	X		
1.3	Do sample preservation, collection and storage condition meet method requirement?	X		
	If samples were received with the cooler temperature exceeding 10°C, then flag J(+)/UJ(-).			
1.4	Were the sediment samples dryed and sieved appropiately?			X
1.5	Do the traffic Reports, chain-of-custody, and lab narrative indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data?		X	

Notes:

2.0 Holding Times		**Yes**	**No**	**NA**
2.1	Have any technical holding times, determined from date of sampling to date of analysis, been exceeded? If yes, J(+)/UJ(-). Extraction: (aqueous) 7 days and (soil) 14 days; and Analysis: 40 days.		X	
2.2	Have any technical holding time grossly (twice the holding time) been exceeded? If yes, J(+)/UJ(-) OR R(-) .		X	

Notes:

3.0 Blanks (Laboratory and Field)		**Yes**	**No**	**NA**
3.1	Were method blanks (MB) prepared at the appropriate frequency (one per 20 samples, per batch per matrix?)	X		
3.2	Do any method blanks have positive results? Action: If yes:		X	
	Blank Result: ≤LOD >LOD			
	Sample Result: ≥[LOD] <[LOD] <LOD ≥LOD, <[Blank] ≥[LOD], ≥[Blank]			
	Qualification: [LOD]"U" Judgement [LOD]"U" [Blank]U OR R Judgement			
3.3	Do any field equipment blanks/trip blanks have positive results? If yes, use same rules above.		X	

Notes: Equipment blank submitted in SDG 67737.

4.0 Initial and Continuing Calibration		Yes	No	NA
4.1	Are the Quartlery LOD establishment forms provided? Is the signal/noise ratio of the LODV greater than 3:1?	X		
4.2	If not, is the determination repeated at a higher concentration?			X
4.3	Are at least five standards included in the calibration curve? If no, flag "R".	X		
4.4	Was a second source calibration verification analyzed for each calibration curve? If no, flag "R".	X		
4.5	Were continuing calibration standards analyzed every 12 hours or ten samples and at the end of the sequence? If no, flag "R".	X		
4.6	Are all calibration standard %RSD (<15%ICAL, r>0.995), second source (±20%) or %D(≤20%) within the control limits?	X		
For initial calibration: %RSD > 15% J(+) If RRF<0.05 J(+)/R(-)				
For second source: %D>20%, J(+)/R(-).				
For continuing calibration: Positive Bias - %D >+ 20%, J(+), only. Negative Bias - %D>-20%, but<50% J(+)/UJ(-)				

Notes:

5.0 Laboratory Control Sample (LCS)		Yes	No	NA
5.1	Is the LCS/LCSD recovery form present?	X		
5.2	Were LCS/LCSDs analyzed at the required frequency (one per 20 samples per batch) for each matrix?	X		
5.3	Are there any %Rs for LCS/LCSD recoveries outside the QC limits of 80-120%?		X	
	Action: If Yes, for %R > UCL, J(+) only; for %R < LCL,J(+)/R(-);			
5.4	Are there any RPD >20%?			X
	Action: If Yes, J(+) only.			

Notes:

6.0 Surrogate Recovery		Yes	No	NA
6.1	Are surrogate recoveries within acceptance criteria for all samples and method blanks?	X		
6.2	If No in Section 6.1, are these sample(s) or method blank(s) reanalyzed?			X
	Action: If any surrogate in the fraction is out of specification, there should be a reanalysis to confirm that the non-compliance is because of sample matrix effects rather than laboratory deficiencies.			
6.3	If No in Section 6.2, is any sample dilution factor greater than 10? (recoveries may be diluted out.)			X
	Action: for a %R > UCL, J(+) only; for a %R < LCL, but > 10%, J(+)/UJ(-); for any %R < 10%, J(+)/R(-).			

Notes:

7.0 Matrix Spike/Matrix Spike Duplicate (MS/MSD)		Yes	No	NA
7.1	Is the matrix spike/matrix spike duplicate recovery form present?	X		
7.2	Were matrix spikes analyzed at required frequency (one per 20 samples per batch) for each matrix?	X		
7.3	Are there any %R for matrix spike and matrix spike duplicate recoveries outside the QC limits?		X	
7.4	Are there any RPDs for matrix spike and matrix spike duplicate recoveries outside the QC limits? Action: %R or % RPD> UCL J(+); %R< LCL: J(+)/UJ(-) [or possible R(-) for <20%] to parent sample results for the specific outlier analyte(s) or class of analytes using professional judgement.		X	

Notes: MS/MSD was submitted in SDG 67737.

8.0 Field Duplicate		Yes	No	NA
8.1	Evaluate field duplicate results? For sample results > 5 x RL, a control limit of ≤35% RPD will be used. For sample results < 5 x RL, a control limit of 2 x RL will be used.	X		

Notes:

9.0 Compound Identification and Detection Limit Verification		Yes	No	NA
9.1	Are any target compounds detected in the field samples? If Yes,are all positive identifications confirmed in second column? Apply J flag if RPD >40% between first and second columns.		X	
9.2	Do detection limits meet those required by the project QAPP and were they properly adjusted for dilution factors and moisture (including adjustment of wet weight aliquot)?	X		

Notes:

10.0 Data Completeness		Yes	No	NA
10.1	Is % completeness within the control limits? (Control limit $95\%_{aq}$ and $90\%_{so}$)	X		
10.1.1	Number of samples: 1			
10.1.2	Number of target compounds in each analysis: 16			
10.1.3	Number of results rejected or not reported: 0			
	% Completeness = (10.1.1 x 10.1.2 - 10.1.3) x 100/(10.1.1 x 10.1.2)			
	% Completeness = 100			

Injection Log

Directory: Y:\CHEM32\WALDORF\DATA\120511\120516

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1	0	0516_0000017.D		8830B_CB 0.005 PPM 05/16/12		05/16/2012 19:22
2	0	0516_0000018.D		8830B_CB 0.01 PPM 05/16/12		05/16/2012 20:00
3	0	0516_0000019.D		8830B_CB 0.02 PPM 05/16/12		05/16/2012 20:37
4	0	0516_0000020.D		8830B_CB 0.05 PPM 05/16/12		05/16/2012 21:15
5	0	0516_0000021.D		8830B_CB 0.1 PPM 05/16/12		05/16/2012 21:52
6	0	0516_0000022.D		8830B_CB 0.2 PPM 05/16/12		05/16/2012 22:30
7	0	0516_0000023.D		8830B_CB 0.5 PPM 05/16/12		05/16/2012 23:07
8	0	0516_0000024.D		8830B_CB 1.0 PPM 05/16/12		05/16/2012 23:45
9	0	0516_0000025.D		8830B_MX-A 2.0 PPM 05/16/12		05/17/2012 00:22
10	0	0516_0000026.D		8830B_MX-B 2.0 PPM 05/16/12		05/17/2012 00:59
11	0	0516_0000027.D		8830B_SS 1.0 PPM 05/16/12		05/17/2012 01:37
12	0	0521_0000063.D		8330_CCV 1.0 PPM 05/21/12		05/23/2012 00:07
13	0	0521_0000068.D	0.016	120516WLCS1A 0.016 DF 05/16/12	water	05/23/2012 02:44
14	0	0521_0000075.D	0.016	120516WBLK1A 0.016 DF 05/16/12	water	05/23/2012 06:57
15	0	0521_0000078.D		8330_CCV 1.0 PPM 05/21/12		05/23/2012 08:49
16	0	0521_0000084.D	0.016	AY61156W02 0.016 DF 05/16/12	water	05/23/2012 12:24
17	0	0521_0000089.D		8330_CCV 1.0 PPM 05/21/12		05/23/2012 15:32

Injection Log

Directory: Y:\CHEM32\STATLER\DATA\120514\120514

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1	0	0514_0000004.D		8330MX_A_CB 0.005 PPM 05/14/12		05/14/2012 12:35
2	0	0514_0000006.D		8330MX_A_CB 0.010 PPM 05/14/12		05/14/2012 13:58
3	0	0514_0000008.D		8330MX_A_CB 0.020 PPM 05/14/12		05/14/2012 15:21
4	0	0514_0000010.D		8330MX_A_CB 0.050 PPM 05/14/12		05/14/2012 16:44
5	0	0514_0000012.D		8330MX_A_CB 0.10 PPM 05/14/12		05/14/2012 18:07
6	0	0514_0000014.D		8330MX_A_CB 0.20 PPM 05/14/12		05/14/2012 19:30
7	0	0514_0000016.D		8330MX_A_CB 0.50 PPM 05/14/12		05/14/2012 20:53
8	0	0514_0000018.D		8330MX_A_CB 1.0 PPM 05/14/12		05/14/2012 22:16
9	0	0514_0000020.D		8330MX_A_CB 2.0 PPM 05/14/12		05/14/2012 23:39
10	0	0515_0000025.D		8330MX_A_SS 1.0 PPM 05/15/12		05/16/2012 01:40
11	0	0516_0000004.D		8330MX_B_SS 1.0 PPM 05/16/12		05/16/2012 13:54
12	0	0529_0000015.D		8330MIX-A_CCV 1.0 PPM 05/29/12		05/29/2012 18:04
13	0	0529_0000018.D	0.016	AY61156W02 0.016 DF 05/16/12	water	05/29/2012 20:09
14	0	0529_0000026.D		8330MIX-A_CCV 1.0 PPM 05/29/12		05/30/2012 01:41

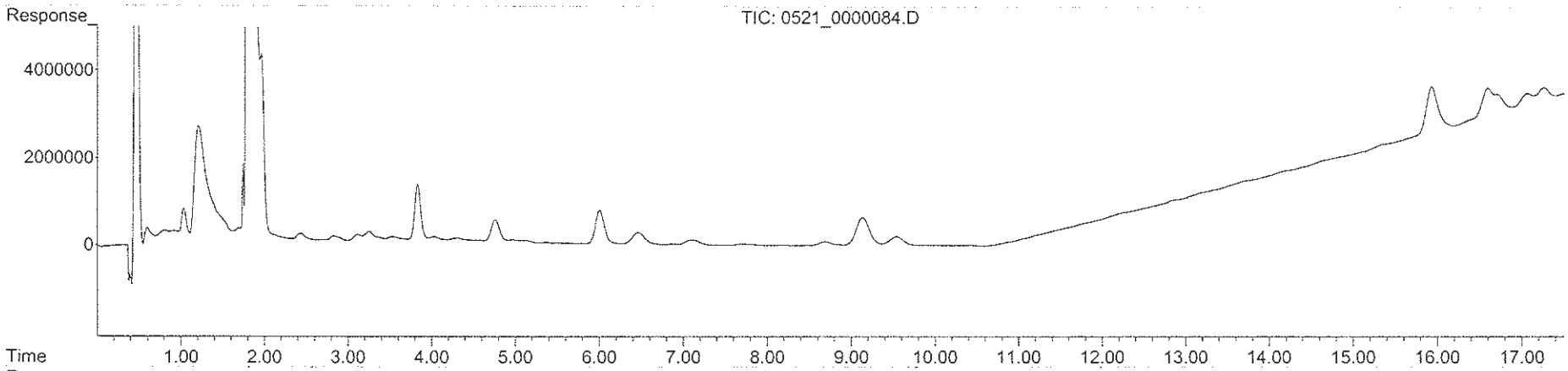
Quantitation Report (QT Reviewed)

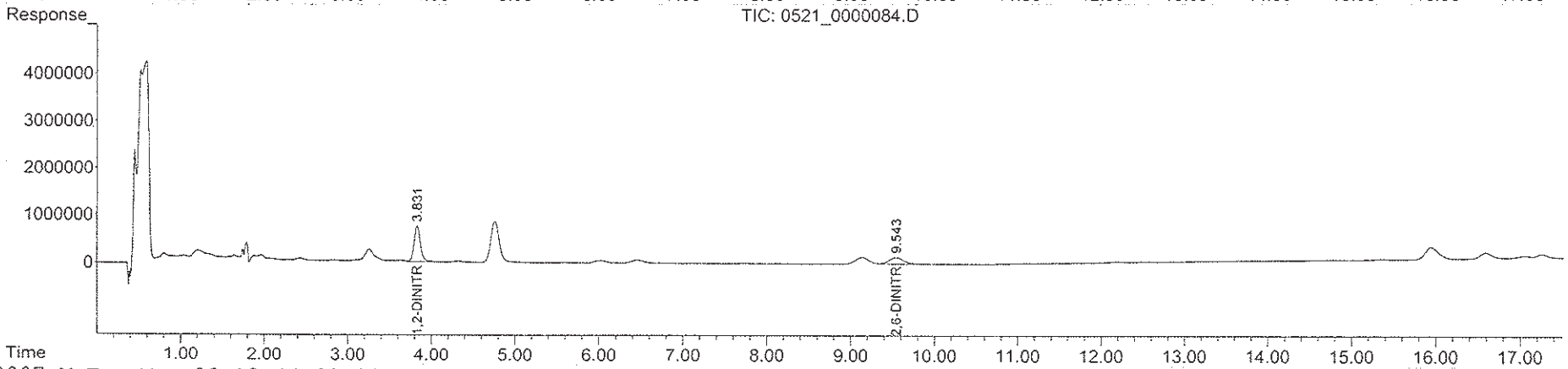
Data Path : Y:\CHEM32\WALDORF\DATA\120516\120521\
Data File : 0521_0000084.D
Signal(s) : Signal #1: DAD1B.ch Signal #2: DAD1A.ch
Acq On : 23-May-2012, 12:24:49
Operator : hm
Sample : AY61156W02 0.016 DF 05/16/12
Misc : water
ALS Vial : 8259 Sample Multiplier: 0.016

Integration File signal 1: Waldorf_Signal_1_110721.e
Integration File signal 2: Waldorf_Signal_2_110803.e
Quant Time: May 29 12:43:57 2012
Quant Method : Y:\CHEM32\WALDORF\DATA\120516\120521\W110907.M
Quant Title : 8330B - Soil - Waldorf
QLast Update : Thu May 17 07:45:58 2012
Response via : Initial Calibration
Integrator: ChemStation

DG SW0[illegible]07

Volume Inj. : 40uL
Signal #1 Phase : 214nm Signal #2 Phase: 254nm
Signal #1 Info : ZORBAX Extend-C18 Signal #2 Info : ZORBAX Extend-C18 100x3.0mm 1.8-micron





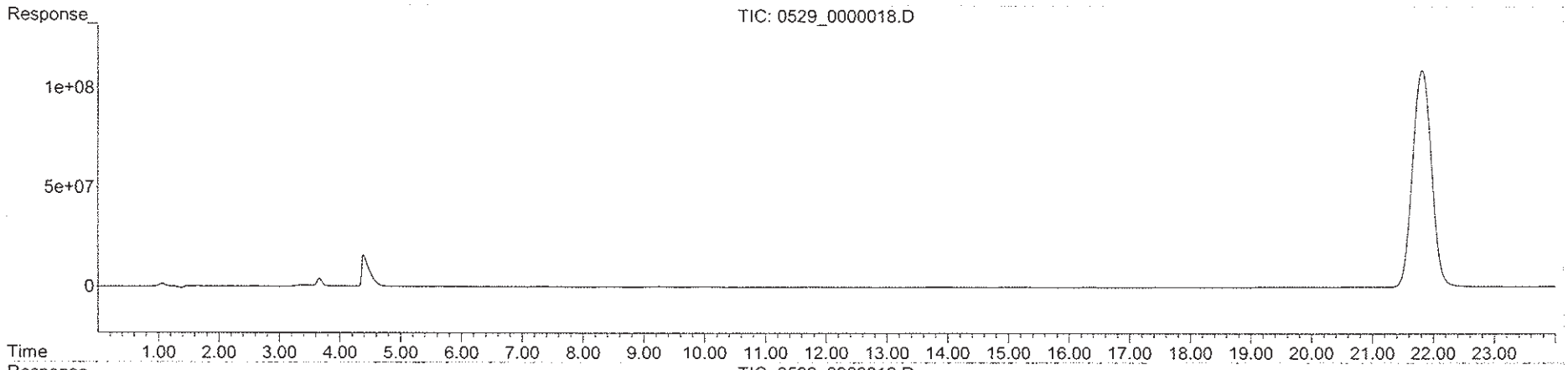
Quantitation Report (QT Reviewed)

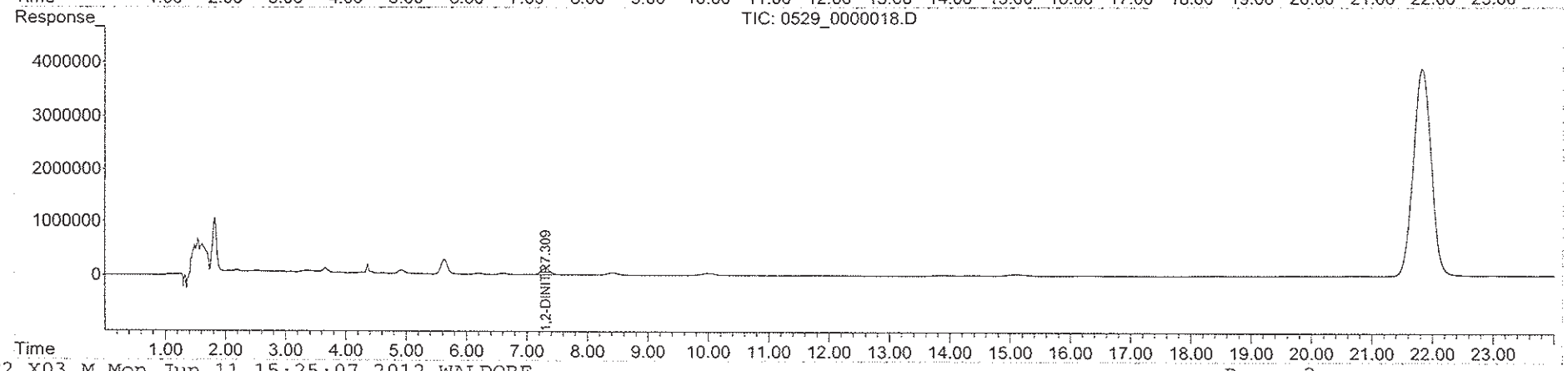
Data Path : Y:\CHEM32\STATLER\DATA\120514\120529\
Data File : 0529_0000018.D
Signal(s) : Signal #1: DAD1B.ch Signal #2: DAD1A.ch
Acq On : 29-May-2012, 20:09:25
Operator : HM
Sample : AY61156W02 0.016 DF 05/16/12
Misc : water
ALS Vial : 4224 Sample Multiplier: 0.016

Integration File signal 1: Statler_Signal_1_110914.e
Integration File signal 2: Statler_Signal_2_110914.e
Quant Time: Jun 11 15:25:01 2012
Quant Method : Y:\CHEM32\STATLER\DATA\120514\120529\STE2_X03.M
Quant Title : 8330B - STATLER
QLast Update : Tue May 15 08:12:28 2012
Response via : Initial Calibration
Integrator: ChemStation

DGSW02WB07

Volume Inj. : 40uL
Signal #1 Phase : 214nm Signal #2 Phase: 254nm
Signal #1 Info : Acclaim Explosive Signal #2 Info : Acclaim Explosives E2 3um 3x150mm





EPA 8330B EXPLOSIVES-WATER

URS Group
849 International Dr, Ste 320
Linthicum, MD 21090

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Andrea Sansom
Project: 15302625.30000 ORA Phase II Camp Dodge
Sample ID: DGSW03WB03 equipment blank
Sample Collection Date: 05/10/12

ARF: 67737
APPL ID: AY61091
QCG: #833BW-120514A-167806

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 8330B	1,3,5-TRINITROBENZENE	0.300 U	0.50	0.300	0.130	ug/L	05/15/12	05/20/12
EPA 8330B	1,3-DINITROBENZENE	0.300 U	0.50	0.300	0.131	ug/L	05/15/12	05/20/12
EPA 8330B	2,4,6-TRINITROTOLUENE	0.300 U	0.50	0.300	0.133	ug/L	05/15/12	05/20/12
EPA 8330B	2,4-DINITROTOLUENE	0.300 U	0.50	0.300	0.125	ug/L	05/15/12	05/20/12
EPA 8330B	2,6-DINITROTOLUENE	0.300 U	0.50	0.300	0.125	ug/L	05/15/12	05/20/12
EPA 8330B	2-AMINO-4,6-DINITROTOLUENE	0.300 U	0.50	0.300	0.125	ug/L	05/15/12	05/20/12
EPA 8330B	2-NITROTOLUENE	0.300 U	0.50	0.300	0.126	ug/L	05/15/12	05/20/12
EPA 8330B	3-NITROTOLUENE	0.300 U	0.50	0.300	0.133	ug/L	05/15/12	05/20/12
EPA 8330B	4-AMINO-2,6-DINITROTOLUENE	0.300 U	0.50	0.300	0.100	ug/L	05/15/12	05/20/12
EPA 8330B	4-NITROTOLUENE	0.300 U	0.50	0.300	0.133	ug/L	05/15/12	05/20/12
EPA 8330B	HMX	0.300 U	0.50	0.300	0.115	ug/L	05/15/12	05/20/12
EPA 8330B	NITROBENZENE	0.300 U	0.50	0.300	0.126	ug/L	05/15/12	05/20/12
EPA 8330B	NITROGLYCERIN	0.300 U	0.50	0.300	0.130	ug/L	05/15/12	05/20/12
EPA 8330B	PETN	1.500 U	2.50	1.500	0.607	ug/L	05/15/12	05/20/12
EPA 8330B	RDX	0.300 U	0.50	0.300	0.123	ug/L	05/15/12	05/20/12
EPA 8330B	TETRYL	0.300 U	0.50	0.300	0.133	ug/L	05/15/12	05/20/12
EPA 8330B	SURROGATE: 1,2-DINITROBENZENE (	79.2	70-130			%	05/15/12	05/20/12

Quant Method: W110907.M
Run #: 0518_0000079
Instrument: Waldorf
Sequence: 120518
Dilution Factor: 1
Initials: RSM

Printed: 06/08/12 2:52:05 PM
APPL-F1-SC-NoMC-REG MDLs

Method Blank

EPA 8330B EXPLOSIVES-WATER

APPL Inc.
908 North Temperance Avenu
Clovis, CA 93611

Blank Name/QCG: **120516W-61191 - 167888**
Batch ID: #833BW-120516A

Sample Type	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
BLANK	1,3,5-TRINITROBENZENE	0.300 U	0.50	0.300	0.130	ug/L	05/16/12	05/23/12
BLANK	1,3-DINITROBENZENE	0.300 U	0.50	0.300	0.131	ug/L	05/16/12	05/23/12
BLANK	2,4,6-TRINITROTOLUENE	0.300 U	0.50	0.300	0.133	ug/L	05/16/12	05/23/12
BLANK	2,4-DINITROTOLUENE	0.300 U	0.50	0.300	0.125	ug/L	05/16/12	05/23/12
BLANK	2,6-DINITROTOLUENE	0.300 U	0.50	0.300	0.125	ug/L	05/16/12	05/23/12
BLANK	2-AMINO-4,6-DINITROTOLUENE	0.300 U	0.50	0.300	0.125	ug/L	05/16/12	05/23/12
BLANK	2-NITROTOLUENE	0.300 U	0.50	0.300	0.126	ug/L	05/16/12	05/23/12
BLANK	3-NITROTOLUENE	0.300 U	0.50	0.300	0.133	ug/L	05/16/12	05/23/12
BLANK	4-AMINO-2,6-DINITROTOLUENE	0.300 U	0.50	0.300	0.100	ug/L	05/16/12	05/23/12
BLANK	4-NITROTOLUENE	0.300 U	0.50	0.300	0.133	ug/L	05/16/12	05/23/12
BLANK	HMX	0.300 U	0.50	0.300	0.115	ug/L	05/16/12	05/23/12
BLANK	NITROBENZENE	0.300 U	0.50	0.300	0.126	ug/L	05/16/12	05/23/12
BLANK	NITROGLYCERIN	0.300 U	0.50	0.300	0.130	ug/L	05/16/12	05/23/12
BLANK	PETN	1.500 U	2.50	1.500	0.607	ug/L	05/16/12	05/23/12
BLANK	RDX	0.300 U	0.50	0.300	0.123	ug/L	05/16/12	05/23/12
BLANK	TETRYL	0.300 U	0.50	0.300	0.133	ug/L	05/16/12	05/23/12
BLANK	SURROGATE: 1,2-DINITROBENZ	80.2	70-130			%	05/16/12	05/23/12

Quant Method:W110907.M
Run #:0521_000007
Instrument:Waldorf
Sequence:120521
Initials:RSM

GC SC-Blank-REG MDLs
Printed: 06/12/12 8:08:00 AM

Matrix Spike Recoveries

EPA 8330B EXPLOSIVES-WATER

APPL ID: **120515W-61093 MS - 167806**
Batch ID: #833BW-120514A
Sample ID: AY61093
Client ID: DGSW03WA01

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Compound Name	Spike Lvl ug/L	Matrix Result ug/L	SPK Result ug/L	DUP Result ug/L	SPK % Recovery	DUP % Recovery	Recovery Limits	RPD %	RPD Limits
1,3,5-TRINITROBENZENE	8.00	ND	7.10	7.04	88.8	88.0	65-140	0.85	20
1,3-DINITROBENZENE	8.00	ND	7.44	7.34	93.0	91.8	45-160	1.4	20
2,4,6-TRINITROTOLUENE	8.00	ND	7.19	7.12	89.9	89.0	50-145	0.98	20
2,4-DINITROTOLUENE	8.00	ND	7.55	7.41	94.4	92.6	60-135	1.9	20
2,6-DINITROTOLUENE	8.00	ND	7.53	7.38	94.1	92.3	60-135	2.0	20
2-AMINO-4,6-DINITROTOLUENE	8.00	ND	7.26	7.07	90.8	88.4	50-155	2.7	20
2-NITROTOLUENE	8.00	ND	7.21	7.11	90.1	88.9	45-135	1.4	20
3-NITROTOLUENE	8.00	ND	7.22	7.09	90.3	88.6	50-130	1.8	20
4-AMINO-2,6-DINITROTOLUENE	8.00	ND	7.18	6.99	89.8	87.4	55-155	2.7	20
4-NITROTOLUENE	8.00	ND	7.29	7.16	91.1	89.5	50-130	1.8	20
HMX	8.00	ND	7.56	7.45	94.5	93.1	80-115	1.5	20
NITROBENZENE	8.00	ND	7.20	7.13	90.0	89.1	50-140	0.98	20
NITROGLYCERIN	8.00	ND	7.87	7.80	98.4	97.5	70-130	0.89	20
PETN	8.00	ND	8.21	8.02	103	100	65-115	2.3	20
RDX	8.00	ND	7.15	7.06	89.4	88.3	50-160	1.3	20
TETRYL	8.00	ND	5.09	5.11	63.6	63.9	20-175	0.39	20
SURROGATE: 1,2-DINITROBENZENE (S)	8.00	NA	7.61	7.48	95.1	93.5	70-130		

Comments: _____

Primary	SPK	DUP
Quant Method :	W110907.M	W110907.M
Extraction Date :	05/15/12	05/15/12
Analysis Date :	05/20/12	05/20/12
Instrument :	Waldorf	Waldorf
Run :	0518_0000060	0518_0000061
Initials :	RSM	

Printed: 06/08/12 2:51:09 PM
APPL MSD SCII

DATA VALIDATION WORKSHEET
INORGANIC - ICPMS (Sb, Cu, Pb, Zn)

SDG No.: ARF 67748
Project No.: 15302625.30000

Project: Camp Dodge
Reviewer: Angela Yannone
Date: August 15, 2012

_X_ USEPA CLP National Functional Guidelines for Superfund Inorganic Methods Data Review
_X_ SW-846/DoD QSM v4.2
_X_ Project QAPP/SAP

1.0 Chain of Custody/Sample Condition/Raw Data		Yes	No	NA
1.1	Do Chain-of-Custody forms list all samples which were analyzed?	X		
1.2	Are all Chain-of-Custody forms signed, indicating sample chain-of-custody was maintained?	X		
1.3	Do the traffic Reports, chain-of-custody, and lab narrative indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data?		X	
1.4	Does sample preservation, collection and storage meet method requirement? (For metal: water samples: with Nitric Acid to pH < 2, and soil/sediment samples: 4 ^{O}C $\pm$ 2 ^{O}C). Action: Professional judgement or J-(+)/R(-)		X	
1.5	Are the digestion logs present and complete with pH values, sample weights, dilutions, final volumes. % solids (for soil samples), and preparation dates? For any missing or incomplete documentation, contact the laboratory for explanation/resubmittal.	X		
1.6	Were the sediment samples dryed and sieved appropiately?	X		
1.7	Are the measurement read out records legible and complete (properly labeled, and include all samples and QC)?	X		

Note: _____

2.0 Holding Time		Yes	No	NA
2.1	Have any technical holding times of 6 months, determined from date of collection to date of analysis, been exceeded?		X	
	Action: Use professional judgement, then J-(+)/R(-)			

Note: _____

3.0 Instrument Calibration

		Yes	No	NA
3.1	Are the Quartlery LOD establishment forms provided for each instrument?	X		
3.2	Is the signal/noise ratio less than 3:1? If not, is the determination repeated at a higher concentration?			X
3.3	Are sufficient standards of a blank + one standard & a RL standard OR 3 standards and a blank with one standard at the RL included in the calibration curve? If not, qualify with "R".	X		
3.3.a	If more than one standard is used, are the correlation coefficients > 0.995? Action: J(+)/UJ(-).	X		
3.4	Was an initial calibration check standard (ICV) analyzed immediately after instrument system had been calibrated? Action: If no, all associated data are rejected "R".	X		
3.5	Was continuing calibration (CCV) analyzed at a minimum frequency of 10% (every 10 samples) during and at the end of the analytical run? If not, document and flag based on professional judgement.	X		
3.6	Are all calibration standard percent recoveries within the control limits of 90%-110%? ICV and CCV:	X		
	< 75% / 75%-89% / 111%-125% / 125%<%R<160% / >160%			
	Action: J-(+)/R(-) / J-(+)/UJ(-) / J+(+) / J+(+)(maybe R(+)) / R(+)			
3.7	Was the high-level check standard included within 10% of the true value?	X		

Note: _____

4.0 Blanks

		Yes	No	NA
4.1	Were method blank (MB) prepared at the appropriate frequency (one / 20 samples, batch, or matrix)?	X		
4.2	Were calibration blanks (ICB and CCBs) analyzed immediately after each ICV and CCVs?	X		
4.3	Are there reported ICB/CCBs values > DL? If yes, refer to action table.	X		
4.4	Are there negative ICB/CCB blank results with the absolute value > DL? If yes, refer to action table.	X		
4.5	Are there reported MB values > DL? If yes, refer to action table.		X	
4.6	Are there negative method blank results with the absolute value > LOD? If yes, refer to action table.		X	
4.7	Are there reported field blank or equipment blank > ± DL? If yes, refer to action table.	X		

Blank Type	Blank Concentration	Sample Concentration		Report Concentrations	Validation Flag
ICB/CCB MB/EQB	positive > LOQ	[sample] < 5x [blank]	DL < [sample] < LOD	LOD	U
			LOD < [sample] < LOQ	[sample], elevate LOD	U
			LOQ < [sample]	[sample], elevate LOD & LOQ	U
		[sample] < 10x [blank]	LOQ < [sample]	[sample]	J+
	positive ≤ LOQ	[sample] < 5x [blank]	DL < [sample] < LOD	LOD	U
			LOD < [sample] < LOQ	[sample], elevate LOD	U
			LOQ < [sample]	[sample], elevate LOD & LOQ	U
	|negative| > LOD	[sample] < 10x LOQ		[sample]	J-/UJ
ICB/CCB	|negative| > DL	[sample] < 10x LOQ		[sample]	J-/UJ

Note: When appropiate, elevate LODs/LOQs to concentration detected. Equipment blank submitted in SDG 67737.

5.0 Laboratory Control Sample (LCS)

		Yes	No	NA
5.1	Was an LCS prepared and analyzed at the correct frequency (one / 20 samples, batch, or matrix)? Action: If no, J(+)/R(-) any sample not associated with LCS results.	X		
5.2	Is any LCS recovery outside the control limits?		X	
	% Recoveries: <40% 40%-LCL% >UCL,<130% >150%			
	J-(+)/R(-) J-(+)/UJ(-) J+(+) R(+/-)			

Note:

6.0 ICP Interference Check Sample (ICS)

		Yes	No	NA
6.1	Was ICS analyzed at beginning of each ICP run and every 12 hours?	X		
6.2	Are the ICS AB recoveries within 80% - 120%?	X		
6.3	Are the results for unspiked analytes (in ICS A) <LOQ?		X	
6.4	If not, are the associated sample Al, Ca, Fe, and Mg concentrations less than the level in the ICS?		X	
	Action: Not Spiked Analytes Spiked analytes			
	False negative False Positive < 50% 50%-79% 120%			
	≥DL, but <10x |-[ICS]| ≥DL			
	J-(+)/UJ(-) J+(+) R(-) J-(+)/UJ(-) J+(+)			

Note:

7.0 Laboratory Duplicates (MD)

		Yes	No	NA
7.1	Were Laboratory duplicates prepared and analyzed at the correct frequency (one / 20 samples, batch, or matrix)? If no, J(+), using professional judgement, analytes not associated with duplicate results.	X		
7.2	Are all RPDs less than 20%? If no, qualify all associated field samples J(+)/UJ(-) for the batch.	X		

Note:

8.0 Matrix/Matrix Spike Duplicate

		Yes	No	NA
8.1	Was a spiked sample prepared and analyzed at the correct frequency (one / 20 samples, batch, or matrix)? If not, J(+) with professional judgement.	X		
8.2	Are any MS/MSD recovery outside the control limits?		X	
	For all analytes with sample concentration ,4x spike concentration:			
	Matrix Spike %R <30% 30%-74% >125%			
	No PDS, Action: J-(+)/R(-, reanalyze) J-(+)/UJ(-) J+(+)			
	Matrix Spike %R <30% 30%-74% >125%			
	PDS%R <75% ≥75% <75% ≥75% <125% ≥125%			
	Action J-(+)/R(-) J(+)/UJ(-) J-(+)/UJ(-) J(+)/UJ(-) J(+) J+(+)			
8.3	Are all RPDs less than 20%? If no, qualify all associated field samples J(+) for the batch.			X

Note:

9.0 ICP/AA Serial Dilutions (Not for Mercury Analysis)		Yes	No	NA
9.1	Were serial dilutions performed?	X		
9.2	Was a five-fold dilution performed?	X		
9.3	Were results agree within 10% for [sample] > 50 X DL in the original sample? If no, J(+)/UJ(-)	X		
9.4	Where dilution test fails or [sample]<50xLOD, was a post-digestion spike performed? Note any recoveries greater than ±25%D in DV report, but no data qualifying action is required.	X		
9.5	When both dilution test and post-digestion spikes do not pass, was a method of standard additions used to quantitate the reported sample concentration? If not, ask lab to comment.	X		

Note:

10.0 Field Duplicate Samples		Yes	No	NA
10.1	Were any field duplicates submitted for metal analysis?	X		
	For sample results > 5 x RL, a control limit of ≤35% RPD will be used. For sample results < 5 x RL, a control limit of 2 x RL will be used.			
10.2	Are all analyte duplicate results within control limits? If not, J(+) the parent samples.	X		

Note: Field Duplicate submitted in SDG 67737.

11.0 Result Verification/ Internal Standards/ Tune		Yes	No	NA
11.1	Are all DLs/RLs equal to or less than the reporting limits specified?	X		
11.2	Were all results and detection limits for solid-matrix samples reported on a dry-weight basis?			X
11.3	Were all dilutions reflected in the positive results and detection limits?	X		
11.4	Is there an Internal Standard associated with all analytes? R(+/-)	X		
11.5	Were the Internal Standard recoveries within 65-125%. Action: J(+)/UJ(-)	X		
11.6	Was a tune performed? If not, R(+/-) all associated samples.	X		
11.7	Were the tunes run at a minimum of four times with RSD < 5% for analytes in solution? Action: J(+)/UJ(-)	X		
11.8	Were the tune mass calibrations < 0.1 amu from the true value? Action: J(+)/UJ(-)	X		
11.9	Was the resolution check peak width < 0.9 amu at 10% peak height? Action: J(+)/UJ(-)	X		

Note:

12.0 Completeness Calculation		Yes	No	NA
12.1	Is % completeness within the control limits? (Control limit 90%)	X		
12.2	Number of samples: 1			
12.3	Number of target compounds in each analysis: 4			
12.4	Number of results rejected and not reported: 0			
	% Completeness = (12.1.1 x 12.1.2 - 12.1.3) x 100/(12.1.1 x 12.1.2)			
	% Completeness = 100%			

DATA VALIDATION WORKSHEET

Hardness

Reviewer: Angela Yannone
Date: 8/15/2012
DV Level: II III IV
Review Document:
X Region IX Guidelines for Data Review of CLP Analytical Services Inorganic Data Packages
X Project QAPP/SAP

Project Name: Camp Dodge
Project Number: 15302625.30000
Laboratory: APPL
SDG No.: ARF 67748
Test Name: Hardness
Method No.: SM 2340B

1.0 Laboratory Deliverables

		Yes	No	NA
1.1	Do Chain-of-Custody forms list all samples that were analyzed?	X		
1.2	Are all Chain-of-Custody forms signed, indicating sample chain-of-custody was maintained?	X		
1.3	Do sample preservation, collection and storage condition meet method requirement?		X	
	Water: pH<2 Soil/Sediment samples: 4°C + 2°C). Action: Professional judgement or J-(+)/R(-)			
1.4	Do the traffic Reports, chain-of-custody, and lab narrative indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data?		X	

Notes:

2.0 Holding Time

		Yes	No	NA
2.1	Have any technical holding times of 6 months, determined from date of collection to date of analysis, been exceeded? Action: Use professional judgement, then J-(+)/R(-)		X	

Note:

3.0 Instrument Calibration

		Yes	No	NA
3.1	Are the Quartlery LOD establishment forms provided for each instrument?	X		
3.2	Is the signal/noise ratio less than 3:1? If not, is the determination repeated at a higher concentration?			X
3.3	Are sufficient standards of a blank + one standard & a RL standard OR 3 standards and a blank with one standard at the RL included in the calibration curve? If not, qualify with "R".	X		
3.3.a	If more than one standard is used, are the correlation coefficients > 0.995? Action: J(+)/UJ(-).	X		
3.4	Was an initial calibration check standard (ICV) analyzed immediately after instrument system had been calibrated? Action: If no, all associated data are rejected "R".	X		
3.5	Was continuing calibration (CCV) analyzed at a minimum frequency of 10% (every 10 samples) during and at the end of the analytical run? If not, document and flag based on professional judgement.	X		
3.6	Are all calibration standard percent recoveries within the control limits of 90%-110%? ICV and CCV: < 75% / 75%-89% / 111%-125% / 125%<%R<160% / >160%; Action: J-(+)/R(-) / J-(+)/UJ(-) / J+(+) / J+(+)(maybe R(+)) / R(+)	X		
3.7	Was the high-level check standard included within 10% of the true value?	X		

Note:

11.0 Result Verification/ Internal Standards/ Tune		Yes	No	NA
11.1	Are all DLs/RLs equal to or less than the reporting limits specified?	X		
11.2	Were all results and detection limits for solid-matrix samples reported on a dry-weight basis?			X
11.3	Were all dilutions reflected in the positive results and detection limits?	X		
11.4	Is there an Internal Standard associated with all analytes? R(+/-)	X		
11.5	Were the Internal Standard recoveries within 65-125%. Action: J(+)/UJ(-)	X		
11.6	Was a tune performed? If not, R(+/-) all associated samples.	X		
11.7	Were the tunes run at a minimum of four times with RSD < 5% for analytes in solution? Action: J(+)/UJ(-)	X		
11.8	Were the tune mass calibrations < 0.1 amu from the true value? Action: J(+)/UJ(-)	X		
11.9	Was the resolution check peak width < 0.9 amu at 10% peak height? Action: J(+)/UJ(-)	X		

Note:

6.0 Compound Identification and Detection Limit Verification		Yes	No	NA
6.1	Do detection limits meet those required by the project QAPP and were they properly adjusted for dilution factors and moisture (including adjustment of wet weight aliquot)?	X		
6.2	Did the concentratrion of magnesium and/or calcium exceed the linear range of the instrument? If so, J(+).		X	
6.3	If a concentration exceeded the linear range of the instument, was a dilution performed?			X

Notes:

7.0 Data Completeness		Yes	No	NA
7.1	Is % completeness for certainty? (Control limit 90%)	X		
7.1.1	Number of samples: 1			
7.1.2	Number of target compounds in each analysis: 1			
7.1.3	Number of results that are uncertain at comparison criteria standard: 0			
	% Completeness = (7.1.1 x 7.1.2 - 7.1.3) x 100/(7.1.1 x 7.1.2)			
	% Completeness = 100			

Hardness Calculation

$$\frac{M_{CaCO_3}}{M_{Ca}} = \frac{100.088}{40.08} = 2.497$$

$$\frac{M_{CaCO_3}}{M_{Mg}} = \frac{100.088}{24.305} = 4.118$$

$$[CaCO_3]=2.497[Ca^{2+}]+4.118[Mg^{2+}]$$

Field Samples:

Sample ID:	DGSW02WB01	
	$[Ca^{2+}]$	93723.96
	$[Mg^{2+}]$	27597.24
Calculated	Hardness:	348
Reported	Hardness:	348

6020/200.8 Injection Log

Directory: K:\ICP-MS Optimus\raw data output csv\

RunID	Injected		Sample Name	Misc Info	FileName	Multiplier
1	02 Jun 2012	11:45	Calibration Blank		120602Arev	1.
2	02 Jun 2012	11:52	120602 Standard 1		120602Arev	1.
3	02 Jun 2012	11:58	120602 Standard 2		120602Arev	1.
4	02 Jun 2012	12:05	120602 Standard 3		120602Arev	1.
5	02 Jun 2012	12:12	120602 Standard 4		120602Arev	1.
6	02 Jun 2012	12:19	ICV 120602		120602Arev	1.
8	02 Jun 2012	12:32	ICV-Sb 120602		120602Arev	1.
9	02 Jun 2012	12:45	ICB 120602		120602Arev	1.
10	02 Jun 2012	12:52	CCV 120602		120602Arev	1.
11	02 Jun 2012	12:59	CCB 120602		120602Arev	1.
12	02 Jun 2012	13:06	LDR-1000ppb 120602		120602Arev	1.
13	02 Jun 2012	13:19	ICSA 120602		120602Arev	1.
14	02 Jun 2012	13:25	ICSAB 120602		120602Arev	1.
15	02 Jun 2012	13:38	CCV 120602		120602Arev	1.
16	02 Jun 2012	13:52	CCB 120602		120602Arev	1.
19	02 Jun 2012	14:12	120521A-3015-BLK		120602Arev	1.
23	02 Jun 2012	14:39	120521A-3015-LCS		120602Arev	1.
24	02 Jun 2012	14:46	120521A-3015-LCSD		120602Arev	1.
28	02 Jun 2012	15:13	CCV 120602		120602Arev	1.
29	02 Jun 2012	15:26	CCB 120602		120602Arev	1.
54	02 Jun 2012	18:20	CCV 120602		120602Arev	1.
55	02 Jun 2012	18:34	CCB 120602		120602Arev	1.
64	02 Jun 2012	19:34	AY61156W03		120602Arev	1.
65	02 Jun 2012	19:41	AY61156W03 DUP		120602Arev	1.
67	02 Jun 2012	19:55	CCV 120602		120602Arev	1.
68	02 Jun 2012	20:08	CCB 120602		120602Arev	1.
69	02 Jun 2012	20:15	AY61156W03 MS		120602Arev	1.
70	02 Jun 2012	20:21	AY61156W03-A		120602Arev	1.
71	02 Jun 2012	20:28	AY61156W03-1/5		120602Arev	5.
80	02 Jun 2012	21:28	CCV 120602		120602Arev	1.
81	02 Jun 2012	21:42	CCB 120602		120602Arev	1.

A.P.P.L. INC.
3
BLANKS

Lab Name: APPL, Inc. Contract #: URS Group

ARF No. 67748
Prep Blank Matrix: Water Concentration Units (ug/L or mg/kg): ug/L

Analysis Date: 06/02/2012

Analyte		Initial Calibration Blank 12:45	Continuing Calibration Blank 18:34	20:08	21:42	Preparation Blank 14:12	M
			1	2	3		
Copper		0.25U	0.25U	0.25U	0.25U	0.25U	
Lead		0.15U	0.15U	0.15U	0.15U	0.15U	
Antimony		0.09J	0.02J	0.01J	0.02J	0.20U	
Zinc		5.00U	5.00U	5.00U	5.00U	5.00U	

Form III-IN

CCB QC Report

Data File: C:\ICPCHEM\1\DATA\12F02100.B\011_CCB.D\011_CCB.D#
Date Acquired: Jun 2 2012 12:45 pm
Operator: NBS
Sample Name: ICB 120602
Misc Info:
Vial Number: 1102
Current Method: C:\ICPCHEM\1\METHODS\62A0602B.M
Calibration File: C:\ICPCHEM\1\CALIB\62A0602B.C
Last Cal Update: Jun 02 2012 12:16 pm
Sample Type: CCB
Total Dil Factor: 1.00

QC Elements

Element	Conc.		RSD(%)	High Limit	Flag
7 (Li)	--------	ug/l	--------	#######	
9 Be	0.00	ug/l	23.32	0.12	
11 B	0.28	ug/l	2.09	15.00	
23 Na	-6.48	ug/l	31.56	77.10	
24 Mg	0.00	ug/l	3094.80	7.50	
27 Al	0.19	ug/l	98.10	3.96	
39 K	1.05	ug/l	427.46	19.20	
44 Ca	1.18	ug/l	158.47	90.00	
47 Ti	-0.01	ug/l	160.10	0.78	
51 V	0.00	ug/l	273.37	0.21	
52 Cr	0.00	ug/l	163.18	0.12	
55 Mn	-0.01	ug/l	133.39	0.18	
56 Fe	0.02	ug/l	170.86	40.80	
59 Co	0.00	ug/l	59.26	0.09	
60 Ni	0.01	ug/l	42.13	0.48	
63 Cu	-0.01	ug/l	56.70	0.39	
65 Cu	-0.01	ug/l	115.87	0.39	
66 Zn	-0.01	ug/l	196.06	6.90	
75 As	0.00	ug/l	234.84	0.27	
78 Se	-0.01	ug/l	52.10	0.30	
78 Se	0.10	ug/l	239.82	0.30	
88 Sr	-0.01	ug/l	8.49	0.03	
88 Sr	0.00	ug/l	149.07	0.03	
95 Mo	0.01	ug/l	31.81	0.21	
106 (Cd)	--------	ug/l	--------	#######	
107 Ag	0.00	ug/l	31.63	0.09	
108 (Cd)	--------	ug/l	--------	#######	
111 Cd	0.00	ug/l	58.60	0.06	
118 Sn	0.01	ug/l	26.40	#######	
118 Sn	-0.01	ug/l	112.74	#######	
118 Sn	-0.03	ug/l	29.29	0.30	
121 Sb	0.09	ug/l	5.34	0.03	Fail
137 Ba	-0.01	ug/l	45.86	0.12	
205 Tl	0.00	ug/l	57.51	0.03	
206 (Pb)	--------	ug/l	--------	#######	
207 (Pb)	--------	ug/l	--------	#######	
208 Pb	0.00	ug/l	42.82	0.33	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	6242671.50	1.02	6270405.50	99.6	70 - 120	
45 Sc	2560019.30	0.57	2516510.50	101.7	70 - 120	
45 Sc	333937.22	0.37	327168.25	102.1	70 - 120	
45 Sc	9555662.00	0.65	9520352.00	100.4	70 - 120	
72 Ge	604303.31	0.30	602031.69	100.4	70 - 120	
72 Ge	213181.58	1.22	211598.23	100.7	70 - 120	
72 Ge	1926505.00	0.51	1937680.80	99.4	70 - 120	
115 In	4386438.00	0.68	4436859.50	98.9	70 - 120	
115 In	2398991.30	0.72	2415476.80	99.3	70 - 120	
115 In	11890600.00	1.48	12015770.00	99.0	70 - 120	
159 Tb	14670448.00	0.64	14942106.00	98.2	70 - 120	
165 Ho	14256075.00	0.33	14405492.00	99.0	70 - 120	

ISTD Ref File : C:\ICPCHEM\1\DATA\12F02100.B\002CALB.D\002CALB.D#

1 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

CCB QC Report

Data File: C:\ICPCHEM\1\DATA\12F02100.B\063_CCB.D\063_CCB.D#
Date Acquired: Jun 2 2012 06:34 pm
Operator: NBS
Sample Name: CCB 120602
Misc Info:
Vial Number: 1102
Current Method: C:\ICPCHEM\1\METHODS\62A0602B.M
Calibration File: C:\ICPCHEM\1\CALIB\62A0602B.C
Last Cal Update: Jun 02 2012 12:16 pm
Sample Type: CCB
Total Dil Factor: 1.00

QC Elements

Element	Conc.		RSD(%)	High Limit	Flag
7 (Li)	--------	ug/l	--------	#######	
9 Be	0.00	ug/l	32.73	0.12	
11 B	2.69	ug/l	6.01	15.00	
23 Na	24.86	ug/l	10.02	77.10	
24 Mg	0.02	ug/l	111.12	7.50	
27 Al	0.34	ug/l	96.46	3.96	
39 K	5.58	ug/l	43.61	19.20	
44 Ca	-2.32	ug/l	107.83	90.00	
47 Ti	0.00	ug/l	2793.20	0.78	
51 V	0.00	ug/l	219.83	0.21	
52 Cr	0.00	ug/l	918.96	0.12	
55 Mn	-0.26	ug/l	3.74	0.18	
56 Fe	0.09	ug/l	22.99	40.80	
59 Co	0.00	ug/l	23.80	0.09	
60 Ni	0.17	ug/l	4.67	0.48	
63 Cu	0.01	ug/l	69.68	0.39	
65 Cu	0.02	ug/l	21.51	0.39	
66 Zn	0.01	ug/l	187.96	6.90	
75 As	0.01	ug/l	42.08	0.27	
78 Se	0.03	ug/l	44.10	0.30	
78 Se	0.62	ug/l	9.98	0.30	Fail
88 Sr	0.01	ug/l	35.95	0.03	
88 Sr	0.00	ug/l	40.81	0.03	
95 Mo	0.03	ug/l	27.19	0.21	
106 (Cd)	--------	ug/l	--------	#######	
107 Ag	0.00	ug/l	58.66	0.09	
108 (Cd)	--------	ug/l	--------	#######	
111 Cd	0.00	ug/l	80.98	0.06	
118 Sn	0.04	ug/l	32.80	#######	
118 Sn	0.01	ug/l	78.08	#######	
118 Sn	-0.01	ug/l	35.17	0.30	
121 Sb	-0.02	ug/l	5.01	0.03	
137 Ba	0.00	ug/l	126.39	0.12	
205 Tl	0.01	ug/l	12.62	0.03	
206 (Pb)	--------	ug/l	--------	#######	
207 (Pb)	--------	ug/l	--------	#######	
208 Pb	-0.07	ug/l	11.41	0.33	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	6784511.50	0.61	6270405.50	108.2	70 - 120	
45 Sc	2554301.00	0.70	2516510.50	101.5	70 - 120	
45 Sc	339629.22	0.51	327168.25	103.8	70 - 120	
45 Sc	9894552.00	1.27	9520352.00	103.9	70 - 120	
72 Ge	617262.56	0.56	602031.69	102.5	70 - 120	
72 Ge	216725.02	0.63	211598.23	102.4	70 - 120	
72 Ge	2015648.40	1.28	1937680.80	104.0	70 - 120	
115 In	4495401.00	1.07	4436859.50	101.3	70 - 120	
115 In	2422568.80	0.73	2415476.80	100.3	70 - 120	
115 In	12516754.00	1.21	12015770.00	104.2	70 - 120	
159 Tb	15618587.00	0.43	14942106.00	104.5	70 - 120	
165 Ho	14996882.00	0.22	14405492.00	104.1	70 - 120	

ISTD Ref File : C:\ICPCHEM\1\DATA\12F02100.B\002CALB.D\002CALB.D#

1 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

CCB QC Report

Data File: C:\ICPCHEM\1\DATA\12F02100.B\077_CCB.D\077_CCB.D#
Date Acquired: Jun 2 2012 08:08 pm
Operator: NBS
Sample Name: CCB 120602
Misc Info:
Vial Number: 1102
Current Method: C:\ICPCHEM\1\METHODS\62A0602B.M
Calibration File: C:\ICPCHEM\1\CALIB\62A0602B.C
Last Cal Update: Jun 02 2012 12:16 pm
Sample Type: CCB
Total Dil Factor: 1.00

QC Elements

Element	Conc.		RSD(%)	High Limit	Flag
7 (Li)	--------	ug/l	--------	#######	
9 Be	0.00	ug/l	319.00	0.12	
11 B	1.47	ug/l	8.02	15.00	
23 Na	19.72	ug/l	3.98	77.10	
24 Mg	0.13	ug/l	97.02	7.50	
27 Al	0.22	ug/l	43.71	3.96	
39 K	6.99	ug/l	26.61	19.20	
44 Ca	2.83	ug/l	81.27	90.00	
47 Ti	0.02	ug/l	57.09	0.78	
51 V	0.00	ug/l	152.97	0.21	
52 Cr	-0.01	ug/l	92.28	0.12	
55 Mn	-0.26	ug/l	1.07	0.18	
56 Fe	0.11	ug/l	9.96	40.80	
59 Co	0.00	ug/l	94.89	0.09	
60 Ni	0.17	ug/l	11.30	0.48	
63 Cu	0.02	ug/l	58.49	0.39	
65 Cu	0.03	ug/l	26.17	0.39	
66 Zn	0.02	ug/l	222.76	6.90	
75 As	0.02	ug/l	34.77	0.27	
78 Se	0.01	ug/l	128.02	0.30	
78 Se	0.58	ug/l	31.81	0.30	Fail
88 Sr	0.01	ug/l	144.41	0.03	
88 Sr	0.00	ug/l	76.69	0.03	
95 Mo	0.04	ug/l	22.59	0.21	
106 (Cd)	--------	ug/l	--------	#######	
107 Ag	0.00	ug/l	117.08	0.09	
108 (Cd)	--------	ug/l	--------	#######	
111 Cd	0.00	ug/l	396.15	0.06	
118 Sn	0.04	ug/l	44.44	#######	
118 Sn	0.04	ug/l	81.30	#######	
118 Sn	0.00	ug/l	2141.60	0.30	
121 Sb	-0.01	ug/l	163.79	0.03	
137 Ba	0.01	ug/l	72.98	0.12	
205 Tl	0.01	ug/l	33.91	0.03	
206 (Pb)	--------	ug/l	--------	#######	
207 (Pb)	--------	ug/l	--------	#######	
208 Pb	-0.08	ug/l	3.23	0.33	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	6691893.00	1.06	6270405.50	106.7	70 - 120	
45 Sc	2525997.80	0.99	2516510.50	100.4	70 - 120	
45 Sc	334050.81	1.17	327168.25	102.1	70 - 120	
45 Sc	10020587.00	0.70	9520352.00	105.3	70 - 120	
72 Ge	609943.88	0.12	602031.69	101.3	70 - 120	
72 Ge	219513.14	0.83	211598.23	103.7	70 - 120	
72 Ge	2021003.00	0.30	1937680.80	104.3	70 - 120	
115 In	4397135.50	0.83	4436859.50	99.1	70 - 120	
115 In	2373927.50	0.57	2415476.80	98.3	70 - 120	
115 In	12523685.00	0.98	12015770.00	104.2	70 - 120	
159 Tb	15548296.00	0.29	14942106.00	104.1	70 - 120	
165 Ho	15006703.00	0.69	14405492.00	104.2	70 - 120	

ISTD Ref File : C:\ICPCHEM\1\DATA\12F02100.B\002CALB.D\002CALB.D#

1 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

A.P.P.L. INC.
4
ICP INTERFERENCE CHECK SAMPLE

Lab Name: A.P.P.L. INC.
Contract: URS Group
ARF No.: 67748
SDG: 67748
ICP ID Number: Optimus
ICS Source: Environmental Express

Analysis Date: 06/02/12
Concentration Units: ug/L

Analyte	True		Initial Found		
	Sol A	Sol AB	Sol A 13:19	Sol AB 13:25	%R(1)
Copper (Cu)		250	0.9346 >	270	108
Lead (Pb)		500	0.3464 <	539.7	108
Antimony (Sb)		250	2.134 >	257.1	103
Zinc (Zn)		500	1.362 <	473	94.6

Ca > ICSA

(1) Control Limits: Metals 80-120

Sample QC Report

Data File:	C:\ICPCHEM\1\DATA\12F02100.B\072SMPL.D\072SMPL.D#
Date Acquired:	Jun 2 2012 07:34 pm
Operator:	NBS
Sample Name:	AY61156W03
Misc Info:	120521A-3015
Vial Number:	3510
Current Method:	C:\ICPCHEM\1\METHODS\62A0602B.M
Calibration File:	C:\ICPCHEM\1\CALIB\62A0602B.C
Last Cal Update:	Jun 02 2012 12:16 pm
Sample Type:	Sample
Prep Dil Factor:	1.11
Total Dil Factor:	1.11

QC Elements

Element	Conc.		Corr. Conc.	RSD(%)	High Limit	Flag
7 (Li)	--------	ug/l	#VALUE!	--------	0	
9 Be	0.00	ug/l	0.00	149.48	1000	
11 B	43.71	ug/l	48.56	1.18	1000	
23 Na	6357.00	ug/l	7062.63	2.16	25000	
24 Mg	24580.00	ug/l	27308.38	1.59	50000	
27 Al	12.17	ug/l	13.52	3.97	20000	
39 K	1077.00	ug/l	1196.55	1.42	20000	
44 Ca	89450.00	ug/l	99378.95	2.43	50000	>Cal
47 Ti	0.65	ug/l	0.72	9.70	1000	
51 V	2.77	ug/l	3.08	1.07	1000	
52 Cr	0.48	ug/l	0.53	5.66	1000	
55 Mn	2.06	ug/l	2.29	2.97	1000	
56 Fe	7.57	ug/l	8.41	3.39	20000	
59 Co	0.29	ug/l	0.32	0.82	1000	
60 Ni	0.99	ug/l	1.10	5.48	1000	
63 Cu	0.85	ug/l	0.94	4.54	1000	
65 Cu	0.90	ug/l	1.00	1.27	1000	
66 Zn	7.33	ug/l	8.14	1.34	1000	
75 As	1.31	ug/l	1.46	4.23	1000	
78 Se	1.69	ug/l	1.88	2.51	1000	
78 Se	3.30	ug/l	3.67	3.99	1000	
88 Sr	194.80	ug/l	216.42	0.40	1000	
88 Sr	188.70	ug/l	209.65	0.60	1000	
95 Mo	1.99	ug/l	2.22	2.55	1000	
106 (Cd)	--------	ug/l	#VALUE!	--------	#######	
107 Ag	0.00	ug/l	0.00	74.15	500	
108 (Cd)	--------	ug/l	#VALUE!	--------	#######	
111 Cd	0.16	ug/l	0.18	1.97	1000	
118 Sn	0.84	ug/l	0.93	9.07	#######	
118 Sn	0.64	ug/l	0.71	10.86	#######	
118 Sn	0.52	ug/l	0.57	7.58	1000	
121 Sb	0.53	ug/l	0.59	10.55	1000	
137 Ba	104.30	ug/l	115.88	1.00	1000	
205 Tl	0.04	ug/l	0.05	9.13	1000	
206 (Pb)	--------	ug/l	#VALUE!	--------	#######	
207 (Pb)	--------	ug/l	#VALUE!	--------	#######	
208 Pb	-0.06	ug/l	-0.07	3.28	1000	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	5952439.00	1.25	6270405.50	94.9	70 - 120	
45 Sc	2163052.30	0.53	2516510.50	86.0	70 - 120	
45 Sc	283430.31	1.31	327168.25	86.6	70 - 120	
45 Sc	9140647.00	1.53	9520352.00	96.0	70 - 120	
72 Ge	500150.84	1.66	602031.69	83.1	70 - 120	
72 Ge	178397.36	1.59	211598.23	84.3	70 - 120	
72 Ge	1771917.90	1.56	1937680.80	91.4	70 - 120	
115 In	3716533.80	1.25	4436859.50	83.8	70 - 120	
115 In	2014553.30	0.53	2415476.80	83.4	70 - 120	
115 In	11394310.00	1.52	12015770.00	94.8	70 - 120	
159 Tb	14048301.00	2.12	14942106.00	94.0	70 - 120	
165 Ho	13697633.00	1.18	14405492.00	95.1	70 - 120	

ISTD Ref File : C:\ICPCHEM\1\DATA\12F02100.B\002CALB.D\002CALB.D#

1 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:

Analytes: Fail
ISTD: Pass

Sample QC Report

used for
Hardness calculations
NBS 06/05/12

Data File:	C:\ICPCHEM\1\DATA\12F04100.B\049SMPL.D\049SMPL.D#
Date Acquired:	Jun 4 2012 05:01 pm
Operator:	NBS
Sample Name:	AY61156W03-1/10
Misc Info:	120521A-3015
Vial Number:	2305
Current Method:	C:\ICPCHEM\1\METHODS\62A0604B.M
Calibration File:	C:\ICPCHEM\1\CALIB\62A0604B.C
Last Cal Update:	Jun 04 2012 12:14 pm
Sample Type:	Sample
Prep Dil Factor:	11.11
Total Dil Factor:	11.11

QC Elements

Element	Conc.	Corr. Conc.	RSD(%)	High Limit	Flag
7 (Li)	-------- ug/l	#VALUE!	--------	0	
9 Be	0.00 ug/l	0.01	550.09	1000	
11 B	6.25 ug/l	69.45	3.72	1000	
23 Na	639.90 ug/l	7109.29	3.60	25000	
24 Mg	2484.00 ug/l	27597.24	2.77	50000	
27 Al	2.54 ug/l	28.25	12.25	20000	
39 K	115.70 ug/l	1285.43	5.61	20000	
44 Ca	8436.00 ug/l	93723.96	1.58	50000	
47 Ti	0.15 ug/l	1.63	6.42	1000	
51 V	0.34 ug/l	3.73	5.18	1000	
52 Cr	0.06 ug/l	0.67	19.82	1000	
55 Mn	0.16 ug/l	1.74	14.84	1000	
56 Fe	1.30 ug/l	14.41	10.16	20000	
59 Co	0.01 ug/l	0.14	26.13	1000	
60 Ni	0.11 ug/l	1.22	18.25	1000	
63 Cu	0.12 ug/l	1.31	3.52	1000	
65 Cu	0.13 ug/l	1.46	7.69	1000	
66 Zn	1.44 ug/l	16.04	9.07	1000	
75 As	0.16 ug/l	1.76	5.44	1000	
78 Se	0.25 ug/l	2.76	14.47	1000	
78 Se	0.75 ug/l	8.31	26.22	1000	
88 Sr	19.57 ug/l	217.42	3.13	1000	
88 Sr	18.98 ug/l	210.87	0.36	1000	
95 Mo	0.21 ug/l	2.29	7.10	1000	
106 (Cd)	-------- ug/l	#VALUE!	--------	#######	
107 Ag	0.00 ug/l	-0.01	184.12	500	
108 (Cd)	-------- ug/l	#VALUE!	--------	#######	
111 Cd	0.02 ug/l	0.24	11.73	1000	
118 Sn	0.20 ug/l	2.27	12.21	#######	
118 Sn	0.19 ug/l	2.08	13.57	#######	
118 Sn	0.13 ug/l	1.39	8.22	1000	
121 Sb	0.25 ug/l	2.78	2.61	1000	
137 Ba	10.76 ug/l	119.54	0.55	1000	
205 Tl	0.02 ug/l	0.25	10.30	1000	
206 (Pb)	-------- ug/l	#VALUE!	--------	#######	
207 (Pb)	-------- ug/l	#VALUE!	--------	#######	
208 Pb	-0.07 ug/l	-0.75	3.48	1000	

0 ✓ Not greater than Cal

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	4943251.00	0.52	4558579.50	108.4	70 - 120	
45 Sc	2096470.90	0.57	2393700.30	87.6	70 - 120	
45 Sc	279041.50	1.67	325272.28	85.8	70 - 120	
45 Sc	8563535.00	0.78	9006299.00	95.1	70 - 120	
72 Ge	511471.13	1.64	571961.19	89.4	70 - 120	
72 Ge	183681.31	2.60	207534.36	88.5	70 - 120	
72 Ge	1726902.90	0.61	1825337.30	94.6	70 - 120	
115 In	3636304.00	0.33	4102581.50	88.6	70 - 120	
115 In	1988792.00	2.15	2270922.80	87.6	70 - 120	
115 In	10758852.00	0.20	11500487.00	93.6	70 - 120	
159 Tb	13291308.00	0.29	14552823.00	91.3	70 - 120	
165 Ho	12804314.00	0.92	13961832.00	91.7	70 - 120	

ISTD Ref File : C:\ICPCHEM\1\DATA\12F04100.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

Metals Analysis

URS Group
849 International Dr, Ste 320
Linthicum, MD 21090

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Andrea Sansom
Project: 15302625.30000 ORA Phase II Camp Dodge
Sample ID: DGSW03WB03
Sample Collection Date: 05/10/12

Equipment Blank

ARF: 67737
APPL ID: AY61091

Method	Analyte	Result	LOQ	LOD	DL	Units	DF	Prep Date	Analysis Date
6020	ANTIMONY (SB) (DISSOLVE	0.20 U UJ,o	0.2	0.20	0.01	ug/L	1	05/16/12	06/28/12
6020	COPPER (CU) (DISSOLVED)	0.37 J	0.5	0.25	0.13	ug/L	1	05/16/12	06/28/12
6020	LEAD (PB) (DISSOLVED)	0.15 U	0.5	0.15	0.11	ug/L	1	05/16/12	06/28/12
6020	ZINC (ZN) (DISSOLVED)	10.4 J	50.0	5.00	2.30	ug/L	1	05/16/12	06/28/12

J = Estimated value.

Printed: 06/29/12 4:04:30 PM

APPL-F1-SC-NoMC-URS-REG MDLs

Metals Analysis

URS Group
849 International Dr, Ste 320
Linthicum, MD 21090

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Andrea Sansom
Project: 15302625.30000 ORA Phase II Camp Dodge
Sample ID: DGSW03WB03
Sample Collection Date: 05/10/12

Equipment Blank

ARF: 67737
APPL ID: AY61091

Method	Analyte	Result	PQL	Units	Prep Date	Analysis Date
SM2340B	HARDNESS	Not detected	1.0	mg/L	07/02/12	07/02/12

Form 1 - APPL Standard
Metals - No MC
Printed: 07/02/12 9:36:21 AM

METALS BLANK

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Method	Analyte	Result	LOQ	LOD	DL	Units	Prep Date	Analysis Date	QC Group
6020	ANTIMONY (SB) (DI	0.20 U	0.2	0.20	0.01	ug/L	05/21/12	06/02/12	#62DOD-120521A-AY61156
6020	COPPER (CU) (DIS	0.25 U	0.5	0.25	0.13	ug/L	05/21/12	06/02/12	#62DOD-120521A-AY61156
6020	LEAD (PB) (DISSOL	0.15 U	0.5	0.15	0.11	ug/L	05/21/12	06/02/12	#62DOD-120521A-AY61156
6020	ZINC (ZN) (DISSOL	5.00 U	50.0	5.00	2.30	ug/L	05/21/12	06/02/12	#62DOD-120521A-AY61156

Metals SC-Blank-URS-REG MDLs
Printed: 06/08/12 12:58:19 PM

Matrix Spike Recovery

METALS

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Sample ID: AY61156
Client ID: DGSW02WB01

Method	Compound Name	Spike Level ug/L	Matrix Result ug/L	SPK Result ug/L	SPK % Recovery	Recovery Limits	Extract Date	Analysis Date	QC Group	QC Sample
6020	ANTIMONY (SB) (DISSOLVED)	50.0	0.59	46.4	91.6	80-120	05/21/12	06/02/12	#62DOD-120521A	AY61156
6020	COPPER (CU) (DISSOLVED)	50.0	0.94	46.4	90.9	80-120	05/21/12	06/02/12	#62DOD-120521A	AY61156
6020	LEAD (PB) (DISSOLVED)	50.0	ND	47.2	94.4	80-120	05/21/12	06/02/12	#62DOD-120521A	AY61156
6020	ZINC (ZN) (DISSOLVED)	100.0	8.1	100	91.9	80-120	05/21/12	06/02/12	#62DOD-120521A	AY61156

√

20

Comments:

Printed: 06/08/12 12:58:29 PM
APPL MS SCII - URS

Camp Dodge
Duplicate Results
ARF 67737

Client Sample ID:				DGSW03WB01		DGSW03WB02					
Date Sampled:				5/10/12		5/10/12					
	Units	RL	5xRL	Sample Conc		Duplicate Conc		%RPD	Delta	2xRL	Pass/ Fail
Organics											
1,3,5-Trinitrobenzene	ug/L	0.5	2.5	0.3	U	0.3	U	0.0%	**0**	1	Pass
1,3-Dinotribenzene	ug/L	0.5	2.5	0.3	U	0.3	U	0.0%	**0**	1	Pass
2,4,6-Trinitrotoluene	ug/L	0.5	2.5	0.3	U	0.3	U	0.0%	**0**	1	Pass
2,4-Dinitrotoluene	ug/L	0.5	2.5	0.3	U	0.3	U	0.0%	**0**	1	Pass
2,6-Dinitrotoluene	ug/L	0.5	2.5	0.3	U	0.3	U	0.0%	**0**	1	Pass
2-Amino-4,6-Dinitrotoluene	ug/L	0.5	2.5	0.3	U	0.3	U	0.0%	**0**	1	Pass
2-Nitrotoluene	ug/L	0.5	2.5	0.3	U	0.3	U	0.0%	**0**	1	Pass
3-Nitrotoluene	ug/L	0.5	2.5	0.3	U	0.3	U	0.0%	**0**	1	Pass
4-Amino-2,6-Dinitrotoluene	ug/L	0.5	2.5	0.3	U	0.3	U	0.0%	**0**	1	Pass
4-Nitrotoluene	ug/L	0.5	2.5	0.3	U	0.3	U	0.0%	**0**	1	Pass
HMX	ug/L	0.5	2.5	0.3	U	0.3	U	0.0%	**0**	1	Pass
Nitrobenzene	ug/L	0.5	2.5	0.3	U	0.3	U	0.0%	**0**	1	Pass
Nitroglycerin	ug/L	0.5	2.5	0.3	U	0.3	U	0.0%	**0**	1	Pass
PETN	ug/L	2.5	12.5	1.5	U	1.5	U	0.0%	**0**	5	Pass
RDX	ug/L	0.5	2.5	0.3	U	0.3	U	0.0%	**0**	1	Pass
Tetryl	ug/L	0.5	2.5	0.3	U	0.3	U	0.0%	**0**	1	Pass
Inorganics											
Antimony	ug/L	0.2	1	0.16	J	0.17	J	6.1%	**0.01**	0.4	Pass
Copper	ug/L	0.5	2.5	0.95		0.86		9.9%	**0.09**	1	Pass
Hardness	ug/L	1	5	337		336		**0.3%**	1	2	Pass
Lead	ug/L	0.5	2.5	0.15	U	0.19	J	23.5%	**0.04**	1	Pass
Zinc	ug/L	50	250	14	J	20.1	J	35.8%	**6.1**	100	Pass

Control limit [sample]>5xRL use 35%

[sample]<5xRL use Delta<2xRL

METALS

Sample/Sample Duplicate Results

URS Group
849 International Dr, Ste 320
Linthicum, MD 21090

Attn: Andrea Sansom

Sample ID: AY61156
Client ID: DGSW02WB01

APPL Inc.
908 North Temperance Avenu
Clovis, CA 93611

Project: 15302625.30000 ORA Phase II Camp Dodge

ARF: 67748

Method	Analyte	Sample ID	Sample Result	Sample Dup Result	RPD	RPD Max	MDL	PQL	Units	Sample Extract Date	Sample Analysis Date	Sample Dup Extract Date	Sample Dup Analysis Date
6020	ANTIMONY (SB) (	AY61156	0.59	0.25	NA	20	0.01	0.2	ug/L	05/21/12	06/02/12	05/21/12	06/02/12
6020	COPPER (CU) (DI	AY61156	0.94	0.87	NA	20	0.13	0.5	ug/L	05/21/12	06/02/12	05/21/12	06/02/12
6020	LEAD (PB) (DISSO	AY61156	Not detected	Not detected	NA	20	0.11	0.5	ug/L	05/21/12	06/02/12	05/21/12	06/02/12
6020	ZINC (ZN) (DISSO	AY61156	8.1	8.7	NA	20	2.30	50.0	ug/L	05/21/12	06/02/12	05/21/12	06/02/12

Printed: 06/08/12 12:58:26 PM

Dup-SCII (NoMC)

A.P.P.L. INC.
9
ICP SERIAL DILUTION

CLIENT SAMPLE NO.
DGSW02WB01

Lab Name: A.P.P.L. INC. Contract: URS Group
ARF No.: 67748 SDG: 67748
Matrix: water

Analysis Date: 06/02/12 Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	%D	Q	M
Copper (Cu)	0.939726		0.978004		NA		
Lead (Pb)	-0.0690087		-0.3542276		NA		
Antimony (Sb)	0.588633		2.702716		359		M
Zinc (Zn)	8.13741		10.30268		NA		

Comments:

06/02/12 19:34 AY61156W03

06/02/12 20:28 AY61156W03-1/5

A.P.P.L. INC.
5B
POST DIGEST SPIKE SAMPLE RECOVERY

CLIENT SAMPLE NO.
DGSW02WB01

Lab Name: A.P.P.L. INC. Contract: URS Group

ARF No.: 67748 SDG: 67748

Analysis Date: 06/02/12 Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Copper (Cu)	75-125	239.205		0.939726		277.500	85.9		
Lead (Pb)	75-125	267.288		-0.0690087		277.500	96.3		
Antimony (Sb)	75-125	254.856		0.588633		277.500	91.6		
Zinc (Zn)	75-125	442.557		8.13741		555.000	78.3		

✓

Comments:

06/02/12 19:34 AY61156W03

06/02/12 20:21 AY61156W03-A

908 North Temperance Ave. ∇ Clovis, CA 93611 ∇ Phone 559-275-2175 ∇ Fax 559-275-4422

Certification Number: CA1312
NELAP Certification number: 05233CA
DoD-ELAP Certificate number: ADE-1410

Summary Report

June 12, 2012

received
6/14/12

URS Group, Inc.
849 International Drive, Suite 320
Linthicum, Maryland 21090

Attn: Andrea Sansom

Title: Report of Data: Case 67748

Project: 15302625.30000 ORA Phase II Camp Dodge, IA

Contract #: Prime contract # for DoD: W912DR-09-D-0003 TO 008
Subcontract: 260784

Dear Ms. Sansom:

One water sample was received May 12, 2012, in good condition. Written results for the requested analysis are provided on this June 12, 2012.

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.

If you have any questions or require further information, please contact your APPL Project Manager Diane Anderson at your convenience. Thank you for choosing APPL, Inc.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. These test results meet all requirements of NELAC and DoD QSM. Release of the hard copy has been authorized by the Laboratory Manager or her designee, as verified by the following signature.

Sharon Dehmlow, Laboratory Director
APPL, Inc.

SD/sdm
Enclosure
cc: File

Number of pages in this report: 21

67748 new Sansom Linthicum

Sample Receipt Information

ARF: 67748

Project: 15302625.30000 ORA Phase II Camp Dodge, IA

Sample Receipt Information:

One water sample was received on May 12, 2012, at 1.5°C. The sample was assigned Analytical Request Form (ARF) number 67748. The sample number and requested analyses were compared to the chain of custody. No exception was encountered.

Sample Table

CLIENT ID	APPL ID	Matrix	Date Sampled	Date Received
DGSW02WB01	AY61156	WATER	05/11/12	05/12/12

Samples and blanks were screened for J-value responses between the detection limit (DL) and limit of quantitation (LOQ).

APPL's Laboratory control limits generated in house statistically do not meet the control limits listed in DoD QSM 4.2 for all analytes. Laboratory control spike recoveries for this project meet all control limits listed in the DoD QSM 4.2 except where noted. A copy of our in house generated control limits is available upon request. In addition, a copy of our LOQ control limits, established using 7 data points, are also available upon request.

Only the portion of the injection log relative to these samples is included. A full sequence log is available upon request.

Measurement uncertainty can be reported upon request.

EPA Method 8330B

Energetics

Sample Preparation:

The sample was extracted according to EPA method 3535A. All holding times were met.

Analysis:

The sample was analyzed according to EPA Method 8330B using an Agilent 1290 HPLC with DA detector. Manual integrations were performed in accordance with APPL's SOP. The following analytes were manually integrated: For Waldorf: PETN in data file 0516_0000024, 0516_0000026, 0521_0000063 and 0521_0000089. Chromatograms of before and after manual integration are enclosed.

Quality Control/Assurance:

Spike Recovery

A Laboratory Control Spike (LCS) was used for quality assurance. All LCS acceptance criteria were met.

No sample was selected by the client for MS/MSD analysis.

Method blanks:

The method blank contained no target analyte at or above one-half the limit of quantitation (LOQ).

Surrogates:

Surrogate recoveries are summarized on the Form 2 & 8. All surrogates had acceptable recoveries.

Calibration:

All calibration criteria were met.

Summary:

No analytical problem was encountered. The data generated are acceptable.

EPA method 6020 and Hardness

Metals

Digestion Information:

The water sample was digested according to EPA method 3015. No exception was encountered. All holding times were met

Analysis Information:

Samples:

The sample was analyzed according to EPA method 6020 using an Agilent 7500cx ICP-MS. Hardness was calculated using Standard Method 2340B.

Calibrations:

Calibrations were performed according to the method for the initial calibration and the initial calibration verification. The initial calibration verification is prepared from a second source standard.

Blanks:

No target metal was detected above one-half the LOQ in the method blank.

Spikes:

Laboratory Control Spikes (LCS/LCSD), Matrix Spikes (MS), Sample Duplicates (DUP), Post-Digestion Spikes (PDS), and Dilution Tests (DT) were used for quality assurance. All LCS acceptance criteria were met.

Sample DGSW02WB01 was designated by the laboratory for QC analysis. In the DT, antimony exceeded the 10% deviation limit. All acceptance criteria were met in the DUP, MS, and PDS.

Summary:

No other analytical exception is noted. The data generated are acceptable.

Abbreviations and Flags

FLAG	DESCRIPTION
#	Recovery or RPD outside control limits
*	Recovery or RPD outside control limits
B	Analyte detected in associated method blank
C1	Reason for correction: wrote incorrect response
C2	Reason for correction: calculated incorrectly
C3	Reason for correction: needs to be rechecked
C4	Reason for correction: data not usable
DO	Diluted out
E	Exceeds linear range
F	Estimated value
G1	Includes a wide range of hydrocarbons which does not match our gasoline standard
G10	Includes a match to hydrocarbon profiles within the range of mineral spirits
G11	Includes a match to hydrocarbon profiles within the range of JP-4
G12	Pattern does not match the gasoline standard; the carbon range for this sample is consistent with JP8
G13	Closely resembles the hydrocarbon profile of aviation gasoline
G14	Analyte concentration may be biased due to carry over
G2	Closely resembles the boiling point hydrocarbon profile consistent with weathered gasoline
G3	Includes higher boiling hydrocarbons
G4	Includes dominant peak(s) not indicative of petroleum hydrocarbons
G5	Is mainly dominant peak(s) not indicative of petroleum hydrocarbons
G6	Contains recognizable contaminant peak(s) which has been removed from quantitation
G7	Is mainly a match to hydrocarbons within the range of gasoline
G8	Closely resembles the boiling point hydrocarbon profile consistent with weathered gasoline
G9	Includes hydrocarbons within the range of kerosene
J	Estimated value
M	Matrix effect
MI1	Manual integration: integration does not follow baseline
MI2	Manual integration: non-target peak interference
MI3	Manual integration: to split a peak that was integrated as one peak by the computer
MI4	Manual integration: to integrate a split peak
MI5	Manual integration: the whole peak or part of the peak was not integrated
MI6	Manual integration: computer integrated wrong peak
MI7	Manual integration: other - explain
MDL	Method detection limit
ND	Not detected
NT	Non-target
Q	Acceptance criteria not met
T1 I	Includes wide range of hydrocarbons not indicative of diesel
T1 M	Is mainly wide range of hydrocarbons not necessarily indicative of diesel
T2 I	Includes lower boiling hydrocarbons, i.e. mineral spirits, kerosene, stoddard solvent, white gas
T2 M	Is mainly lower boiling hydrocarbons, i.e. mineral spirits, kerosene, stoddard solvent, white gas
T3 I	Includes higher boiling hydrocarbons, i.e. asphaltene, waster oil, motor oil, or weathered diesel fuel
T3 M	Is mainly higher boiling hydrocarbons, i.e. asphaltene, waster oil, motor oil, or weathered diesel fuel
T4 I	Includes dominant peak(s) not indicative of hydrocarbons
T4 M	Is mainly dominant peak(s) not indicative of hydrocarbons
T5	Contains recognizable contaminant peak(s) which has been removed from quantitation
T6	Is mainly a match to hydrocarbons within range of diesel fuel
T7	Closely resembles the boiling point hydrocarbon profile consistent with diesel fuel
T8	Includes a match to hydrocarbon profiles within range of diesel and kerosene fuel
T9 I	Includes non-diesel hydrocarbons within boiling point range of diesel fuel
T9 M	Is mainly non-diesel hydrocarbons within boiling point range of diesel fuel.
Y	Percent difference between primary and confirmation column > 40%

Chain of Custody

Client: URS Group
ATTN: Andrea Sansom
Project: 15302625.30000 ORA Phase II Camp Dodge
PO: Subcontract 260784

ARF: 67748

Container	Moved To	Date - Time	User Name	Reason For Move
Sample Number: AY61156		Client ID: DGSW02WB01		
W01	B-Red	05/12/2012 10:55:00	Vong, Tom	Container Received
W02	B-Red	05/12/2012 10:55:00	Vong, Tom	Container Received
	Extraction	05/16/2012 10:15:31	Yang, Kia	Key #3 -> Kia Yang
	B - Red	05/16/2012 14:23:04	Yang, Kia	Kia Yang -> Key #3
W03	R-OrangeYellow	05/12/2012 10:55:00	Vong, Tom	Container Received
	Metals	05/21/2012 09:21:19	Moreyda, Nicolas	Key #2 -> Nicolas Moreyda
	R - OrangeYell	05/21/2012 09:52:15	Moreyda, Nicolas	Nicolas Moreyda -> Key #2

COOLER RECEIPT FORM

1) Project: 15302625.3000 Camp Dodge Date Received: 5/12/12

2) Coolers: Number of Coolers: 1

3) YES NO Were coolers and samples screened for radioactivity?

4) YES NO Were custody seals on outside of cooler? How many? 2 Date on seal? 5/11/12

5) Name on seal? See label below

6) YES NO NA Were custody seals unbroken and intact at the time of arrival?

7) YES NO Did the cooler come with a shipping slip (air bill, etc.)? Carrier name: Fed Ex

8) Shipping slip numbers: 1) 8006 7438 3472) 3)

9) YES NO NA Was the shipping slip scanned into the database?

10) YES NO NA If cooler belongs to APPL, has it been logged into the ice chest database?

11) Describe type of packing in cooler (bubble wrap, popcorn, type of ice, etc.): Bubble Bag wet ice

12) YES NO NA For hand delivered samples was sufficient ice present to start the cooling process?

13) YES NO Was a temperature blank included in the cooler?

14) Serial number of certified NIST thermometer used: A39267 Correction factor: Ø

15) Cooler temp(s): 1) 1.5c 2) 3) 4) 5) 6) 7) 8)

Chain of custody:

16) YES NO Was a chain of custody received?

17) YES NO Were the custody papers signed in the appropriate places?

18) YES NO Was the project identifiable from custody papers?

19) YES NO Did the chain of custody include date and time of sampling?

20) YES NO Is location where sample was taken listed on the chain of custody?

Sample Labels:

21) YES NO Were container labels in good condition?

22) YES NO Was the client ID on the label?

23) YES NO Was the date of sampling on the label?

24) YES NO Was the time of sampling on the label?

25) YES NO Did all container labels agree with custody papers?

Sample Containers:

26) YES NO Were all containers sealed in separate bags?

27) YES NO Did all containers arrive unbroken?

28) YES NO Was there any leakage from samples?

29) YES NO Were any of the lids cracked or broken?

30) YES NO Were correct containers used for the tests indicated?

31) YES NO Was a sufficient amount of sample sent for tests indicated?

32) YES NO NA Were bubbles present in volatile samples? If yes, the following were received with air bubbles:

Larger than a pea:

Smaller than a pea:

Preservation & Hold time:

33) YES NO NA Was a sufficient amount of holding time remaining to analyze the samples?

34) YES NO NA Do the sample containers contain the same preservative as what is stated on the COC?

35) YES NO NA Was the pH taken of all non-VOA preserved samples and written on the sample container?

36) YES NO NA Was the pH of acid preserved non-VOA samples < 2 & sodium hydroxide preserved samples > 12?

37) YES NO NA Unpreserved VOA Vials received?

38) YES NO NA Are unpreserved VOA vials noted in the ADD TEST FIELD on the ARF?

CUSTODY SEAL

Initials: RH

Date: 5-11-12

Lab notified if pH was not adequate:

Deficiencies:

Signature of personnel receiving samples: Second reviewer: Yang Tu

Signature of project manager notified: Date and Time of notification:

Name of client notified: Date and Time of notification:

Information given to client:

by whom (Initials):

67748

1.5°C

URS Corporation

12120 Shamrock Plaza Suite 300, Omaha, NE 68154 (402) 334-8181 Fax (402) 334-1984

CHAIN OF CUSTODY RECORD

Project Name: CAMP DODGE

Project No.: 15302625.30000

Project Location: JOHNSTON, IA

Project Manager: J. HARRINGTON

Sampler(s): J. HARRINGTON, J. ALLEN, R. HEROLD

Analytical Parameters

Sample Date	Sample Time	Type Comp.	Type Grab	Sample Identification	Matrix	Containers No.	Containers Type	EXPLOSIVES 8330B	METALS/HARDNESS 6020A/SM2340B									Remarks
5/11/12	1235	X		DGSW02WB01	AQ	2	1-Liter Amber	X										4°C
↓	↓	↓		↓	↓	1	500 mL HDPE		X									↓ HNO3

Jennifer L Allen

Signatures	Date	Time	Shipping Details	Special Instructions
Relinquished by: Jennifer L Allen	5/11/12	1400	Method of Shipment: FED EX AIR	METALS/HARDNESS SAMPLE FIELD FILTERED w/ 0.45 µm FILTER
Received by:			Airbill No.: 8006 7438 3428	
Relinquished by:			Lab Address: APPL 908 N TEMPERANCE AVE CLOVIS, CA 93611	
Received for Laboratory by: Alicia [illegible]	5/12/12	10:55		

Custody.frm/jdg 3-09-92

White copy - Laboratory Yellow copy - Laboratory Pink copy - WCC

126412

Data Qualifying Codes

Two types of data qualifying codes or flags are applied in the course of the data review. The data validation flags indicate data that are not usable for decision-making, more than normally biased and/or variable, or not representative of field conditions. These codes and their definitions are presented below in the hierarchy stipulated in the USEPA Contract Laboratory Program National Functional Guidelines for Organic (June, 2008) and Inorganic (January, 2010) Data Review

Data Validation Flags

Flag	Interpretation
R	The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.
U	The analyte was analyzed for, but not detected at a level greater than or equal to the level of the adjusted Detection Limit (DL) for sample and method.
J+	Inorganic analyte present. Reported value may not be accurate or precise, but the result may be biased high.
J-	Inorganic analyte present. Reported value may not be accurate or precise, but the result may be biased low.
J	The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the Limit of Detection (LOD).
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
UJ	The analyte was not detected at a level greater than or equal to the adjusted DL. However, the reported adjusted DL is approximate and may be inaccurate or imprecise.
C	This qualifier applies to pesticide and Aroclor results when the identification has been confirmed by gas Chromatograph/Mass Spectrometer (GC/MS)
X	This qualifier applies to pesticide and Aroclor results when GC/MS analysis was attempted but was unsuccessful.

The other type of code used by URS is a "Reason Code". The reason code indicates the type of quality control failure that led to the application of the data validation flag.

Reason Codes

GC/MS Organics		GC and HPLC Organics		Inorganics and Conventionals	
Code	Interpretation	Code	Interpretation	Code	Interpretation
a	Incorrect or incomplete analytical sequence	a	Incorrect or incomplete analytical sequence	a	Incorrect or incomplete analytical sequence
b	Bubble found in vial >6mm	b	Instrument performance failure	b	Laboratory duplicate imprecision
c	Calibration failure; poor or unstable response	c	Calibration failure; poor or unstable response	c	Calibration failure
d	MS/MSD imprecision	d	MS/MSD imprecision	d	MS/MSD imprecision
e	LCSD imprecision	e	LCSD imprecision	e	LCSD imprecision
f	Field duplicate imprecision	f	Field duplicate imprecision	f	Field duplicate imprecision
g	Tuning failure or poor mass spec performance	g	Dual column confirmation imprecision	g	Duel isotope imprecision
h	Holding time violation	h	Holding time violation	h	Holding time violation
i	Internal standard failure	i	Internal standard failure	k	Cooler receipt temperature exceeds limits
k	Cooler receipt temperature exceeds limits	k	Cooler receipt temperature exceeds limits	l	LCS recovery failure
l	LCS recovery failure	l	LCS recovery failure	m	MS/MSD recovery failure
m	MS/MSD recovery failure	m	MS/MSD recovery failure	n	ICS failure
p	Poor chromatography	p	Poor chromatography	o	Calibration blank contamination
q	Concentration exceeded the linear range	q	Concentration exceeded the linear range	q	Concentration exceeded the linear range
r	Linearity failure in initial calibration	r	Linearity failure in initial calibration	r	Linearity failure in calibration or MSA
s	Surrogate failure	s	Surrogate failure	s	Serial dilution failure
t	TIC	t	Blender blank contamination	t	Carboy Lot detection
w	Identification criteria failure	u	No confirmation column	u	BOD minimum depletion did not exceed 2mg/L
x	Field blank contamination	w	Retention time failure	v	Post-digestion spike failure
y	Trip blank contamination	x	Field blank contamination	w	CRDL Standard Failure
z	Method blank contamination	z	Method blank contamination	x	Field blank contamination
				z	Preparation/Method blank contamination

DATA VALIDATION REPORT - Level III Review

SDG No.:	**ARF 67705**	**Fraction:**	**Explosives**
Laboratory:	**APPL**	**Project:**	**Camp Dodge/15302625.30000**
Reviewer:	**Angela Yannone**	**Date:**	**08/27/12**

This report presents the findings of a review of the referenced data. The report consists of this summary, a listing of the samples included in the review, copies of data reports with data qualifying flags applied, the data review checklist, supporting documentation, and an explanation of the data qualifying flags employed. The review performed is based on the project-specific QAPP, and qualified according to the USEPA CLP National Functional Guidelines for Organic (June 2008) and Inorganic (January 2010) Superfund Data Review. Modifications reflect the level of review requested, the specifications of the project-specific QAPP, and the specifics of the analytical methods employed.

Major Anomalies: None.

Minor Anomalies: None.

Correctable Anomalies: None.

Comments: On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of anomalies discussed above. All data are usable for their intended purpose based on the data reviewed.

Signed: Angela Yannone

Angela Yannone

Camp Dodge

Job #: 15302625.30000

Laboratory: APPL
SDG #: ARF 67705

Sample	Client ID	Sample Type	Collected	Matrix	Explosives
AY60810	DGGW07WC01	Sample	8-May-12	Water	x
AY60811	DGGW08WC01	Sample	8-May-12	Water	x
AY60812	DGGW07WC02	Duplicate	8-May-12	Water	x

Camp Dodge
Duplicate Results
ARF 67705

Client Sample ID:				DGGW07WC01		DGGW07WC02					
Date Sampled:				5/8/12		5/8/12					
	Units	RL	5xRL	Sample Conc		Duplicate Conc		%RPD	Delta	2xRL	Pass/ Fail
Organics											
1,3,5-Trinitrobenzene	ug/L	0.5	2.5	0.3	U	0.3	U	0.0%	**0**	1	Pass
1,3-Dinotribenzene	ug/L	0.5	2.5	0.3	U	0.3	U	0.0%	**0**	1	Pass
2,4,6-Trinitrotoluene	ug/L	0.5	2.5	0.3	U	0.3	U	0.0%	**0**	1	Pass
2,4-Dinitrotoluene	ug/L	0.5	2.5	0.3	U	0.3	U	0.0%	**0**	1	Pass
2,6-Dinitrotoluene	ug/L	0.5	2.5	0.3	U	0.3	U	0.0%	**0**	1	Pass
2-Amino-4,6-Dinitrotoluene	ug/L	0.5	2.5	0.3	U	0.3	U	0.0%	**0**	1	Pass
2-Nitrotoluene	ug/L	0.5	2.5	0.3	U	0.3	U	0.0%	**0**	1	Pass
3-Nitrotoluene	ug/L	0.5	2.5	0.3	U	0.3	U	0.0%	**0**	1	Pass
4-Amino-2,6-Dinitrotoluene	ug/L	0.5	2.5	0.3	U	0.3	U	0.0%	**0**	1	Pass
4-Nitrotoluene	ug/L	0.5	2.5	0.3	U	0.3	U	0.0%	**0**	1	Pass
HMX	ug/L	0.5	2.5	0.3	U	0.3	U	0.0%	**0**	1	Pass
Nitrobenzene	ug/L	0.5	2.5	0.3	U	0.3	U	0.0%	**0**	1	Pass
Nitroglycerin	ug/L	0.5	2.5	0.3	U	0.3	U	0.0%	**0**	1	Pass
PETN	ug/L	2.5	12.5	1.5	U	1.5	U	0.0%	**0**	5	Pass
RDX	ug/L	0.5	2.5	0.3	U	0.3	U	0.0%	**0**	1	Pass
Tetryl	ug/L	0.5	2.5	0.3	U	0.3	U	0.0%	**0**	1	Pass

Control limit [sample]>5xRL use 35%

[sample]<5xRL use Delta<2xRL

EPA 8330B EXPLOSIVES-WATER

URS Group
849 International Dr, Ste 320
Linthicum, MD 21090

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Andrea Sansom
Project: 15302625.30000 ORA Ph II Camp Dodge
Sample ID: DGGW07WC01
Sample Collection Date: 05/08/12

ARF: 67705
APPL ID: AY60810
QCG: #833BW-120514A-167806

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 8330B	1,3,5-TRINITROBENZENE	0.300 U	0.50	0.300	0.130	ug/L	05/15/12	05/20/12
EPA 8330B	1,3-DINITROBENZENE	0.300 U	0.50	0.300	0.131	ug/L	05/15/12	05/20/12
EPA 8330B	2,4,6-TRINITROTOLUENE	0.300 U	0.50	0.300	0.133	ug/L	05/15/12	05/20/12
EPA 8330B	2,4-DINITROTOLUENE	0.300 U	0.50	0.300	0.125	ug/L	05/15/12	05/20/12
EPA 8330B	2,6-DINITROTOLUENE	0.300 U	0.50	0.300	0.125	ug/L	05/15/12	05/20/12
EPA 8330B	2-AMINO-4,6-DINITROTOLUENE	0.300 U	0.50	0.300	0.125	ug/L	05/15/12	05/20/12
EPA 8330B	2-NITROTOLUENE	0.300 U	0.50	0.300	0.126	ug/L	05/15/12	05/20/12
EPA 8330B	3-NITROTOLUENE	0.300 U	0.50	0.300	0.133	ug/L	05/15/12	05/20/12
EPA 8330B	4-AMINO-2,6-DINITROTOLUENE	0.300 U	0.50	0.300	0.100	ug/L	05/15/12	05/20/12
EPA 8330B	4-NITROTOLUENE	0.300 U	0.50	0.300	0.133	ug/L	05/15/12	05/20/12
EPA 8330B	HMX	0.300 U	0.50	0.300	0.115	ug/L	05/15/12	05/20/12
EPA 8330B	NITROBENZENE	0.300 U	0.50	0.300	0.126	ug/L	05/15/12	05/20/12
EPA 8330B	NITROGLYCERIN	0.300 U	0.50	0.300	0.130	ug/L	05/15/12	05/20/12
EPA 8330B	PETN	1.500 U	2.50	1.500	0.607	ug/L	05/15/12	05/20/12
EPA 8330B	RDX	0.300 U	0.50	0.300	0.123	ug/L	05/15/12	05/20/12
EPA 8330B	TETRYL	0.300 U	0.50	0.300	0.133	ug/L	05/15/12	05/20/12
EPA 8330B	SURROGATE: 1,2-DINITROBENZENE (	82.9	70-130			%	05/15/12	05/20/12

Quant Method: W110907.M
Run #: 0518_0000073
Instrument: Waldorf
Sequence: 120518
Dilution Factor: 1
Initials: RSM

Printed: 06/08/12 12:31:03 PM
APPL-F1-SC-NoMC-REG MDLs

EPA 8330B EXPLOSIVES-WATER

URS Group
849 International Dr, Ste 320
Linthicum, MD 21090

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Andrea Sansom
Project: 15302625.30000 ORA Ph II Camp Dodge
Sample ID: DGGW08WC01
Sample Collection Date: 05/08/12

ARF: 67705
APPL ID: AY60811
QCG: #833BW-120514A-167806

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 8330B	1,3,5-TRINITROBENZENE	0.300 U	0.50	0.300	0.130	ug/L	05/15/12	05/20/12
EPA 8330B	1,3-DINITROBENZENE	0.300 U	0.50	0.300	0.131	ug/L	05/15/12	05/20/12
EPA 8330B	2,4,6-TRINITROTOLUENE	0.300 U	0.50	0.300	0.133	ug/L	05/15/12	05/20/12
EPA 8330B	2,4-DINITROTOLUENE	0.300 U	0.50	0.300	0.125	ug/L	05/15/12	05/20/12
EPA 8330B	2,6-DINITROTOLUENE	0.300 U	0.50	0.300	0.125	ug/L	05/15/12	05/20/12
EPA 8330B	2-AMINO-4,6-DINITROTOLUENE	0.300 U	0.50	0.300	0.125	ug/L	05/15/12	05/20/12
EPA 8330B	2-NITROTOLUENE	0.300 U	0.50	0.300	0.126	ug/L	05/15/12	05/20/12
EPA 8330B	3-NITROTOLUENE	0.300 U	0.50	0.300	0.133	ug/L	05/15/12	05/20/12
EPA 8330B	4-AMINO-2,6-DINITROTOLUENE	0.300 U	0.50	0.300	0.100	ug/L	05/15/12	05/20/12
EPA 8330B	4-NITROTOLUENE	0.300 U	0.50	0.300	0.133	ug/L	05/15/12	05/20/12
EPA 8330B	HMX	0.300 U	0.50	0.300	0.115	ug/L	05/15/12	05/20/12
EPA 8330B	NITROBENZENE	0.300 U	0.50	0.300	0.126	ug/L	05/15/12	05/20/12
EPA 8330B	NITROGLYCERIN	0.300 U	0.50	0.300	0.130	ug/L	05/15/12	05/20/12
EPA 8330B	PETN	1.500 U	2.50	1.500	0.607	ug/L	05/15/12	05/20/12
EPA 8330B	RDX	0.300 U	0.50	0.300	0.123	ug/L	05/15/12	05/20/12
EPA 8330B	TETRYL	0.300 U	0.50	0.300	0.133	ug/L	05/15/12	05/20/12
EPA 8330B	SURROGATE: 1,2-DINITROBENZENE (	78.8	70-130			%	05/15/12	05/20/12

Quant Method: W110907.M
Run #: 0518_0000074
Instrument: Waldorf
Sequence: 120518
Dilution Factor: 1
Initials: RSM

Printed: 06/08/12 12:31:03 PM
APPL-F1-SC-NoMC-REG MDLs

EPA 8330B EXPLOSIVES-WATER

URS Group
849 International Dr, Ste 320
Linthicum, MD 21090

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Andrea Sansom
Project: 15302625.30000 ORA Ph II Camp Dodge
Sample ID: DGGW07WC02
Sample Collection Date: 05/08/12

ARF: 67705
APPL ID: AY60812
QCG: #833BW-120514A-167806

Method	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
EPA 8330B	1,3,5-TRINITROBENZENE	0.300 U	0.50	0.300	0.130	ug/L	05/15/12	05/20/12
EPA 8330B	1,3-DINITROBENZENE	0.300 U	0.50	0.300	0.131	ug/L	05/15/12	05/20/12
EPA 8330B	2,4,6-TRINITROTOLUENE	0.300 U	0.50	0.300	0.133	ug/L	05/15/12	05/20/12
EPA 8330B	2,4-DINITROTOLUENE	0.300 U	0.50	0.300	0.125	ug/L	05/15/12	05/20/12
EPA 8330B	2,6-DINITROTOLUENE	0.300 U	0.50	0.300	0.125	ug/L	05/15/12	05/20/12
EPA 8330B	2-AMINO-4,6-DINITROTOLUENE	0.300 U	0.50	0.300	0.125	ug/L	05/15/12	05/20/12
EPA 8330B	2-NITROTOLUENE	0.300 U	0.50	0.300	0.126	ug/L	05/15/12	05/20/12
EPA 8330B	3-NITROTOLUENE	0.300 U	0.50	0.300	0.133	ug/L	05/15/12	05/20/12
EPA 8330B	4-AMINO-2,6-DINITROTOLUENE	0.300 U	0.50	0.300	0.100	ug/L	05/15/12	05/20/12
EPA 8330B	4-NITROTOLUENE	0.300 U	0.50	0.300	0.133	ug/L	05/15/12	05/20/12
EPA 8330B	HMX	0.300 U	0.50	0.300	0.115	ug/L	05/15/12	05/20/12
EPA 8330B	NITROBENZENE	0.300 U	0.50	0.300	0.126	ug/L	05/15/12	05/20/12
EPA 8330B	NITROGLYCERIN	0.300 U	0.50	0.300	0.130	ug/L	05/15/12	05/20/12
EPA 8330B	PETN	1.500 U	2.50	1.500	0.607	ug/L	05/15/12	05/20/12
EPA 8330B	RDX	0.300 U	0.50	0.300	0.123	ug/L	05/15/12	05/20/12
EPA 8330B	TETRYL	0.300 U	0.50	0.300	0.133	ug/L	05/15/12	05/20/12
EPA 8330B	SURROGATE: 1,2-DINITROBENZENE (	84.3	70-130			%	05/15/12	05/20/12

Quant Method: W110907.M
Run #: 0518_0000075
Instrument: Waldorf
Sequence: 120518
Dilution Factor: 1
Initials: RSM

Printed: 06/08/12 12:31:03 PM
APPL-F1-SC-NoMC-REG MDLs

DATA VALIDATION WORKSHEET

Explosives

Reviewer: Angela Yannone
Date: 8/14/2012
DV Level: II III IV
Review Document:
_X__ USEPA CLP National Functional Guidelines for Superfund Inorganic Methods Data Review
_X__ SW-846/DoD QSM v4.2
_X__ Project QAPP/SAP

Project Name: Camp Dodge
Project Number: 15302625.30000
Laboratory: APPL
SDG No.: ARF 67705
Test Name: Explosives
Method No.: 8330B

1.0 Laboratory Deliverables		Yes	No	NA
1.1	Do Chain-of-Custody forms list all samples that were analyzed?	X		
1.2	Are all Chain-of-Custody forms signed, indicating sample chain-of-custody was maintained?	X		
1.3	Do sample preservation, collection and storage condition meet method requirement?	X		
	If samples were received with the cooler temperature exceeding 10°C, then flag J(+)/UJ(-).			
1.4	Were the sediment samples dryed and sieved appropiately?			X
1.5	Do the traffic Reports, chain-of-custody, and lab narrative indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data?		X	

Notes:

2.0 Holding Times		Yes	No	NA
2.1	Have any technical holding times, determined from date of sampling to date of analysis, been exceeded? If yes, J(+)/UJ(-). Extraction: (aqueous) 7 days and (soil) 14 days; and Analysis: 40 days.		X	
2.2	Have any technical holding time grossly (twice the holding time) been exceeded? If yes, J(+)/UJ(-) OR R(-) .		X	

Notes:

3.0 Blanks (Laboratory and Field)		Yes	No	NA
3.1	Were method blanks (MB) prepared at the appropriate frequency (one per 20 samples, per batch per matrix?)	X		
3.2	Do any method blanks have positive results? Action: If yes:		X	
	Blank Result: ≤LOD >LOD			
	Sample Result: ≥[LOD] <[LOD] <LOD ≥LOD, <[Blank] ≥[LOD], ≥[Blank]			
	Qualification: [LOD]"U" Judgement [LOD]"U" [Blank]U OR R Judgement			
3.3	Do any field equipment blanks/trip blanks have positive results? If yes, use same rules above.		X	

Notes:

4.0 Initial and Continuing Calibration		Yes	No	NA
4.1	Are the Quartlery LOD establishment forms provided? Is the signal/noise ratio of the LODV greater than 3:1?	X		
4.2	If not, is the determination repeated at a higher concentration?			X
4.3	Are at least five standards included in the calibration curve? If no, flag "R".	X		
4.4	Was a second source calibration verification analyzed for each calibration curve? If no, flag "R".	X		
4.5	Were continuing calibration standards analyzed every 12 hours or ten samples and at the end of the sequence? If no, flag "R".	X		
4.6	Are all calibration standard %RSD (<15%ICAL, r>0.995), second source (±20%) or %D(≤20%) within the control limits?	X		
For initial calibration: %RSD > 15% J(+) If RRF<0.05 J(+)/R(-)				
For second source: %D>20%, J(+)/R(-).				
For continuing calibration: Positive Bias - %D >+ 20%, J(+), only. Negative Bias - %D>-20%, but<50% J(+)/UJ(-)				

Notes:

5.0 Laboratory Control Sample (LCS)		Yes	No	NA
5.1	Is the LCS/LCSD recovery form present?	X		
5.2	Were LCS/LCSDs analyzed at the required frequency (one per 20 samples per batch) for each matrix?	X		
5.3	Are there any %Rs for LCS/LCSD recoveries outside the QC limits of 80-120%?		X	
	Action: If Yes, for %R > UCL, J(+) only; for %R < LCL,J(+)/R(-);			
5.4	Are there any RPD >20%?			X
	Action: If Yes, J(+) only.			

Notes:

6.0 Surrogate Recovery		Yes	No	NA
6.1	Are surrogate recoveries within acceptance criteria for all samples and method blanks?	X		
6.2	If No in Section 6.1, are these sample(s) or method blank(s) reanalyzed?			X
	Action: If any surrogate in the fraction is out of specification, there should be a reanalysis to confirm that the non-compliance is because of sample matrix effects rather than laboratory deficiencies.			
6.3	If No in Section 6.2, is any sample dilution factor greater than 10? (recoveries may be diluted out.)			X
	Action: for a %R > UCL, J(+) only; for a %R < LCL, but > 10%, J(+)/UJ(-); for any %R < 10%, J(+)/R(-).			

Notes:

7.0 Matrix Spike/Matrix Spike Duplicate (MS/MSD)		Yes	No	NA
7.1	Is the matrix spike/matrix spike duplicate recovery form present?	X		
7.2	Were matrix spikes analyzed at required frequency (one per 20 samples per batch) for each matrix?	X		
7.3	Are there any %R for matrix spike and matrix spike duplicate recoveries outside the QC limits?		X	
7.4	Are there any RPDs for matrix spike and matrix spike duplicate recoveries outside the QC limits? Action: %R or % RPD> UCL J(+); %R< LCL: J(+)/UJ(-) [or possible R(-) for <20%] to parent sample results for the specific outlier analyte(s) or class of analytes using professional judgement.		X	

Notes:

8.0 Field Duplicate		Yes	No	NA
8.1	Evaluate field duplicate results? For sample results > 5 x RL, a control limit of ≤35% RPD will be used. For sample results < 5 x RL, a control limit of 2 x RL will be used.	X		

Notes:

9.0 Compound Identification and Detection Limit Verification		Yes	No	NA
9.1	Are any target compounds detected in the field samples? If Yes,are all positive identifications confirmed in second column? Apply J flag if RPD >40% between first and second columns.		X	
9.2	Do detection limits meet those required by the project QAPP and were they properly adjusted for dilution factors and moisture (including adjustment of wet weight aliquot)?	X		

Notes:

10.0 Data Completeness		Yes	No	NA
10.1	Is % completeness within the control limits? (Control limit $95\%_{aq}$ and $90\%_{so}$)	X		
10.1.1	Number of samples: 3			
10.1.2	Number of target compounds in each analysis: 16			
10.1.3	Number of results rejected or not reported: 0			
	% Completeness = (10.1.1 x 10.1.2 - 10.1.3) x 100/(10.1.1 x 10.1.2)			
	% Completeness = 100			

Injection Log

Directory: Y:\CHEM32\WALDORF\DATA\120511\120516

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1	0	0516_0000017.D		8830B_CB 0.005 PPM 05/16/12		05/16/2012 19:22
2	0	0516_0000018.D		8830B_CB 0.01 PPM 05/16/12		05/16/2012 20:00
3	0	0516_0000019.D		8830B_CB 0.02 PPM 05/16/12		05/16/2012 20:37
4	0	0516_0000020.D		8830B_CB 0.05 PPM 05/16/12		05/16/2012 21:15
5	0	0516_0000021.D		8830B_CB 0.1 PPM 05/16/12		05/16/2012 21:52
6	0	0516_0000022.D		8830B_CB 0.2 PPM 05/16/12		05/16/2012 22:30
7	0	0516_0000023.D		8830B_CB 0.5 PPM 05/16/12		05/16/2012 23:07
8	0	0516_0000024.D		8830B_CB 1.0 PPM 05/16/12		05/16/2012 23:45
9	0	0516_0000025.D		8830B_MX-A 2.0 PPM 05/16/12		05/17/2012 00:22
10	0	0516_0000026.D		8830B_MX-B 2.0 PPM 05/16/12		05/17/2012 00:59
11	0	0516_0000027.D		8830B_SS 1.0 PPM 05/16/12		05/17/2012 01:37
12	0	0518_0000050.D		8330_CCV 1.0 PPM 05/18/12		05/19/2012 18:45
13	0	0518_0000057.D	0.016	120514WLCS1A 0.016 DF 05/14/12	water	05/19/2012 22:48
14	0	0518_0000058.D	0.016	AY60810W06_MS-1 0.016 DF 05/14/12	water	05/19/2012 23:15
15	0	0518_0000059.D	0.016	AY60810W06_MSD-1 0.016 DF 05/14/12	water	05/19/2012 23:53
16	0	0518_0000063.D		8330_CCV 1.0 PPM 05/18/12		05/20/2012 02:23
17	0	0518_0000068.D		8330_CCV 1.0 PPM 05/18/12		05/20/2012 16:02
18	0	0518_0000070.D	0.016	120514WBLK1A 0.016 DF 05/14/12	water	05/20/2012 17:08
19	0	0518_0000073.D	0.016	AY60810W05 0.016 DF 05/14/12	water	05/20/2012 19:00
20	0	0518_0000074.D	0.016	AY60811W01 0.016 DF 05/14/12	water	05/20/2012 19:37
21	0	0518_0000075.D	0.016	AY60812W02 0.016 DF 05/14/12	water	05/20/2012 20:15
22	0	0518_0000080.D		8330_CCV 1.0 PPM 05/18/12		05/20/2012 23:22

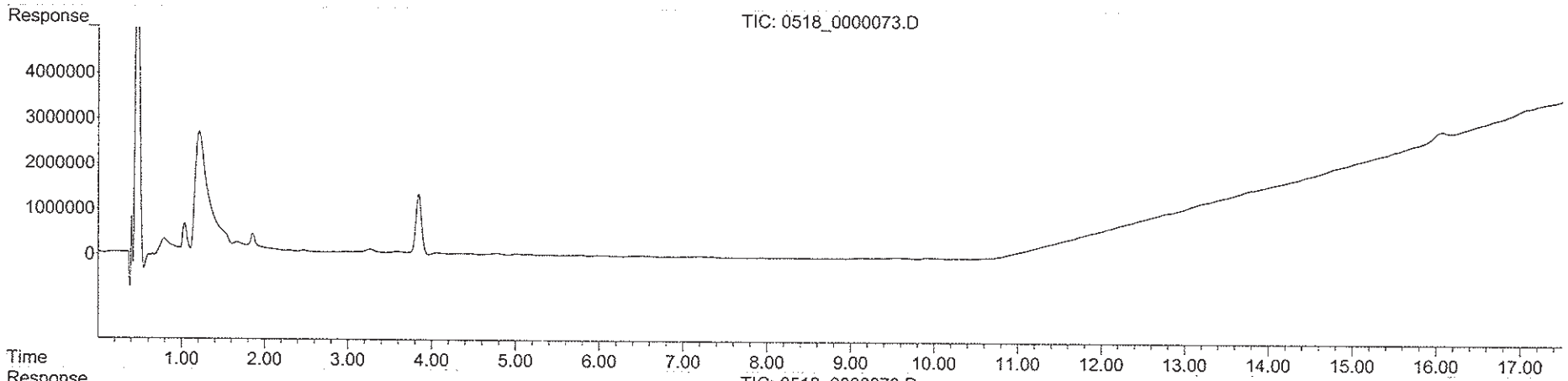
Quantitation Report (QT Reviewed)

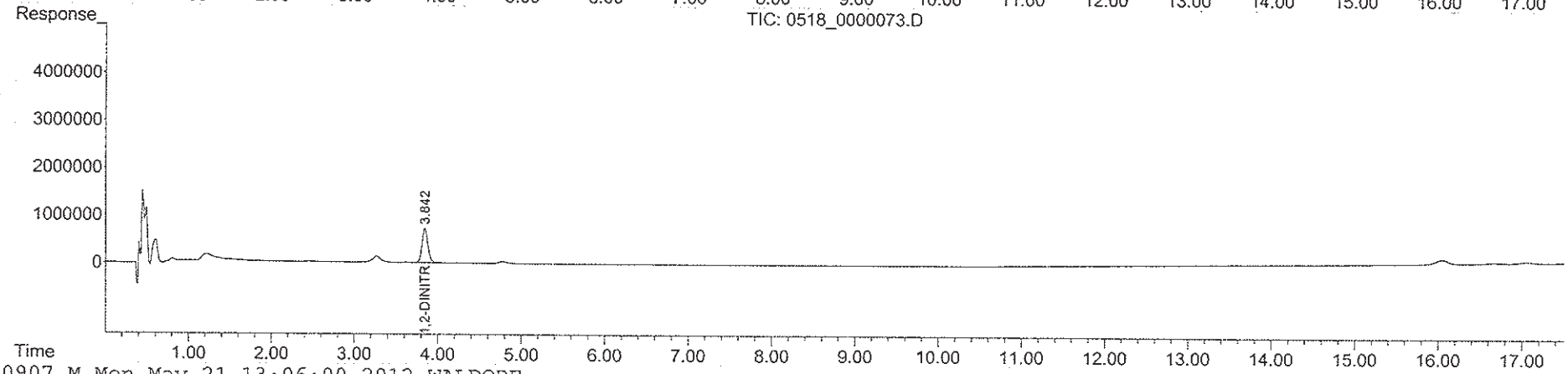
Data Path : Y:\CHEM32\WALDORF\DATA\120516\120518\
Data File : 0518_0000073.D
Signal(s) : Signal #1: DAD1B.ch Signal #2: DAD1A.ch
Acq On : 20-May-2012, 19:00:27
Operator : hm
Sample : AY60810W05 0.016 DF 05/14/12
Misc : water
ALS Vial : 8449 Sample Multiplier: 0.016

Integration File signal 1: Waldorf_Signal_1_110721.e
Integration File signal 2: Waldorf_Signal_2_110803.e
Quant Time: May 21 13:05:52 2012
Quant Method : Y:\CHEM32\WALDORF\DATA\120516\120518\W110907.M
Quant Title : 8330B - Soil - Waldorf
QLast Update : Thu May 17 07:45:58 2012
Response via : Initial Calibration
Integrator: ChemStation

DGGW07WK01

Volume Inj. : 40uL
Signal #1 Phase : 214nm Signal #2 Phase: 254nm
Signal #1 Info : ZORBAX Extend-C18 Signal #2 Info : ZORBAX Extend-C18 100x3.0mm 1.8-micron





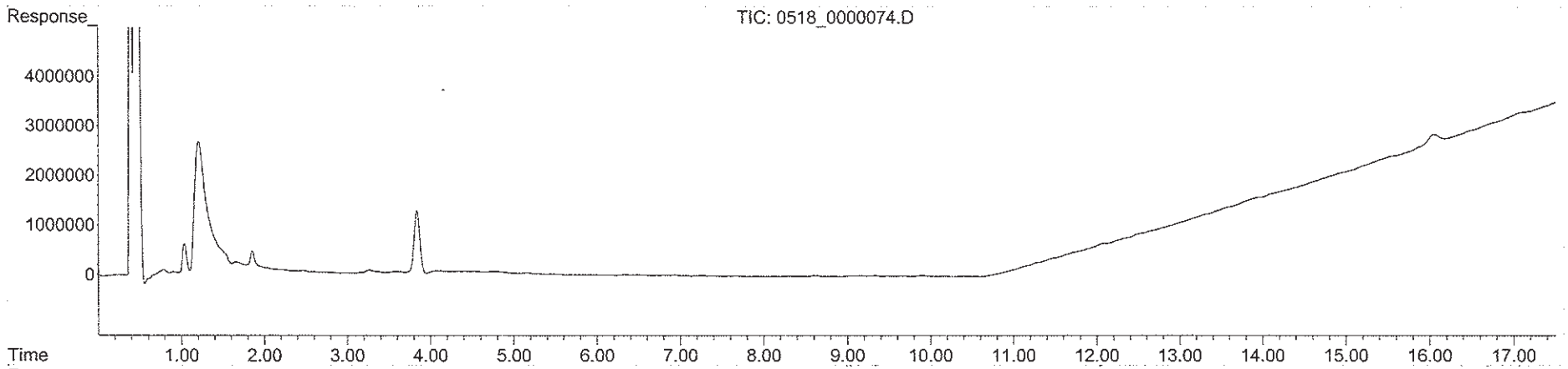
Quantitation Report (QT Reviewed)

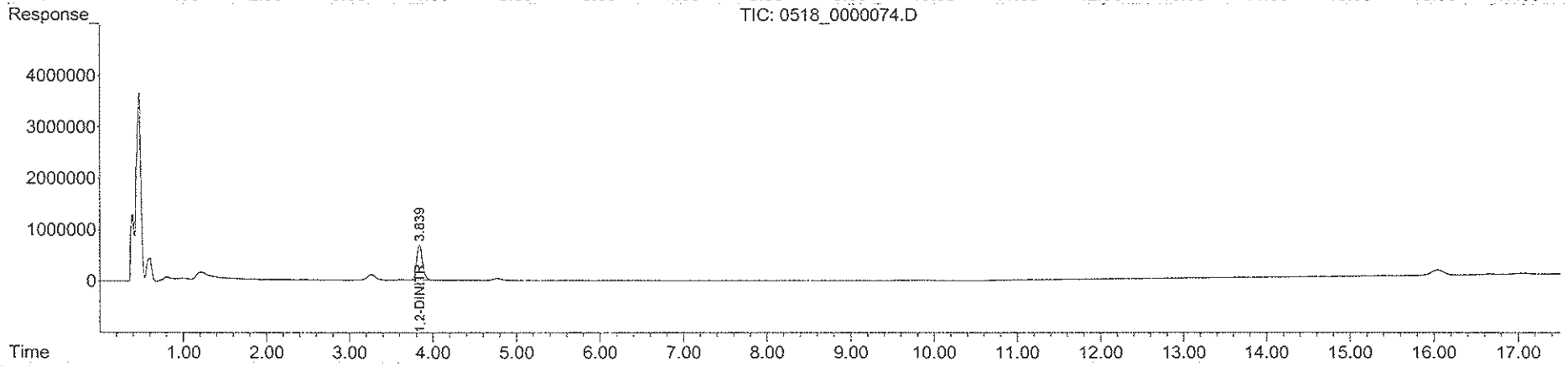
Data Path : Y:\CHEM32\WALDORF\DATA\120516\120518\
Data File : 0518_0000074.D
Signal(s) : Signal #1: DAD1B.ch Signal #2: DAD1A.ch
Acq On : 20-May-2012, 19:37:56
Operator : hm
Sample : AY60811W01 0.016 DF 05/14/12
Misc : water
ALS Vial : 8450 Sample Multiplier: 0.016

Integration File signal 1: Waldorf_Signal_1_110721.e
Integration File signal 2: Waldorf_Signal_2_110803.e
Quant Time: May 21 13:06:14 2012
Quant Method : Y:\CHEM32\WALDORF\DATA\120516\120518\W110907.M
Quant Title : 8330B - Soil - Waldorf
QLast Update : Thu May 17 07:45:58 2012
Response via : Initial Calibration
Integrator: ChemStation

DGGW08WC01

Volume Inj. : 40uL
Signal #1 Phase : 214nm Signal #2 Phase: 254nm
Signal #1 Info : ZORBAX Extend-C18 Signal #2 Info : ZORBAX Extend-C18 100x3.0mm 1.8-micron





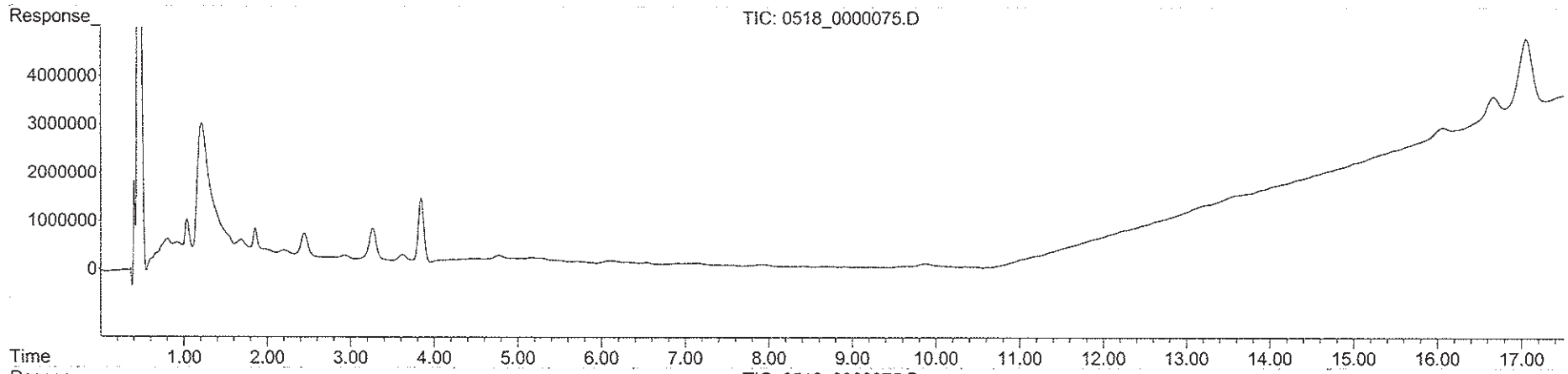
Quantitation Report (QT Reviewed)

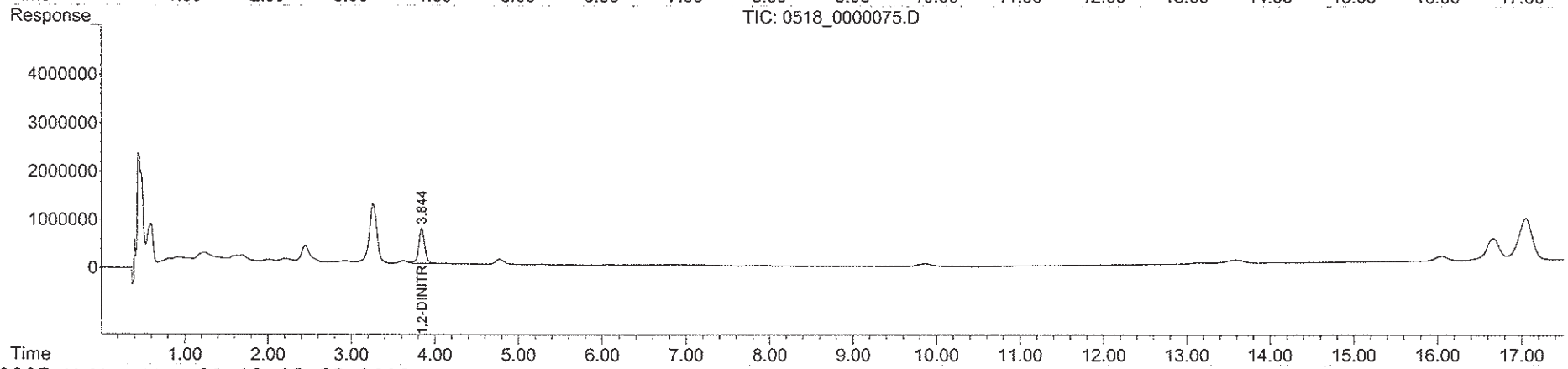
Data Path : Y:\CHEM32\WALDORF\DATA\120516\120518\
Data File : 0518_0000075.D
Signal(s) : Signal #1: DAD1B.ch Signal #2: DAD1A.ch
Acq On : 20-May-2012, 20:15:24
Operator : hm
Sample : AY60812W02 0.016 DF 05/14/12
Misc : water
ALS Vial : 8451 Sample Multiplier: 0.016

Integration File signal 1: Waldorf_Signal_1_110721.e
Integration File signal 2: Waldorf_Signal_2_110803.e
Quant Time: May 21 13:07:48 2012
Quant Method : Y:\CHEM32\WALDORF\DATA\120516\120518\W110907.M
Quant Title : 8330B - Soil - Waldorf
QLast Update : Thu May 17 07:45:58 2012
Response via : Initial Calibration
Integrator: ChemStation

DGGW07WC02

Volume Inj. : 40uL
Signal #1 Phase : 214nm Signal #2 Phase: 254nm
Signal #1 Info : ZORBAX Extend-C18 Signal #2 Info : ZORBAX Extend-C18 100x3.0mm 1.8-micron





30

Method Blank

EPA 8330B EXPLOSIVES-WATER

APPL Inc.
908 North Temperance Avenu
Clovis, CA 93611

Blank Name/QCG: **120514W-60810 - 167806**
Batch ID: #833BW-120514A

Sample Type	Analyte	Result	LOQ	LOD	DL	Units	Extraction Date	Analysis Date
BLANK	1,3,5-TRINITROBENZENE	0.300 U	0.50	0.300	0.130	ug/L	05/14/12	05/20/12
BLANK	1,3-DINITROBENZENE	0.300 U	0.50	0.300	0.131	ug/L	05/14/12	05/20/12
BLANK	2,4,6-TRINITROTOLUENE	0.300 U	0.50	0.300	0.133	ug/L	05/14/12	05/20/12
BLANK	2,4-DINITROTOLUENE	0.300 U	0.50	0.300	0.125	ug/L	05/14/12	05/20/12
BLANK	2,6-DINITROTOLUENE	0.300 U	0.50	0.300	0.125	ug/L	05/14/12	05/20/12
BLANK	2-AMINO-4,6-DINITROTOLUENE	0.300 U	0.50	0.300	0.125	ug/L	05/14/12	05/20/12
BLANK	2-NITROTOLUENE	0.300 U	0.50	0.300	0.126	ug/L	05/14/12	05/20/12
BLANK	3-NITROTOLUENE	0.300 U	0.50	0.300	0.133	ug/L	05/14/12	05/20/12
BLANK	4-AMINO-2,6-DINITROTOLUENE	0.300 U	0.50	0.300	0.100	ug/L	05/14/12	05/20/12
BLANK	4-NITROTOLUENE	0.300 U	0.50	0.300	0.133	ug/L	05/14/12	05/20/12
BLANK	HMX	0.300 U	0.50	0.300	0.115	ug/L	05/14/12	05/20/12
BLANK	NITROBENZENE	0.300 U	0.50	0.300	0.126	ug/L	05/14/12	05/20/12
BLANK	NITROGLYCERIN	0.300 U	0.50	0.300	0.130	ug/L	05/14/12	05/20/12
BLANK	PETN	1.500 U	2.50	1.500	0.607	ug/L	05/14/12	05/20/12
BLANK	RDX	0.300 U	0.50	0.300	0.123	ug/L	05/14/12	05/20/12
BLANK	TETRYL	0.300 U	0.50	0.300	0.133	ug/L	05/14/12	05/20/12
BLANK	SURROGATE: 1,2-DINITROBENZ	82.5	70-130			%	05/14/12	05/20/12

Quant Method:W110907.M
Run #:0518_000007
Instrument:Waldorf
Sequence:120518
Initials:RSM

GC SC-Blank-REG MDLs
Printed: 06/08/12 12:31:11 PM

Matrix Spike Recoveries

EPA 8330B EXPLOSIVES-WATER

APPL ID: **120515W-60810 MS - 167806**
Batch ID: #833BW-120514A
Sample ID: AY60810
Client ID: DGGW07WC01

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Compound Name	Spike Lvl ug/L	Matrix Result ug/L	SPK Result ug/L	DUP Result ug/L	SPK % Recovery	DUP % Recovery	Recovery Limits	RPD %	RPD Limits
1,3,5-TRINITROBENZENE	8.00	ND	6.67	6.86	83.4	85.8	65-140	2.8	20
1,3-DINITROBENZENE	8.00	ND	7.26	7.44	90.8	93.0	45-160	2.4	20
2,4,6-TRINITROTOLUENE	8.00	ND	6.74	6.96	84.3	87.0	50-145	3.2	20
2,4-DINITROTOLUENE	8.00	ND	7.44	7.67	93.0	95.9	60-135	3.0	20
2,6-DINITROTOLUENE	8.00	ND	7.34	7.58	91.8	94.8	60-135	3.2	20
2-AMINO-4,6-DINITROTOLUENE	8.00	ND	6.90	7.22	86.3	90.3	50-155	4.5	20
2-NITROTOLUENE	8.00	ND	7.16	7.45	89.5	93.1	45-135	4.0	20
3-NITROTOLUENE	8.00	ND	7.21	7.50	90.1	93.8	50-130	3.9	20
4-AMINO-2,6-DINITROTOLUENE	8.00	ND	6.72	7.05	84.0	88.1	55-155	4.8	20
4-NITROTOLUENE	8.00	ND	7.32	7.57	91.5	94.6	50-130	3.4	20
HMX	8.00	ND	7.38	7.54	92.3	94.3	80-115	2.1	20
NITROBENZENE	8.00	ND	7.09	7.31	88.6	91.4	50-140	3.1	20
NITROGLYCERIN	8.00	ND	7.59	7.82	94.9	97.8	70-130	3.0	20
PETN	8.00	ND	8.43	8.50	105	106	65-115	0.83	20
RDX	8.00	ND	6.89	7.03	86.1	87.9	50-160	2.0	20
TETRYL	8.00	ND	2.58	2.91	32.3	36.4	20-175	12.0	20
SURROGATE: 1,2-DINITROBENZENE (S)	8.00	NA	7.46	7.70	93.3	96.3	70-130		

Comments:

Primary	SPK	DUP
Quant Method :	W110907.M	W110907.M
Extraction Date :	05/15/12	05/15/12
Analysis Date :	05/19/12	05/19/12
Instrument :	Waldorf	Waldorf
Run :	0518_0000058	0518_0000059
Initials :	RSM	

Printed: 06/08/12 12:31:22 PM
APPL MSD SCII

908 North Temperance Ave. ∇ Clovis, CA 93611 ∇ Phone 559-275-2175 ∇ Fax 559-275-4422

Certification Number: CA1312
NELAP Certification number: 05233CA
DoD-ELAP Certificate number: ADE-1410

Summary Report

June 11, 2012

URS Group
430 National Business Parkway, Suite 400
Annapolis Junction, MD 20701

Attn: Andrea Sansom

Title: Report of Data: Case 67705

Project: 15302625.30000 ORAP Camp Dodge, IA

Contract #: Prime contract # for DoD: W912DR-09-D-0003 TO 008
Subcontract: 260784

Dear Ms. Sansom:

Three water samples were received May 09, 2012, in good condition. Written results for the requested analysis are provided on this June 11, 2012.

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.

If you have any questions or require further information, please contact your APPL Project Manager Diane Anderson at your convenience. Thank you for choosing APPL, Inc.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. These test results meet all requirements of NELAC and DoD QSM. Release of the hard copy has been authorized by the Laboratory Manager or her designee, as verified by the following signature.

Sharon Dehmlow, Laboratory Director
APPL, Inc.

SD/sdm
Enclosure
cc: File

Number of pages in this report: 15

67705 new Sansom Linthicum.doc

Sample Receipt Information

ARF: 67705

Project: 15302625.30000 ORAP Camp Dodge, IA

Sample Receipt Information:

Three water samples were received on May 09, 2012, at 3.5°C. The samples were assigned Analytical Request Form (ARF) number 67705. The sample number and requested analysis were compared to the chain of custody. No exception was encountered.

Sample Table

CLIENT ID	APPL ID	Matrix	Date Sampled	Date Received
DGGW07WC01	AY60810	WATER	05/08/12	05/09/12
DGGW08WC01	AY60811	WATER	05/08/12	05/09/12
DGGW07WC02	AY60812	WATER	05/08/12	05/09/12

Samples and blanks were screened for J-value responses between the detection limit (DL) and limit of quantitation (LOQ).

APPL's Laboratory control limits generated in house statistically do not meet the control limits listed in DoD QSM 4.2 for all analytes. Laboratory control spike recoveries for this project meet all control limits listed in the DoD QSM 4.2 except where noted. A copy of our in house generated control limits is available upon request. In addition, a copy of our LOQ control limits, established using 7 data points, are also available upon request.

Only the portion of the injection log relative to these samples is included. A full sequence log is available upon request.

Measurement uncertainty can be reported upon request.

EPA Method 8330B

Energetics

Sample Preparation:

The samples were extracted according to EPA method 3535A. All holding times were met.

Analysis:

The samples were analyzed according to EPA Method 8330B using an Agilent 1290 HPLC with DA detector. Manual integrations were performed in accordance to APPL's SOP. The following analytes were manually integrated: For Waldorf: PETN in data file 0516_0000024, 0516_0000026 and 0518_0000068. Chromatograms of before and after manual integration are enclosed.

Quality Control/Assurance:

Spike Recovery

A Laboratory Control Spike (LCS) was used for quality assurance. All acceptance criteria were met.

Sample DGGW07WC01 was selected by the client for MS/MSD analysis. All MS/MSD acceptance criteria were met.

Method blanks:

The method blanks contained no target analyte at or above one-half the limit of quantitation (LOQ).

Surrogates:

Surrogate recoveries are summarized on the Form 2 & 8. All surrogates had acceptable recoveries.

Calibration:

All calibration criteria were met.

Summary:

No other analytical problem was encountered.

Abbreviations and Flags

FLAG	DESCRIPTION
#	Recovery or RPD outside control limits
*	Recovery or RPD outside control limits
B	Analyte detected in associated method blank
C1	Reason for correction: wrote incorrect response
C2	Reason for correction: calculated incorrectly
C3	Reason for correction: needs to be rechecked
C4	Reason for correction: data not usable
DO	Diluted out
E	Exceeds linear range
F	Estimated value
G1	Includes a wide range of hydrocarbons which does not match our gasoline standard
G10	Includes a match to hydrocarbon profiles within the range of mineral spirits
G11	Includes a match to hydrocarbon profiles within the range of JP-4
G12	Pattern does not match the gasoline standard; the carbon range for this sample is consistent with JP8
G13	Closely resembles the hydrocarbon profile of aviation gasoline
G14	Analyte concentration may be biased due to carry over
G2	Closely resembles the boiling point hydrocarbon profile consistent with weathered gasoline
G3	Includes higher boiling hydrocarbons
G4	Includes dominant peak(s) not indicative of petroleum hydrocarbons
G5	Is mainly dominant peak(s) not indicative of petroleum hydrocarbons
G6	Contains recognizable contaminant peak(s) which has been removed from quantitation
G7	Is mainly a match to hydrocarbons within the range of gasoline
G8	Closely resembles the boiling point hydrocarbon profile consistent with weathered gasoline
G9	Includes hydrocarbons within the range of kerosene
J	Estimated value
M	Matrix effect
MI1	Manual integration: integration does not follow baseline
MI2	Manual integration: non-target peak interference
MI3	Manual integration: to split a peak that was integrated as one peak by the computer
MI4	Manual integration: to integrate a split peak
MI5	Manual integration: the whole peak or part of the peak was not integrated
MI6	Manual integration: computer integrated wrong peak
MI7	Manual integration: other - explain
MDL	Method detection limit
ND	Not detected
NT	Non-target
Q	Acceptance criteria not met
T1 I	Includes wide range of hydrocarbons not indicative of diesel
T1 M	Is mainly wide range of hydrocarbons not necessarily indicative of diesel
T2 I	Includes lower boiling hydrocarbons, i.e. mineral spirits, kerosene, stoddard solvent, white gas
T2 M	Is mainly lower boiling hydrocarbons, i.e. mineral spirits, kerosene, stoddard solvent, white gas
T3 I	Includes higher boiling hydrocarbons, i.e. asphaltene, waster oil, motor oil, or weathered diesel fuel
T3 M	Is mainly higher boiling hydrocarbons, i.e. asphaltene, waster oil, motor oil, or weathered diesel fuel
T4 I	Includes dominant peak(s) not indicative of hydrocarbons
T4 M	Is mainly dominant peak(s) not indicative of hydrocarbons
T5	Contains recognizable contaminant peak(s) which has been removed from quantitation
T6	Is mainly a match to hydrocarbons within range of diesel fuel
T7	Closely resembles the boiling point hydrocarbon profile consistent with diesel fuel
T8	Includes a match to hydrocarbon profiles within range of diesel and kerosene fuel
T9 I	Includes non-diesel hydrocarbons within boiling point range of diesel fuel
T9 M	Is mainly non-diesel hydrocarbons within boiling point range of diesel fuel.
Y	Percent difference between primary and confirmation column > 40%

COOLER RECEIPT FORM

1) Project: 15302625.30000 CAMP DODGE ORA Date Received: 5/9/12

2) Coolers: Number of Coolers: 1

3) YES NO Were coolers and samples screened for radioactivity?

4) YES NO Were custody seals on outside of cooler? How many? 2 Date on seal? 5/8/12

5) Name on seal? See label

6) YES NO NA Were custody seals unbroken and intact at the time of arrival?

7) YES NO Did the cooler come with a shipping slip (air bill, etc.)? Carrier name: Fed Ex

8) Shipping slip numbers: 1) 8006 7438 3391 2) 3)

9) YES NO NA Was the shipping slip scanned into the database?

10) YES NO NA If cooler belongs to APPL, has it been logged into the ice chest database?

11) Describe type of packing in cooler (bubble wrap, popcorn, type of ice, etc.): bubble bag in wet ice

12) YES NO NA For hand delivered samples was sufficient ice present to start the cooling process?

13) YES NO Was a temperature blank included in the cooler?

14) Serial number of certified NIST thermometer used: A 39267 Correction factor: 0

15) Cooler temp(s): 1) 3.5°C 2) 3) 4) 5) 6) 7) 8)

Chain of custody:

16) YES NO Was a chain of custody received?

17) YES NO Were the custody papers signed in the appropriate places?

18) YES NO Was the project identifiable from custody papers?

19) YES NO Did the chain of custody include date and time of sampling?

20) YES NO Is location where sample was taken listed on the chain of custody?

Sample Labels:

21) YES NO Were container labels in good condition?

22) YES NO Was the client ID on the label?

23) YES NO Was the date of sampling on the label?

24) YES NO Was the time of sampling on the label?

25) YES NO Did all container labels agree with custody papers?

Sample Containers:

26) YES NO Were all containers sealed in separate bags?

27) YES NO Did all containers arrive unbroken?

28) YES NO Was there any leakage from samples?

29) YES NO Were any of the lids cracked or broken?

30) YES NO Were correct containers used for the tests indicated?

31) YES NO Was a sufficient amount of sample sent for tests indicated?

32) YES NO NA Were bubbles present in volatile samples? If yes, the following were received with air bubbles:

Larger than a pea:

Smaller than a pea:

Preservation & Hold time:

33) YES NO NA Was a sufficient amount of holding time remaining to analyze the samples?

34) YES NO NA Do the sample containers contain the same preservative as what is stated on the COC?

35) YES NO NA Was the pH taken of all non-VOA preserved samples and written on the sample container?

36) YES NO NA Was the pH of acid preserved non-VOA samples < 2 & sodium hydroxide preserved samples > 12?

37) YES NO NA Unpreserved VOA Vials received?

38) YES NO NA Are unpreserved VOA vials noted in the ADD TEST FIELD on the ARF?

CUSTODY SEAL
APPL, Inc.
(559) 275-2175
Initials:
Date 5/8/12

Lab notified if pH was not adequate:

Deficiencies:

Signature of personnel receiving samples: Second reviewer:

Signature of project manager notified: Date and Time of notification:

Name of client notified: Date and Time of notification:

Information given to client:

by whom (Initials):

URS Corporation

12120 Shamrock Plaza Suite 300, Omaha, NE 68154 (402) 334-8181 Fax (402) 334-1984

CHAIN OF CUSTODY RECORD

67705

Project Name: Camp Dodge CRA

Project No.: 15302625.30000

Project Location: Johnston, IA

Project Manager: J. Herrington

Sampler(s): J. Herrington, J. Allen, A. Sheridan, R. Herold

Sample Date	Sample Time	Type Comp.	Type Grab	Sample Identification	Matrix	Containers No.	Containers Type	Analytical Parameters: Explosives (8330B)	Remarks
5/8/12	1341		X	DGTGW07WC01 MS/MSD	Aq	6	1-Liter Amber	X	4°C
↓	1713		↓	DGTGW08WC01	↓	2	↓	X	↓
↓	0800		↓	DGTGW07WC02	↓	2	↓	X	↓

Signatures	Date	Time	Shipping Details	Special Instructions
Relinquished by:	5/8/12	1600	Method of Shipment: Fed Ex Air	
Received by:			Airbill No.: 8006 7438 3391	
Relinquished by:			Lab Address: APPL, 908 N Temperance Ave, Clovis, CA 93611	
Received for Laboratory by:	5/9/12	1045		

Custody.frm/jdg 3-09-92

Data Qualifying Codes

Two types of data qualifying codes or flags are applied in the course of the data review. The data validation flags indicate data that are not usable for decision-making, more than normally biased and/or variable, or not representative of field conditions. These codes and their definitions are presented below in the hierarchy stipulated in the USEPA Contract Laboratory Program National Functional Guidelines for Organic (June, 2008) and Inorganic (January, 2010) Data Review

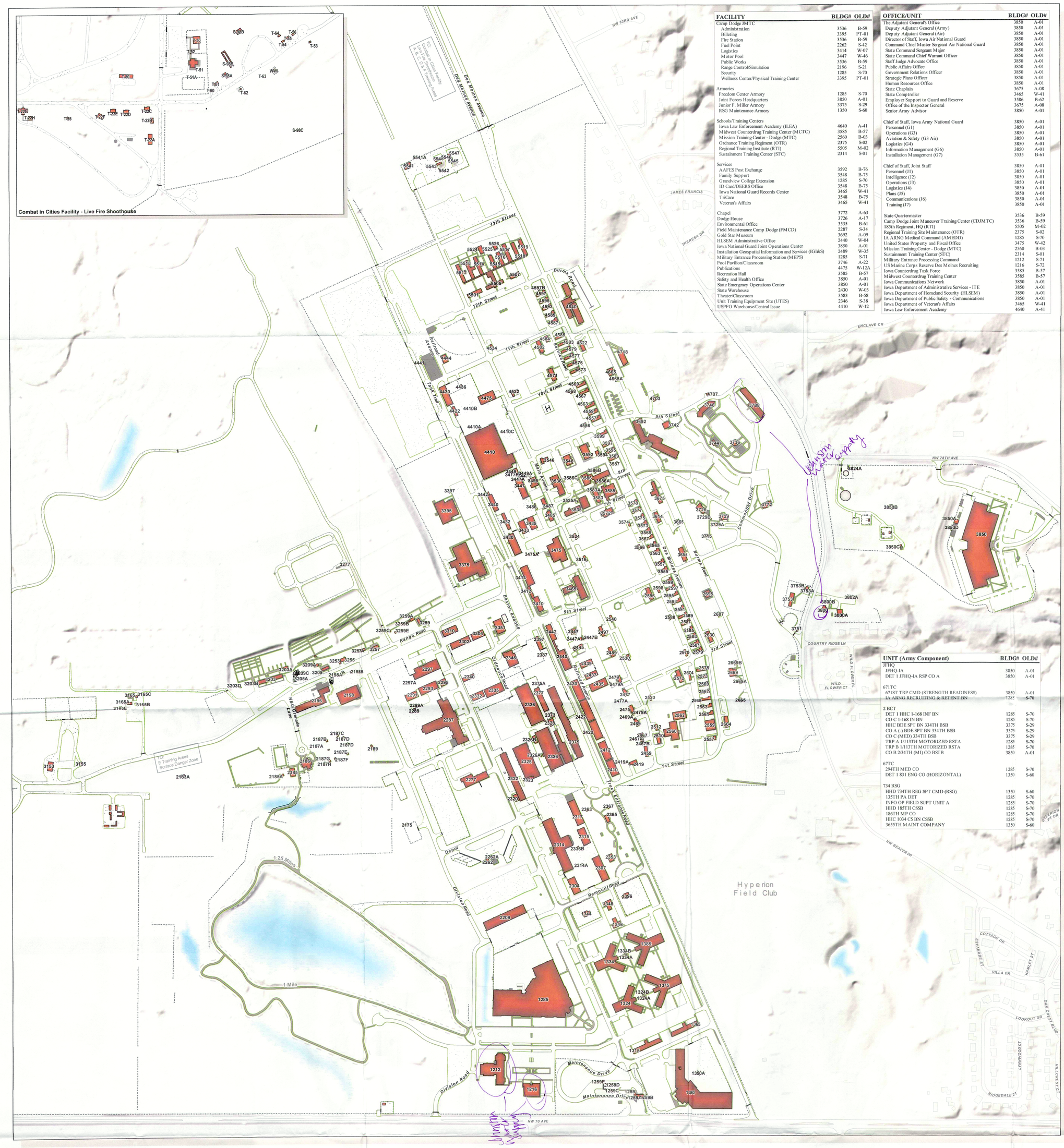
Data Validation Flags

Flag	Interpretation
R	The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.
U	The analyte was analyzed for, but not detected at a level greater than or equal to the level of the adjusted Detection Limit (DL) for sample and method.
J+	Inorganic analyte present. Reported value may not be accurate or precise, but the result may be biased high.
J-	Inorganic analyte present. Reported value may not be accurate or precise, but the result may be biased low.
J	The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the Limit of Detection (LOD).
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
UJ	The analyte was not detected at a level greater than or equal to the adjusted DL. However, the reported adjusted DL is approximate and may be inaccurate or imprecise.
C	This qualifier applies to pesticide and Aroclor results when the identification has been confirmed by gas Chromatograph/Mass Spectrometer (GC/MS)
X	This qualifier applies to pesticide and Aroclor results when GC/MS analysis was attempted but was unsuccessful.

The other type of code used by URS is a "Reason Code". The reason code indicates the type of quality control failure that led to the application of the data validation flag.

Reason Codes

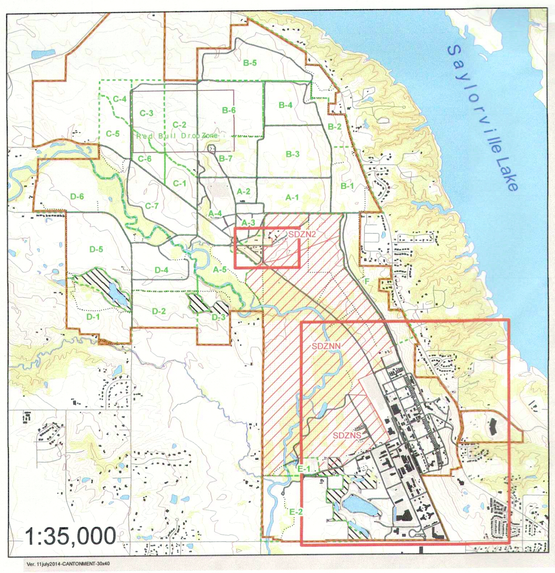
GC/MS Organics		GC and HPLC Organics		Inorganics and Conventionals	
Code	Interpretation	Code	Interpretation	Code	Interpretation
a	Incorrect or incomplete analytical sequence	a	Incorrect or incomplete analytical sequence	a	Incorrect or incomplete analytical sequence
b	Bubble found in vial >6mm	b	Instrument performance failure	b	Laboratory duplicate imprecision
c	Calibration failure; poor or unstable response	c	Calibration failure; poor or unstable response	c	Calibration failure
d	MS/MSD imprecision	d	MS/MSD imprecision	d	MS/MSD imprecision
e	LCSD imprecision	e	LCSD imprecision	e	LCSD imprecision
f	Field duplicate imprecision	f	Field duplicate imprecision	f	Field duplicate imprecision
g	Tuning failure or poor mass spec performance	g	Dual column confirmation imprecision	g	Duel isotope imprecision
h	Holding time violation	h	Holding time violation	h	Holding time violation
i	Internal standard failure	i	Internal standard failure	k	Cooler receipt temperature exceeds limits
k	Cooler receipt temperature exceeds limits	k	Cooler receipt temperature exceeds limits	l	LCS recovery failure
l	LCS recovery failure	l	LCS recovery failure	m	MS/MSD recovery failure
m	MS/MSD recovery failure	m	MS/MSD recovery failure	n	ICS failure
p	Poor chromatography	p	Poor chromatography	o	Calibration blank contamination
q	Concentration exceeded the linear range	q	Concentration exceeded the linear range	q	Concentration exceeded the linear range
r	Linearity failure in initial calibration	r	Linearity failure in initial calibration	r	Linearity failure in calibration or MSA
s	Surrogate failure	s	Surrogate failure	s	Serial dilution failure
t	TIC	t	Blender blank contamination	t	Carboy Lot detection
w	Identification criteria failure	u	No confirmation column	u	BOD minimum depletion did not exceed 2mg/L
x	Field blank contamination	w	Retention time failure	v	Post-digestion spike failure
y	Trip blank contamination	x	Field blank contamination	w	CRDL Standard Failure
z	Method blank contamination	z	Method blank contamination	x	Field blank contamination
				z	Preparation/Method blank contamination



FACILITY	BLDG#	OLD#
Camp Dodge JMTC		
Administration	3536	B-59
Billeting	3395	PT-01
Fire Station	3536	B-59
Fuel Point	2262	S-42
Logistics	3414	W-07
Motor Pool	3447	W-46
Public Works	3536	B-59
Range Control/Simulation	2196	S-21
Security	1285	S-70
Wellness Center/Physical Training Center	3395	PT-01
Armories		
Freedom Center Armory	1285	S-70
Joint Forces Headquarters	3850	A-01
Junior F. Miller Armory	3375	S-29
RSG Maintenance Armory	1350	S-60
Schools/Training Centers		
Iowa Law Enforcement Academy (ILEA)	4640	A-41
Midwest Counterdrug Training Center (MCTC)	3585	B-57
Mission Training Center - Dodge (MTC)	2560	B-03
Ordnance Training Regiment (OTR)	2375	S-02
Regional Training Institute (RTI)	5505	M-02
Sustainment Training Center (STC)	2314	S-01
Services		
AAFES Post Exchange	3592	B-76
Family Support	3548	B-75
Grandview College Extension	1285	S-70
ID Card/DEERS Office	3548	B-75
Iowa National Guard Records Center	3465	W-41
TriCare	3548	B-75
Veteran's Affairs	3465	W-41
Chapel	3772	A-63
Dodge House	3726	A-17
Environmental Office	3535	B-61
Field Maintenance Camp Dodge (FMCD)	2287	S-34
Gold Star Museum	3692	A-09
HLSEM Administrative Office	2440	W-04
Iowa National Guard Joint Operations Center	3850	A-01
Installation Geospatial Information and Services (IGI&S)	2489	W-35
Military Entrance Processing Station (MEPS)	1285	S-71
Pool Pavilion/Classroom	3746	A-22
Publications	4475	W-12A
Recreation Hall	3585	B-57
Safety and Health Office	3850	A-01
State Emergency Operations Center	3850	A-01
State Warehouse	2430	W-03
Theater/Classroom	3583	B-58
Unit Training Equipment Site (UTES)	2346	S-38
USPFO Warehouse/Central Issue	4410	W-12

OFFICE/UNIT	BLDG#	OLD#
The Adjutant General's Office	3850	A-01
Deputy Adjutant General (Army)	3850	A-01
Deputy Adjutant General (Air)	3850	A-01
Director of Staff, Iowa Air National Guard	3850	A-01
Command Chief Master Sergeant Air National Guard	3850	A-01
State Command Sergeant Major	3850	A-01
State Command Chief Warrant Officer	3850	A-01
Staff Judge Advocate Office	3850	A-01
Public Affairs Office	3850	A-01
Government Relations Officer	3850	A-01
Strategic Plans Officer	3850	A-01
Human Resources Office	3850	A-01
State Chaplain	3675	A-08
State Comptroller	3465	W-41
Employer Support to Guard and Reserve	3586	B-62
Office of the Inspector General	3675	A-08
Senior Army Advisor	3850	A-01
Chief of Staff, Iowa Army National Guard	3850	A-01
Personnel (G1)	3850	A-01
Operations (G3)	3850	A-01
Aviation & Safety (G3 Air)	3850	A-01
Logistics (G4)	3850	A-01
Information Management (G6)	3850	A-01
Installation Management (G7)	3535	B-61
Chief of Staff, Joint Staff	3850	A-01
Personnel (J1)	3850	A-01
Intelligence (J2)	3850	A-01
Operations (J3)	3850	A-01
Logistics (J4)	3850	A-01
Plans (J5)	3850	A-01
Communications (J6)	3850	A-01
Training (J7)	3850	A-01
State Quartermaster	3536	B-59
Camp Dodge Joint Maneuver Training Center (CDJMTC)	3536	B-59
185th Regiment, HQ (RTI)	5505	M-02
Regional Training Site Maintenance (OTR)	2375	S-02
IA ARNG Medical Command (AMEDD)	1285	S-70
United States Property and Fiscal Office	3475	W-42
Mission Training Center - Dodge (MTC)	2560	B-03
Sustainment Training Center (STC)	2314	S-01
Military Entrance Processing Command	1212	S-71
US Marine Corps Reserve Des Moines Recruiting	1216	S-72
Iowa Counterdrug Task Force	3585	B-57
Midwest Counterdrug Training Center	3585	B-57
Iowa Communications Network	3850	A-01
Iowa Department of Administrative Services - ITE	3850	A-01
Iowa Department of Homeland Security (HLSEM)	3850	A-01
Iowa Department of Public Safety - Communications	3850	A-01
Iowa Department of Veteran's Affairs	3465	W-41
Iowa Law Enforcement Academy	4640	A-41

UNIT (Army Component)	BLDG#	OLD#
JFHQ		
JFHQ-IA	3850	A-01
DET 1 JFHQ-IA RSP CO A	3850	A-01
671TC		
671ST TRP CMD (STRENGTH READINESS)	3850	A-01
~~IA ARNG RECRUITING & RETENT BN~~	~~1285~~	~~S-70~~
2 BCT		
DET 1 HHC 1-168 INF BN	1285	S-70
CO C 1-168 IN BN	1285	S-70
HHC BDE SPT BN 334TH BSB	3375	S-29
CO A (-) BDE SPT BN 334TH BSB	3375	S-29
CO C (MED) 334TH BSB	3375	S-29
TRP A 1/113TH MOTORIZED RSTA	1285	S-70
TRP B 1/113TH MOTORIZED RSTA	1285	S-70
CO B 2/34TH (MI) CO BSTB	3850	A-01
67TC		
294TH MED CO	1285	S-70
DET 1 831 ENG CO (HORIZONTAL)	1350	S-60
734 RSG		
HHD 734TH REG SPT CMD (RSG)	1350	S-60
135TH PA DET	1285	S-70
INFO OP FIELD SUPT UNIT A	1285	S-70
HHD 185TH CSSB	1285	S-70
186TH MP CO	1285	S-70
HHC 1034 CS BN CSSB	1285	S-70
3655TH MAINT COMPANY	1350	S-60



Camp Dodge
Joint Maneuver Training Center

Main Map Legend

- Camp Dodge Buildings
- Surrounding Buildings
- Gates
- Fences
- Trails and Sidewalks
- Pavement
- Gravel
- Firing Ranges
- Rivers
- Ponds
- Wetland

Camp Dodge Building Number Guide

Numbering Area Example

1234 Building numbers are grouped by area using the first two digits
1234 Thousands place identifier increases from South to North
1234 Hundreds place identifier increases from West to East
1234 Building numbers within areas increase from South to North and West to East along roadways
1235 Odd and even numbers appear on opposite sides of the road

Scale Information

1 inch = 300 feet — 0 600 1,200 Feet

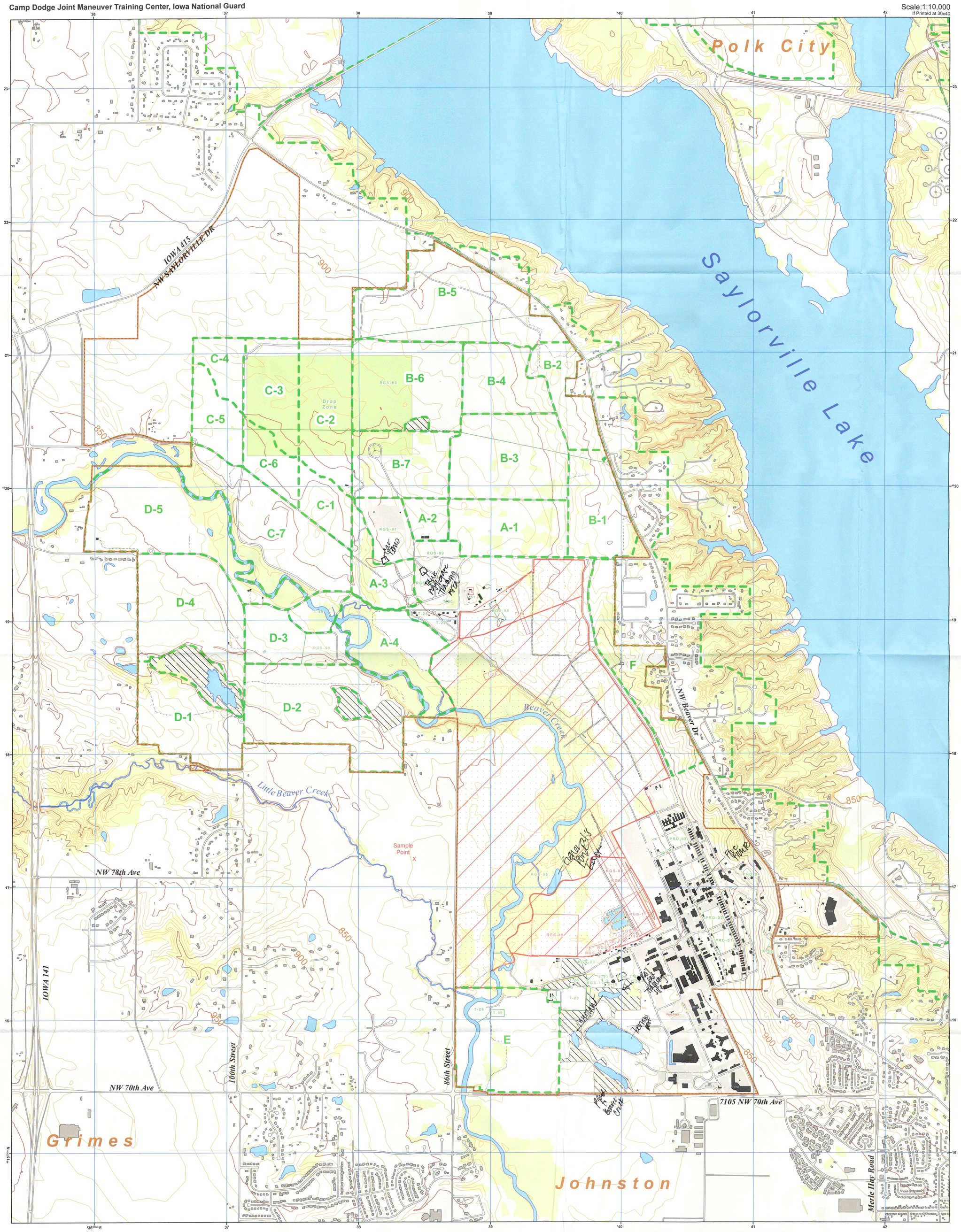
1 inch = 91 meters — 0 200 400 Meters

N W E S

14 Mar 2018 | Iowa Army National Guard | Installation Geospatial Information & Services | NGIA-DIM-P

Camp Dodge Joint Maneuver Training Center, Iowa National Guard

Scale:1:10,000
If Printed at 30x40



LEGEND

- Installation Boundary
- Training Areas
- Impact Area
- Foot Traffic Only
- Live Fire Range Area
- Range Area
- Drop Zone
- Rivers and Lakes
- 10 Foot Contour
- 50 Foot Contour
- Timber
- Camp Dodge Structures
- Surrounding Structures
- Pavement
- Trails

Ver. 19MAY2016-TRAINING-AREA-30x40

Projection: Universal Transverse Mercator
Horizontal Datum: North American Datum of 1983
BLUE NUMBERED LINES INDICATE 1000 METER GRID

2010
G - M
ANGLE
2° 09'
(38 MILS)

TO CONVERT A MAGNETIC AZIMUTH TO A GRID AZIMUTH ADD G-M ANGLE

TO CONVERT A GRID AZIMUTH TO A MAGNETIC AZIMUTH SUBTRACT G-M ANGLE

GN
MAGNETIC NORTH
GRIDNORTH

GRID CONVERGENCE AT CENTER OF SHEET
0° 29' (8.5 MILS)

N
W E
S

11 Jan 2018
Iowa Army National Guard
Installation Geospatial Information & Services
NGIA-DIMLP

Camp Dodge
Joint Maneuver Training Center
Iowa National Guard

Scale: 1:10,000

1,000 500 0 1,000 Meters
2,000 1,000 0 2,000 4,000 Feet

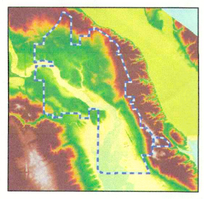
SAMPLE 1,000-METER GRID SQ
18
Sample Point
X
38 39 17
100,000-METER SQUARE IDENTIFICATION
VG
GRID ZONE DESIGNATION
15T

100-METER REFERENCE
1.Read large numbers labeling the VERTICAL grid line left of point and estimate tenths (100-meters) from grid line to point.
2.Read large numbers labeling the HORIZONTAL grid line below point and estimate (100-meters) from grid line.
Example: 385172

WHEN REPORTING ACROSS A 100,000-METER LINE, PREFIX THE 100,000-METER SQUARE IDENTIFICATION, IN WHICH THE POINT LIES.
Example: VG385172

WHEN REPORTING OUTSIDE THE GRID ZONE DESIGNATION AREA, PREFIX THE GRID ZONE DESIGNATION
Example: 15TVG385172

Hight 310 Meters
Low 245 Meters



Camp Dodge Joint Maneuver Training Center, Iowa National Guard

Scale:1:10,000
If Printed at 30x40

LEGEND

- Installation Boundary
- Training Areas
- Live Fire Range Area

Projection: Universal Transverse Mercator
Horizontal Datum: North American Datum of 1983
BLUE NUMBERED LINES INDICATE 100 METER GRID

2010
G - M
ANGLE
2° 09'
(38 MILS)

TO CONVERT A MAGNETIC AZIMUTH TO A GRID AZIMUTH ADD G-M ANGLE

TO CONVERT A GRID AZIMUTH TO A MAGNETIC AZIMUTH SUBTRACT G-M ANGLE

GRID CONVERGENCE AT CENTER OF SHEET
0° 29' (8.5 MILS)

11 Jan 2018
Iowa Army National Guard
Installation Geospatial Information & Services
NGIA-DIM-P

Camp Dodge
Joint Maneuver Training Center
Iowa National Guard

Scale: 1:10,000

Meters: 1,000 500 0 1,000
Feet: 2,000 1,000 0 2,000 4,000

SAMPLE 1,000-METER GRID SQ
18
Sample Point X
17
38 39

100,000-METER SQUARE IDENTIFICATION
VG

GRID ZONE DESIGNATION
15T

100-METER REFERENCE

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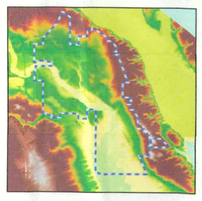
WHEN REPORTING OUTSIDE THE GRID ZONE DESIGNATION AREA, PREFIX THE GRID ZONE DESIGNATION

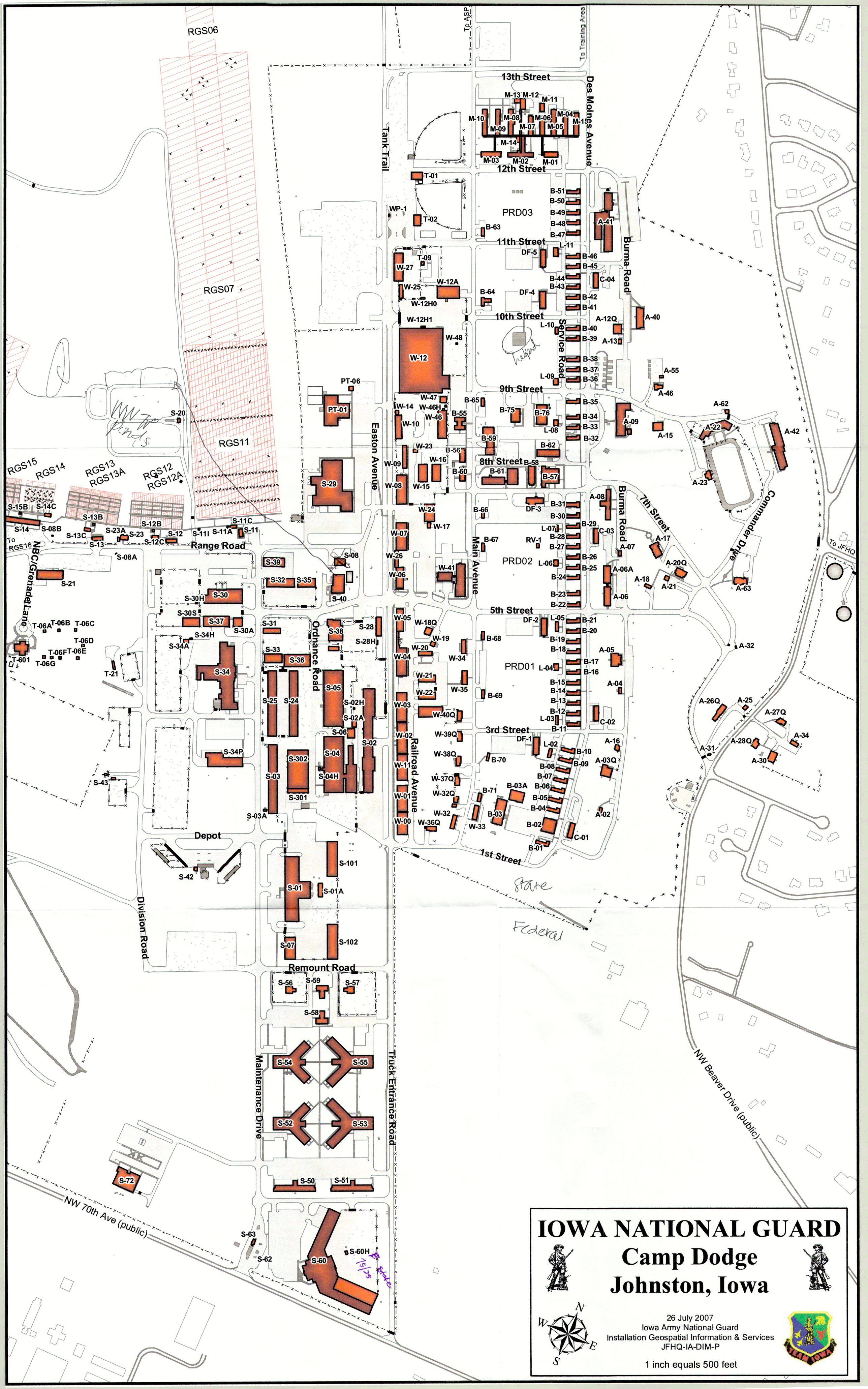
Example: 15TVG385172

Hight 310 Meters

Low 245 Meters

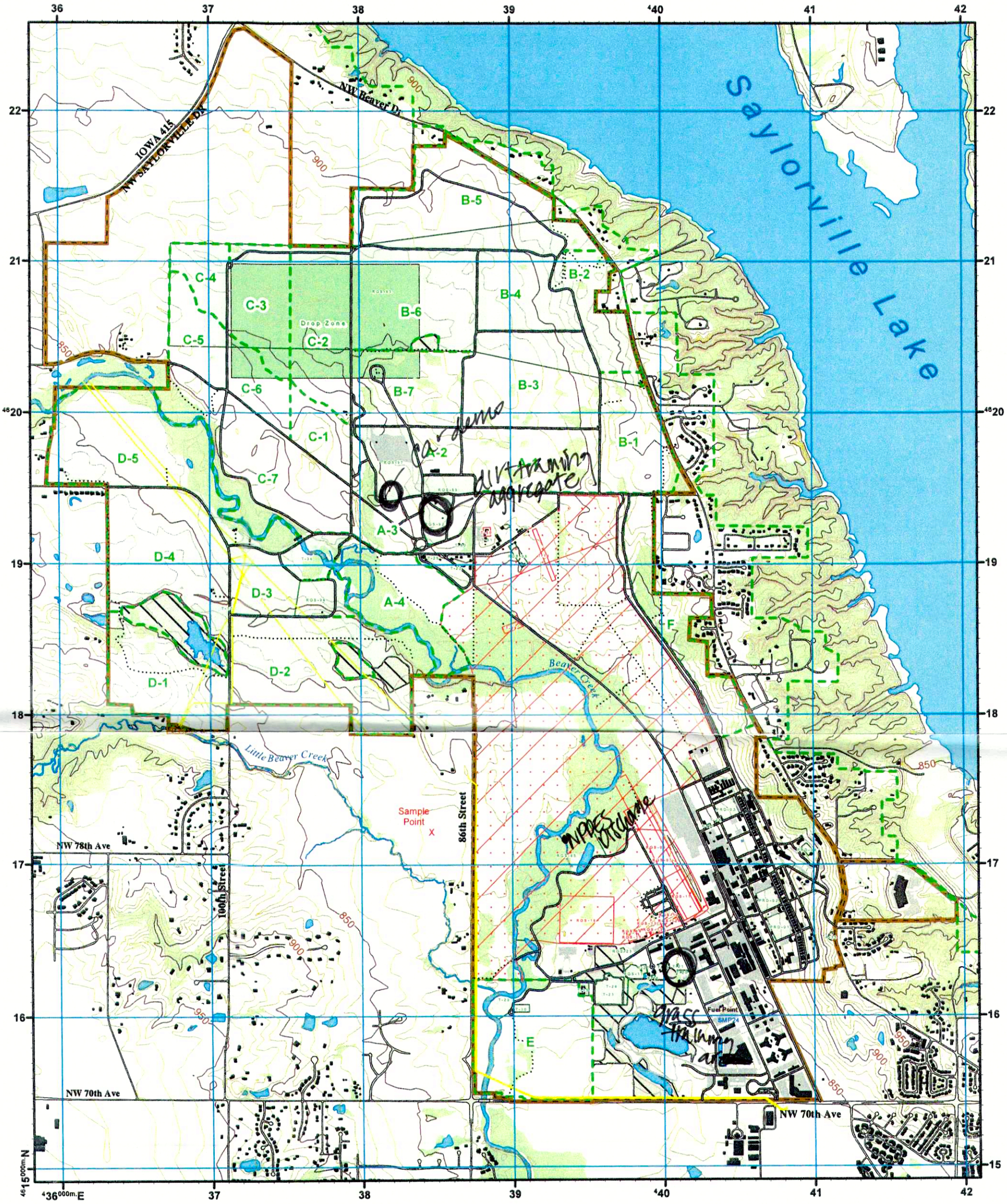


Ver. 19MAY2016-TRAINING-AREA-30x40


IOWA NATIONAL GUARD
Camp Dodge
Johnston, Iowa
26 July 2007
Iowa Army National Guard
Installation Geospatial Information & Services
JFHQ-IA-DIM-P
1 inch equals 500 feet
N
W
E
S
13th Street
12th Street
11th Street
10th Street
9th Street
8th Street
7th Street
5th Street
3rd Street
1st Street
Tank Trail
Easton Avenue
Main Avenue
Ordnance Road
Railroad Avenue
Service Road
Burma Road
Commander Drive
Range Road
Depot
Division Road
Remount Road
Maintenance Drive
Truck Entrance Road
NBC/Grenade Lane
NW 70th Ave (public)
NW Beaver Drive (public)
To ASP
To Training Area
To JFHQ
To RGS16
PRD03
PRD02
PRD01
RGS06
RGS07
RGS11
RGS12
RGS12A
RGS13
RGS13A
RGS14
RGS15
State
Federal

Camp Dodge Joint Maneuver Training Center, Iowa National Guard

Scale: 1:25,000



Legend

- Rivers and Lakes
- 10 Foot Contour
- 50 Foot Contour
- Structures
- Roads
- Trails
- Surfaced Area
- Installation Boundary
- Natural Gas Pipeline
- Impact Area
- Drop Zone
- Foot Traffic Only
- Live Fire Range
- Range Area
- Timber

INTEGRATED TRAINING AREA MANAGEMENT
ITAM GIS
GEOGRAPHIC INFORMATION SYSTEM

1 cm = 250 m — Meters: 500, 250, 0, 500, 1,000

1 in = 2,083.3 ft — Feet: 2,000, 1,000, 0, 2,000, 4,000

HUNTING INFORMATION

Training Area	*Limits*
F	Bow Only
B1,B2,B5,E	Shotgun(no slug) and Bow Only
Impact Area	Closed during S06 - S16 Fire
	Closed during Rifle and T14 Fire
	Closed during T14 and S06 Fire
T-22,T-50	No Hunting within 200 feet
All Other	No Limits
Trapping	1 November - 31 January

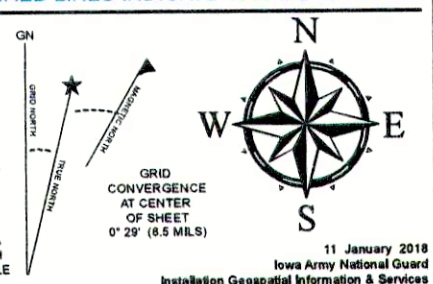
No Hunting within 100 Feet of Installation Boundary

Projection: Universal Transverse Mercator
Horizontal Datum: North American Datum of 1983
BLUE NUMBERED LINES INDICATE 1000 METER GRID

2010 G-M ANGLE 2° 09' (38 MILS)

TO CONVERT A MAGNETIC AZIMUTH TO A GRID AZIMUTH ADD G-M ANGLE

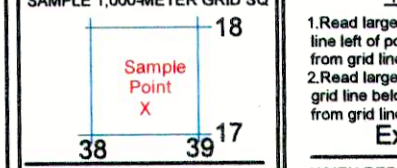
TO CONVERT A GRID AZIMUTH TO A MAGNETIC AZIMUTH SUBTRACT G-M ANGLE



GRID CONVERGENCE AT CENTER OF SHEET 0° 29' (8.5 MILS)

11 January 2018
Iowa Army National Guard
Installation Geospatial Information & Services
NGIA-DIM-P

SAMPLE 1,000-METER GRID SQ



100,000-METER SQUARE IDENTIFICATION
VG

GRID ZONE DESIGNATION
15T

100-METER REFERENCE

1. Read large numbers labeling the VERTICAL grid line left of point and estimate tenths (100-meters) from grid line to point.
2. Read large numbers labeling the HORIZONTAL grid line below point and estimate (100-meters) from grid line.

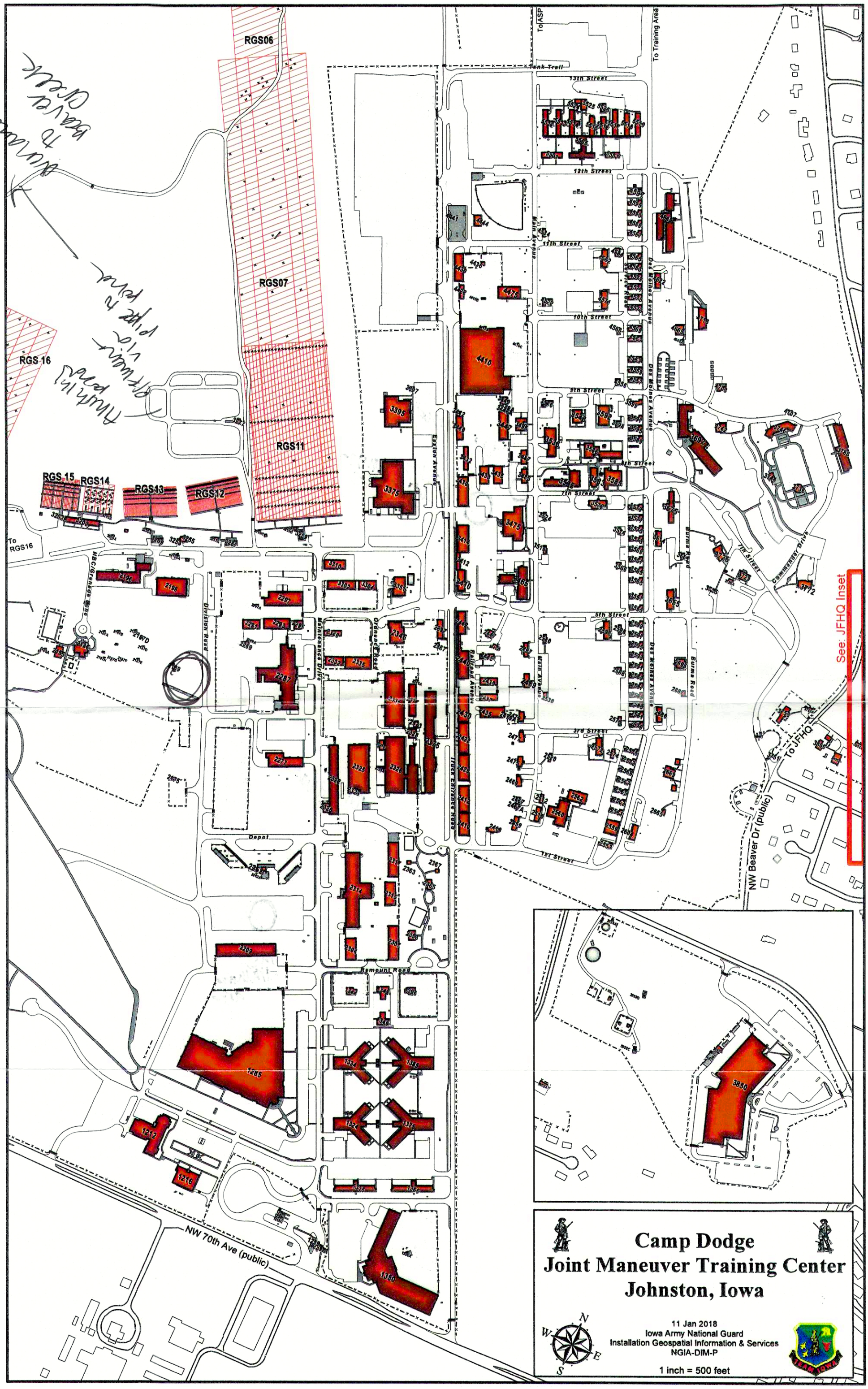
Example: 385172

WHEN REPORTING ACROSS A 100,000-METER LINE, PREFIX THE 100,000-METER SQUARE IDENTIFICATION, IN WHICH THE POINT LIES.

Example: VG385172

WHEN REPORTING OUTSIDE THE GRID ZONE DESIGNATION AREA, PREFIX THE GRID ZONE DESIGNATION

Example: 15TVG385172


Camp Dodge
Joint Maneuver Training Center
Johnston, Iowa
11 Jan 2018
Iowa Army National Guard
Installation Geospatial Information & Services
NGIA-DIM-P
1 inch = 500 feet
N
S
E
W
TEAM IOWA
See: JFHQ Inset
To JFHQ
To ASP
To Training Area
To RGS16
Tank Trail
13th Street
12th Street
11th Street
10th Street
9th Street
8th Street
7th Street
6th Street
5th Street
3rd Street
1st Street
Des Moines Avenue
Burma Road
Commander Drive
Main Avenue
Station Avenue
Railroad Avenue
Truck Entrance Road
Ordnance Road
Maintenance Drive
Division Road
NBC/Grenade Range
Depot
Remount Road
NW Beaver Dr (public)
NW 70th Ave (public)
RGS06
RGS07
RGS11
RGS12
RGS13
RGS14
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RGS16
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3395
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3475
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2325
2326
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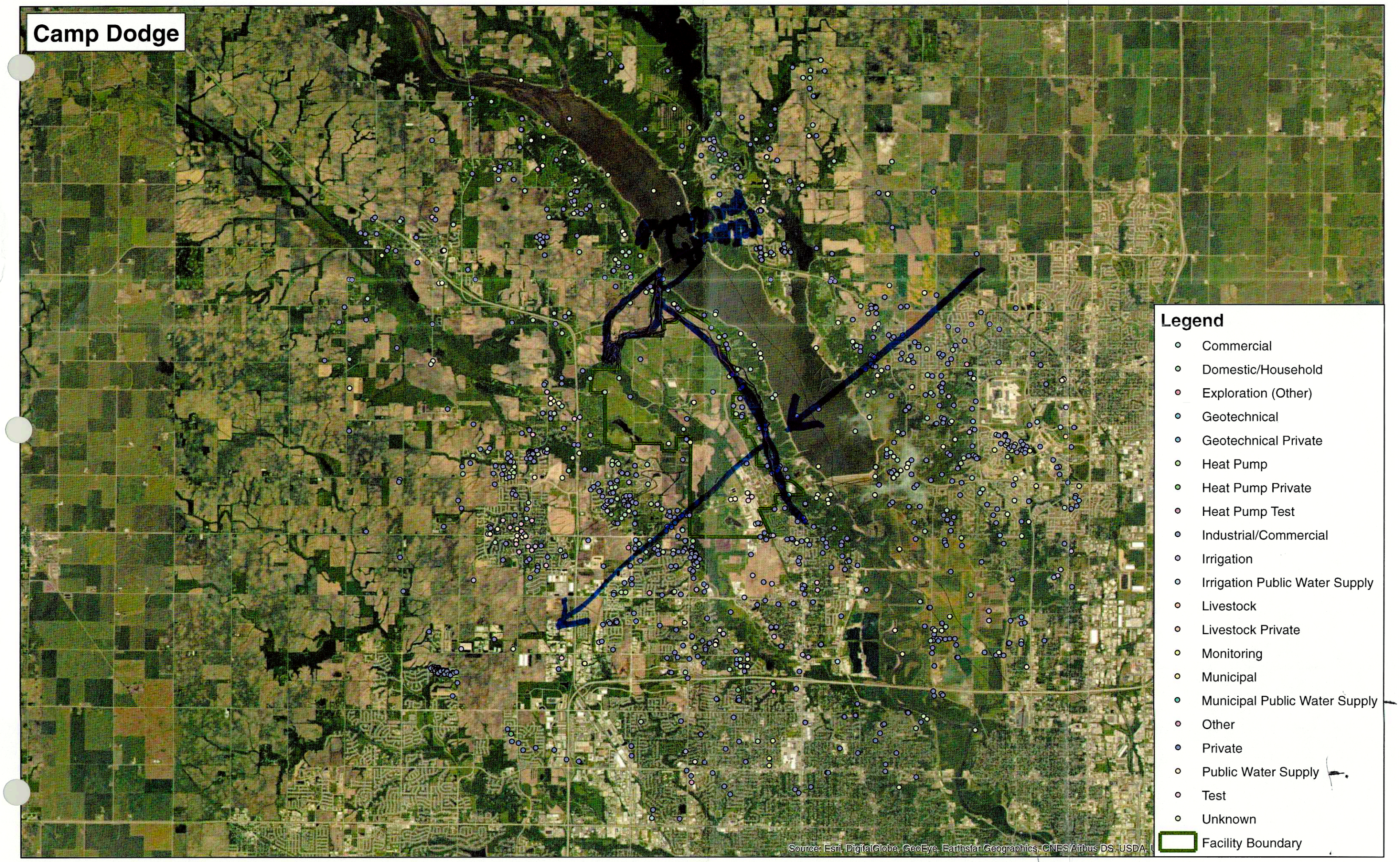
1212
1216
1350
3850


Camp Dodge
Legend
Commercial
Domestic/Household
Exploration (Other)
Geotechnical
Geotechnical Private
Heat Pump
Heat Pump Private
Heat Pump Test
Industrial/Commercial
Irrigation
Irrigation Public Water Supply
Livestock
Livestock Private
Monitoring
Municipal
Municipal Public Water Supply
Other
Private
Public Water Supply
Test
Unknown
Facility Boundary
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, U

Fax To: AECOM
Contact: Brittany Kirchmann
Fax : 000-000-0000
Date: 10/03/2018

Fax From: Sean McLaughlin
EDR
Phone: 1-800-352-0050

EDR PUR-IQ® Report

"the intelligent way to conduct historical research"

for
Camp Dodge
7105 Northwest 70th Avenue
Johnston, IA 50131
Lat./Long. 41.699189 / 93.714902
EDR Inquiry # 5441925.2s

The EDR PUR-IQ report facilitates historical research planning required to complete the Phase I ESA process. The report identifies the *likelihood* of prior use coverage by searching proprietary EDR-Prior Use Reports® comprising nationwide information on: city directories, fire insurance maps, aerial photographs, historical topographic maps, flood maps and National Wetland Inventory maps.

Potential for EDR Historical (Prior Use) Coverage - Coverage in the following historical information sources may be used as a guide to develop your historical research strategy:

1. Building Permits:	Building Permits are available for 'JOHNSTON', IA (2001 - 2017).
2. City Directory:	Coverage may exist for portions of Polk County, IA.
3. Fire Insurance Map:	When you order online any EDR Package or the EDR Radius Map with EDR Sanborn Map Search/Print, you receive site specific Sanborn Map coverage information at no charge.
4. Aerial Photograph:	Aerial photography coverage may exist for portions of Polk County. Please contact your EDR Account Executive for information about USGS photos available through EDR.
5. Topographic Map:	The USGS 7.5 min. quad topo sheet(s) associated with this site:

Historical: Coverage exists for POLK County

Current: Target Property: TP | 2013 | 5942453 Des Moines NW, IA

Additional required for 1 Mile radius: W | 2013 | 5942459 Grimes, IA

EDR's network of professional researchers, located throughout the United States, accesses the most extensive national collections of city directory, fire insurance maps, aerial photographs and historical topographic map resources available for Johnston, IA. These collections may be located in multiple libraries throughout the country. To ensure maximum coverage, EDR will often assign researchers at these multiple locations on your behalf. Please call or fax your EDR representative to authorize a search.

EDR - HISTORICAL SOURCE(S) ORDER FORM

AECOM
Brittany Kirchmann
Account # 1861179

Camp Dodge
7105 Northwest 70th Avenue
Johnston, IA 50131
POLK County
Lat./Long. 41.699189 / 93.714902
EDR Inquiry # 5441925.2s

Should you wish to change or add to your order, fax this form to your EDR account executive:

Sean McLaughlin
Ph: 1-800-352-0050 Fax: 1-800-231-6802

Reports

___ EDR Sanborn Map® Search/Print

___ EDR Fire Insurance Map Abstract

___ EDR Multi-Tenant Retail Facility® Report

___ EDR City Directory Abstract

___ EDR Aerial Photo Decade Package

___ USGS Aerial 5 Package

___ USGS Aerial 3 Package

___ EDR Historical Topographic Maps

___ Paper Current USGS Topo (7.5 min.)

___ Environmental Lien Search

___ Chain of Title Search

___ NJ MacRaes Industrial Directory Report

___ EDR Telephone Interview

Shipping:

___ Email
___ Express, Next Day Delivery
___ Express, Second Day Delivery
___ Express, Next day Delivery Customer Account
___ Express, Second Day Delivery Customer Account
___ U.S. Mail

RUSH SERVICE IS AVAILABLE

Acct # _____
Acct # _____

Thank you

Camp Dodge

7105 Northwest 70th Avenue

Johnston, IA 50131

Inquiry Number: 5441925.3

October 02, 2018

Certified Sanborn® Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

10/02/18

Site Name:	Client Name:
Camp Dodge	AECOM
7105 Northwest 70th Avenue	12120 Shamrock Plaza
Johnston, IA 50131	Omaha, NE 68154
EDR Inquiry # 5441925.3	Contact: Brittany Kirchmann

The Sanborn Library has been searched by EDR and maps covering the target property location as provided by AECOM were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Certification # 74A6-4B5E-BD58

PO # NA

Project Camp Dodge 1

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

Sanborn® Library search results

Certification #: 74A6-4B5E-BD58

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ✔ Library of Congress
- ✔ University Publications of America
- ✔ EDR Private Collection

The Sanborn Library LLC Since 1866™

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Camp Dodge

7105 Northwest 70th Avenue

Johnston, IA 50131

Inquiry Number: 5441925.5

October 05, 2018

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

10/05/18

Site Name:

Camp Dodge
7105 Northwest 70th Avenue
Johnston, IA 50131
EDR Inquiry # 5441925.5

Client Name:

AECOM
12120 Shamrock Plaza
Omaha, NE 68154
Contact: Brittany Kirchmann

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

Search Results:

Year	*Scale*	*Details*	*Source*
2017	1"=875'	Flight Year: 2017	USDA/NAIP
2014	1"=875'	Flight Year: 2014	USDA/NAIP
2011	1"=875'	Flight Year: 2011	USDA/NAIP
2008	1"=875'	Flight Year: 2008	USDA/NAIP
2005	1"=875'	Flight Year: 2005	USDA/NAIP
2000	1"=875'	Acquisition Date: April 05, 2000	USGS/DOQQ
1990	1"=875'	Flight Date: January 01, 1990	USGS
1983	1"=875'	Flight Date: January 01, 1983	USGS
1974	1"=875'	Flight Date: August 18, 1974	USDA
1961	1"=875'	Flight Date: January 01, 1961	ASCS
1955	1"=875'	Flight Date: September 05, 1955	USDA
1938	1"=875'	Flight Date: January 01, 1938	ASCS

When delivered electronically by EDR, the aerial photo images included with this report are for ONE TIME USE ONLY. Further reproduction of these aerial photo images is prohibited without permission from EDR. For more information contact your EDR Account Executive.

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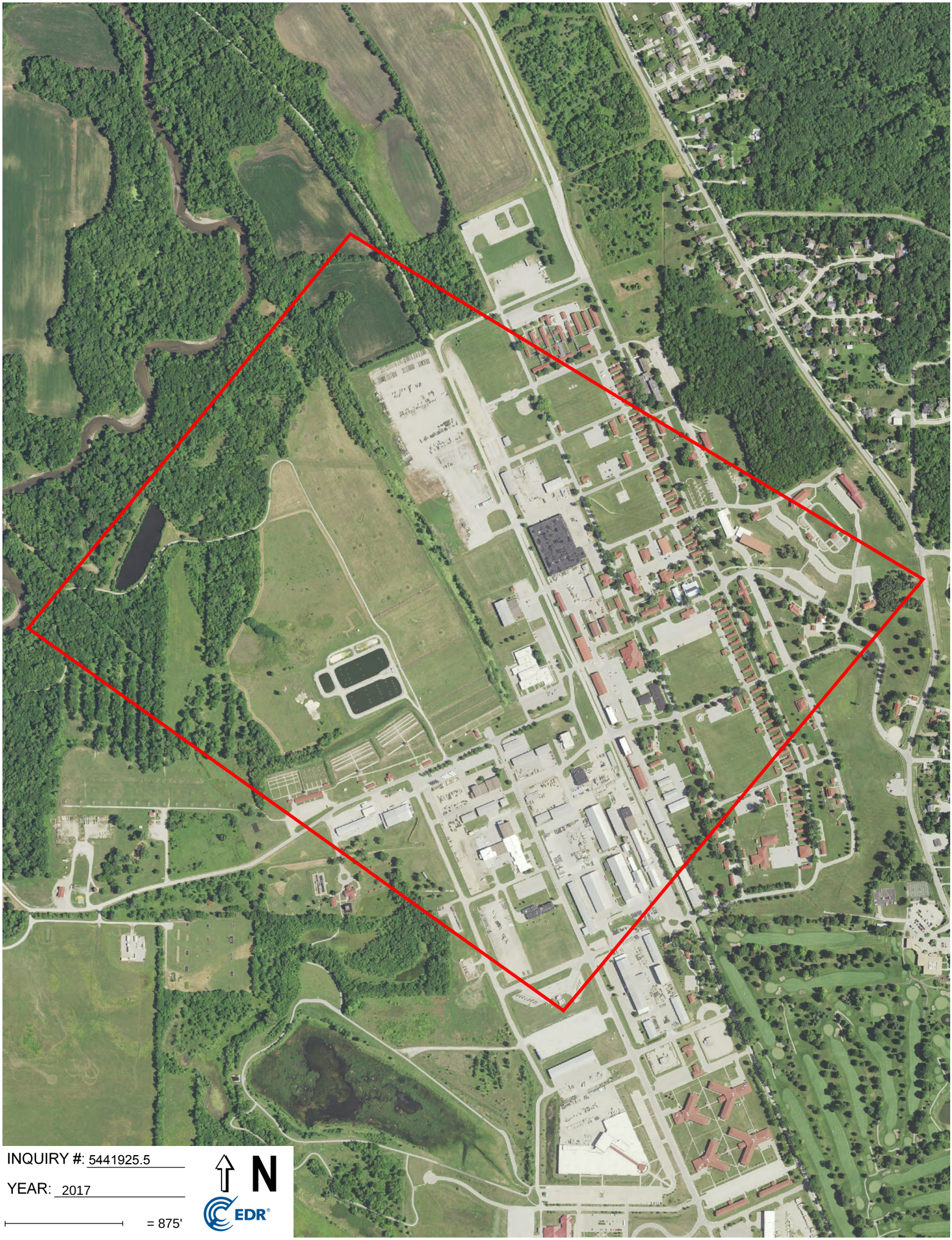


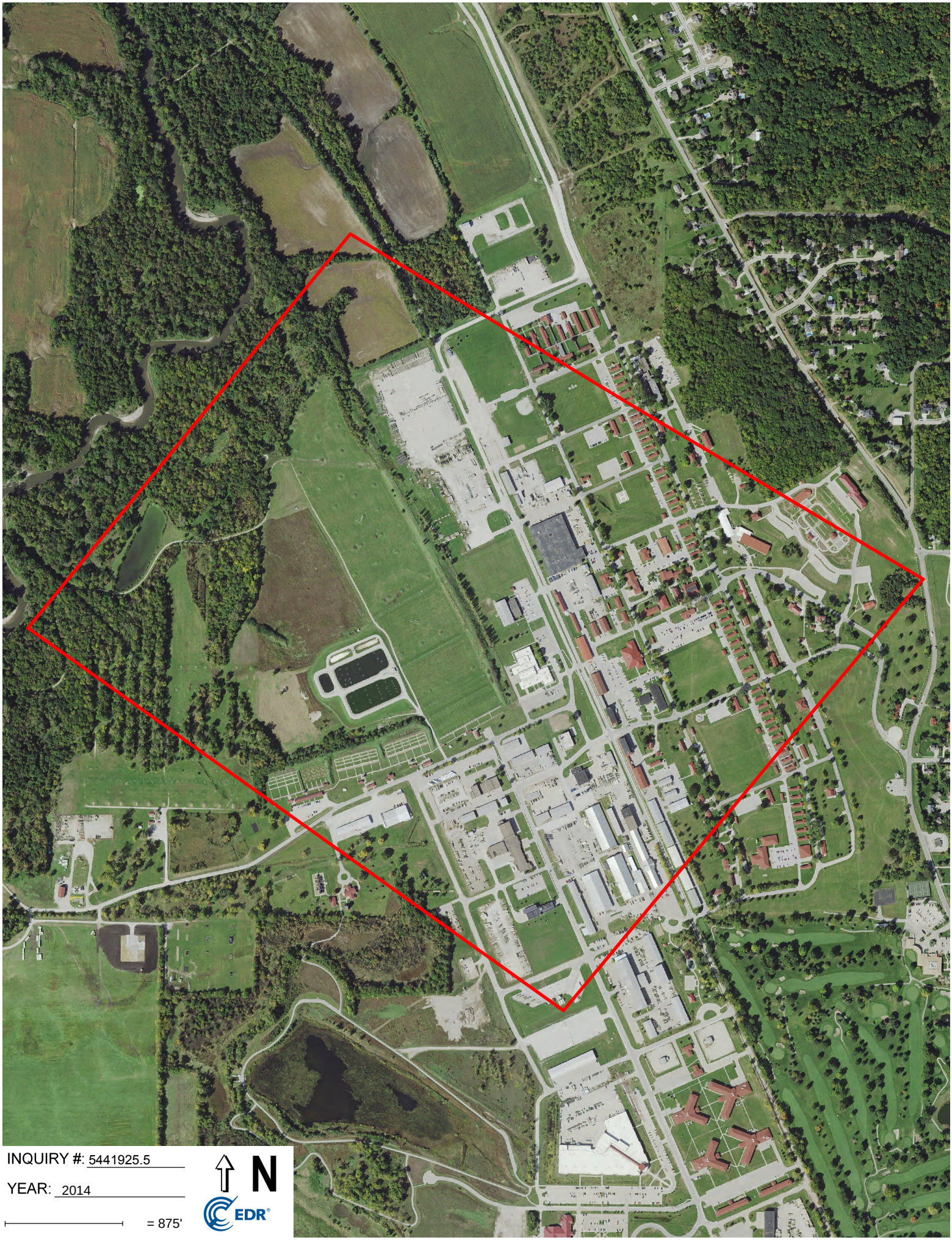
INQUIRY #: 5441925.5

YEAR: 2017

= 875'

N

EDR



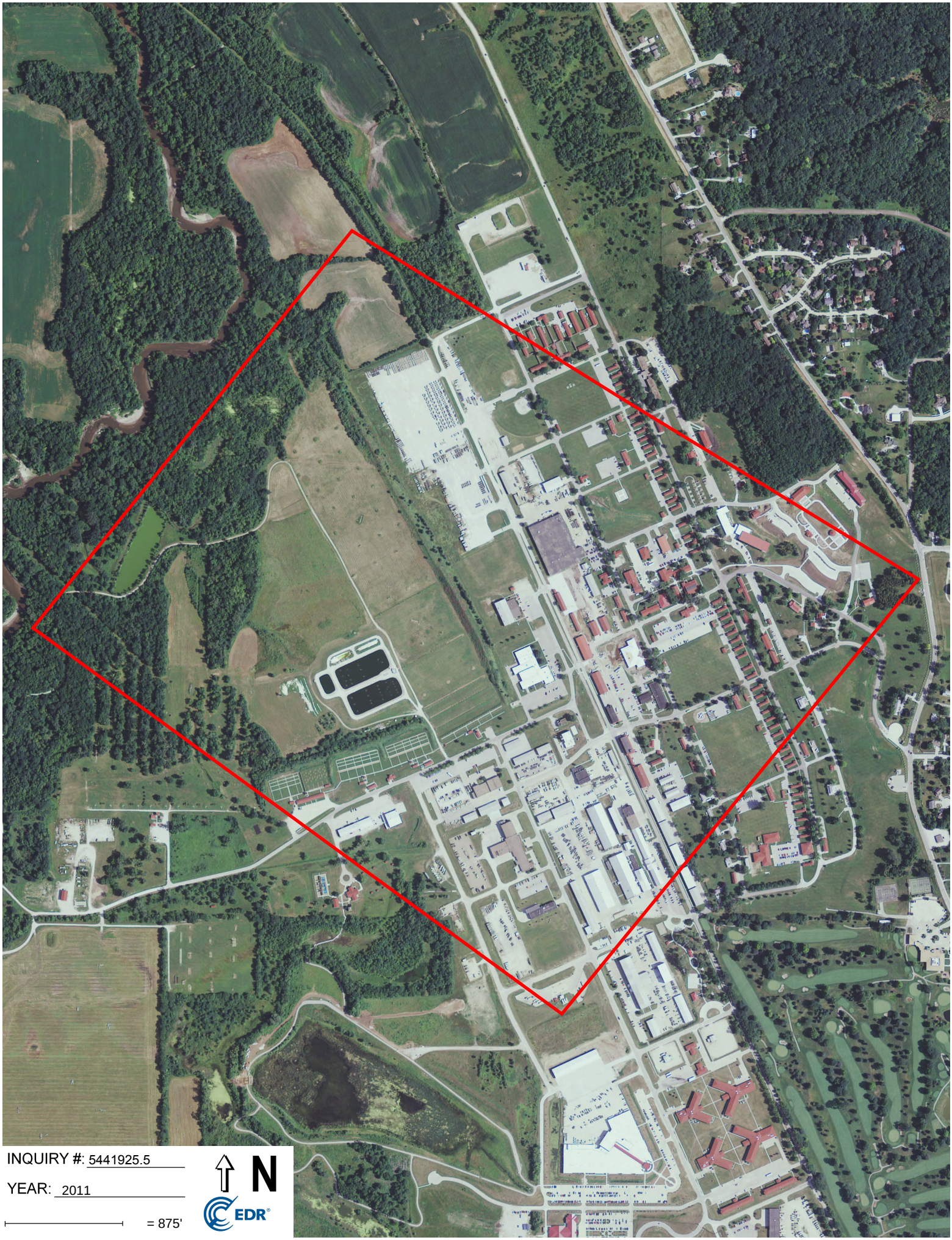
INQUIRY #: 5441925.5

YEAR: 2014

= 875'

N

EDR



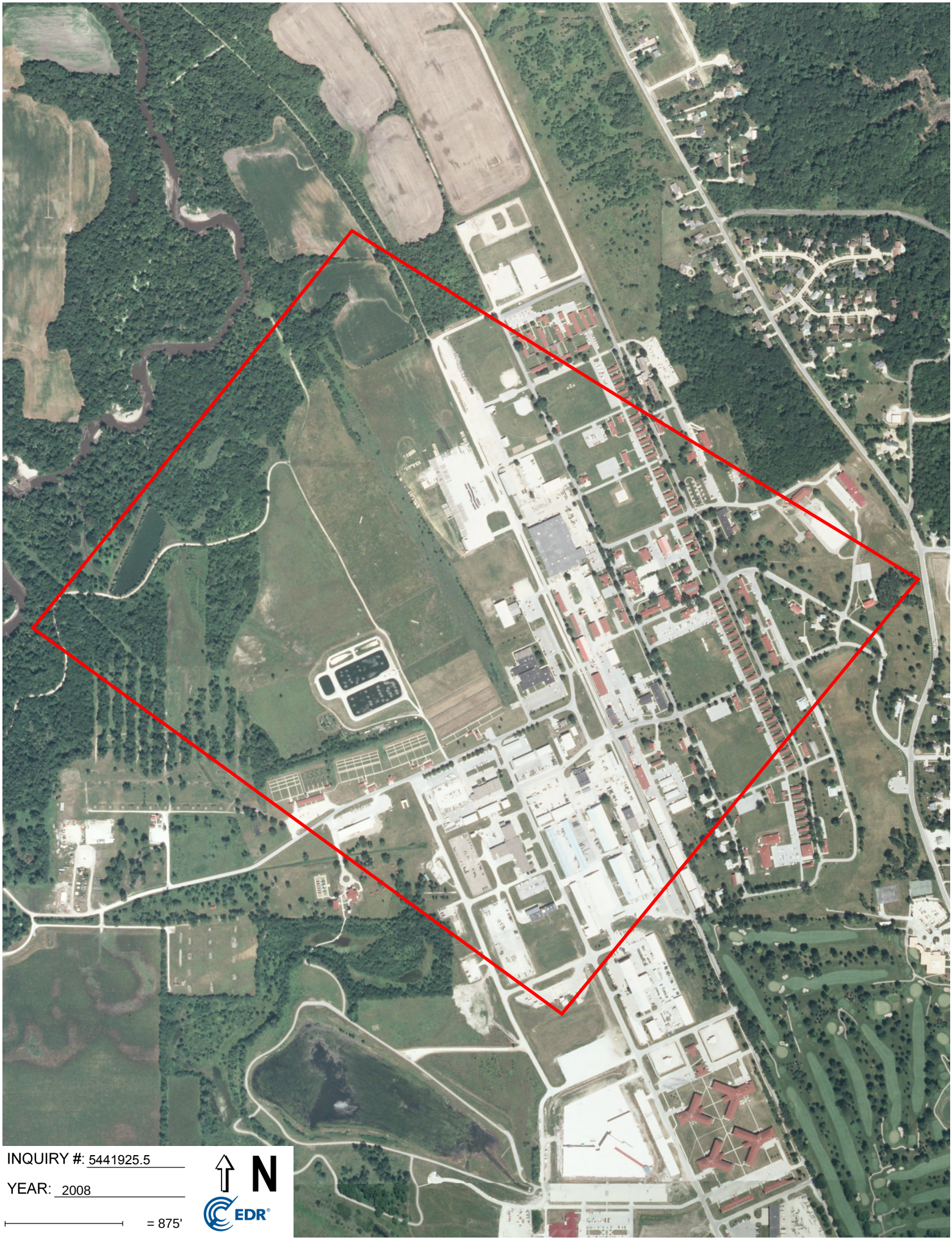
INQUIRY #: 5441925.5

YEAR: 2011

= 875'

N

EDR



INQUIRY #: 5441925.5

YEAR: 2008

= 875'

N

EDR

INQUIRY #: 5441925.5
YEAR: 2005
= 875'
N
EDR

INQUIRY #: 5441925.5

YEAR: 2000

= 875'

N

EDR

INQUIRY #: 5441925.5

YEAR: 1990

= 875'

N

EDR

Subject boundary not shown because it exceeds image extent or image is not georeferenced.

INQUIRY #: 5441925.5

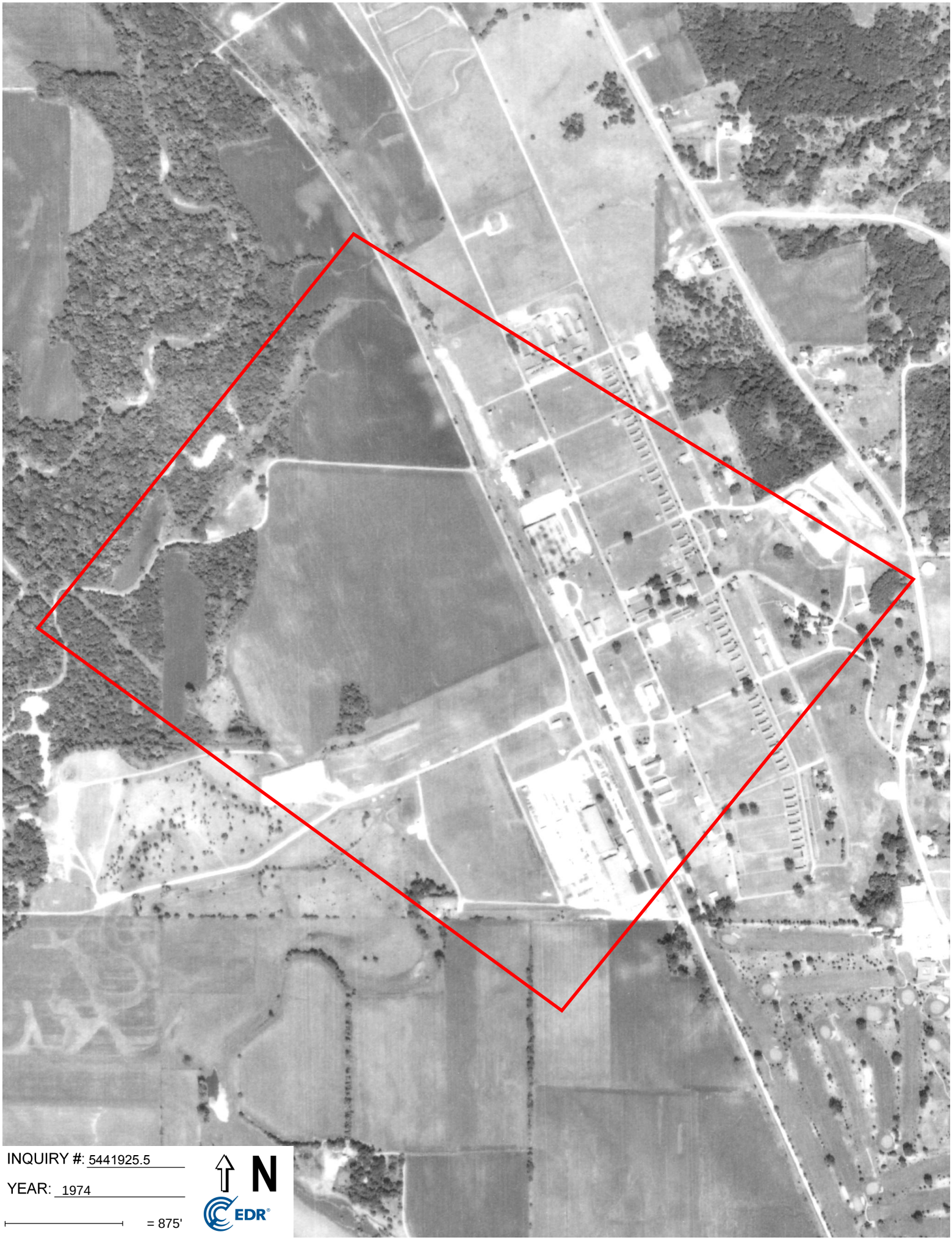
YEAR: 1983

= 875'

N

EDR

Subject boundary not shown because it exceeds image extent or image is not georeferenced.



INQUIRY #: 5441925.5

YEAR: 1974

= 875'

N

EDR

INQUIRY #: 5441925.5

YEAR: 1961

= 875'

N

EDR

Subject boundary not shown because it exceeds image extent or image is not georeferenced.

INQUIRY #: 5441925.5

YEAR: 1955

= 875'

N

EDR

INQUIRY #: 5441925.5

YEAR: 1938

= 875'

N

EDR

Subject boundary not shown because it exceeds image extent or image is not georeferenced.

Camp Dodge
7105 Northwest 70th Avenue
Johnston, IA 50131

Inquiry Number: 5441925.2s
October 03, 2018

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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Detail Map	3
Map Findings Summary	4
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Physical Setting Source Summary	A-2
Physical Setting SSURGO Soil Map	A-5
Physical Setting Source Map	A-14
Physical Setting Source Map Findings	A-16
Physical Setting Source Records Searched	PSGR-1

Thank you for your business.
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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

7105 NORTHWEST 70TH AVENUE
JOHNSTON, IA 50131

COORDINATES

Latitude (North):	41.6991890 - 41˚ 41' 57.08''
Longitude (West):	93.7149020 - 93˚ 42' 53.64''
Universal Tranverse Mercator:	Zone 15
UTM X (Meters):	440513.7
UTM Y (Meters):	4616412.0
Elevation:	856 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	5942453 DES MOINES NW, IA
Version Date:	2013
West Map:	5942459 GRIMES, IA
Version Date:	2013

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20150824
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
7105 NORTHWEST 70TH AVENUE
JOHNSTON, IA 50131

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
A1	CAMP DODGE	7105 NW 70TH AVENUE	IA TIER 2		TP
A2	ARMED FORCES READINE	7105 NW 70TH AVENUE	IA NPDES		TP
A3	CAMP DODGE	7105 NW 70TH ANENUE	IA TIER 2		TP
A4	IOWA LAW ENFORCEMENT	7105 NW 70TH AVE	US AIRS, FINDS, ECHO		TP
A5	NDNODS LE MARS SA RA	7105 NW 70TH AVENUE	UXO		TP
A6	CAMP DODGE SANITARY	7105 NW 70TH AVE.	IA NPDES		TP
A7	IOWA ARMY NATIONAL G	7105 NW 70TH AVE, BL	IA AST		TP
A8	CAMP DODGE TRAINING	7105 NW 70TH AVE BLD	IA UST, IA Financial Assurance		TP
A9	CAMP DODGE	7105 NW 70TH AVE STR	IA TIER 2		TP
A10	IOWA ARMY NATIONAL G	7105 NW 70TH AVE.	IA NPDES		TP
A11	CAMP DODGE	7105 NW 70TH AVE	IA SPILLS, IA AIRS, IA NPDES		TP
A12	NDNODS MARSHALLTOWN	7105 NW 70TH AVENUE	UXO		TP
A13	CAMP DODGE	7105 NW 70TH AVE	ICIS, US AIRS		TP
A14	NDNODS MOUNT PLEASAN	7105 NW 70TH AVENUE	UXO		TP
A15	NDNODS OSKALOOSA SA	7105 NW 70TH AVENUE	UXO		TP
A16	NDNODS RED OAK 25-ME	7105 NW 70TH AVENUE	UXO		TP
A17	U.S. ARMY IOWA ARMY	7105 NW 70TH AVE	TRIS		TP
A18	NDNODS SHELDON 1,000	7105 NW 70TH AVENUE	UXO		TP
A19	NDNODS CENTERVILLE 1	7105 NW 70TH AVENUE	UXO		TP
A20	NDNODS SIOUX CITY HI	7105 NW 70TH AVENUE	UXO		TP
A21	IOWA ARMY NATIONAL G	7105 NW 70TH AVE	CORRACTS, RCRA-TSDF, RCRA-LQG, RAATS, WI MANIFEST		TP
A22	NDNODS DAVENPORT SA	7105 NW 70TH AVENUE	UXO		TP
Reg	CAMP DODGE MILITARY		DOD	Same	1 ft.
Reg	SAYLORVILLE LAKE		DOD	Same	3302, 0.625, NE
23	ARTILLERY RANGE		UXO	Higher	390, 0.074, NE
B24	CAMP DODGE AND POLK	7700 NW BEAVER DRIVE	IA ALLSITES, IA SPILLS	Higher	831, 0.157, East
B25	CAMP DODGE	7700 NW BEAVER DR.	SEMS-ARCHIVE	Higher	831, 0.157, East
B26	UNITED STATES MILITA	7700 N.W. BEAVER DRI	NY MANIFEST	Higher	831, 0.157, East
B27	CAMP DODGE BLDG S-4	7700 NW BEAVER DRIVE	IA UST	Higher	831, 0.157, East
B28	USPFO FOR IOWA, CAMP	7700 NW BEAVER DR CA	WI MANIFEST	Higher	831, 0.157, East

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
CAMP DODGE 7105 NW 70TH AVENUE JOHNSTON, IA 50131	IA TIER 2 Facility Id: 863	N/A
ARMED FORCES READINE 7105 NW 70TH AVENUE JOHNSTON, IA 50131	IA NPDES	N/A
CAMP DODGE 7105 NW 70TH ANENUE JOHNSTON, IA 50131	IA TIER 2 Facility Id: FAIDSIT2A00000863	N/A
IOWA LAW ENFORCEMENT 7105 NW 70TH AVE JOHNSTON, IA 50131	US AIRS Database: US AIRS (AFS), Date of Government Version: 10/12/2016 EPA plant ID:: 110037595064	N/A
	FINDS Registry ID:: 110037595064 Registry ID:: 110036386470	
	ECHO Registry ID: 110036386470 Registry ID: 110037595064	
NDNODS LE MARS SA RA 7105 NW 70TH AVENUE JOHNSTON, IA	UXO	N/A
CAMP DODGE SANITARY 7105 NW 70TH AVE. JOHNSTON, IA 50131	IA NPDES	N/A
IOWA ARMY NATIONAL G 7105 NW 70TH AVE, BL JOHNSTON, IA	IA AST Registration Number: 18253 Registration Number: 18254 Registration Number: 18255	N/A
CAMP DODGE TRAINING 7105 NW 70TH AVE BLD JOHNSTON, IA 50131	IA UST Facility Id: 6224 Registration: 198605890	N/A
	IA Financial Assurance Database: Financial Assurance 1, Date of Government Version: 08/30/2018	

EXECUTIVE SUMMARY

	Facility Id: 198605890	
CAMP DODGE 7105 NW 70TH AVE STR JOHNSTON, IA 50131	IA TIER 2 Facility Id: FAIDSIT2A00000863 State Id: IA	N/A
IOWA ARMY NATIONAL G 7105 NW 70TH AVE. JOHNSTON, IA 50131	IA NPDES	N/A
CAMP DODGE 7105 NW 70TH AVE JOHNSTON, IA 50131	IA SPILLS Facility Id: 051214-TWA-1410 Facility Id: 022015-BJB-0900 IA AIRS Status: MINOR EI Facility Id: 77-09-004 IA NPDES Permit Number: 7700901	N/A
NDNODS MARSHALLTOWN 7105 NW 70TH AVENUE JOHNSTON, IA	UXO	N/A
CAMP DODGE 7105 NW 70TH AVE JOHNSTON, IA 50131	ICIS FRS ID:: 110036386470 US AIRS Database: US AIRS (AFS), Date of Government Version: 10/12/2016 EPA plant ID:: 110036386470	N/A
NDNODS MOUNT PLEASAN 7105 NW 70TH AVENUE JOHNSTON, IA	UXO	N/A
NDNODS OSKALOOSA SA 7105 NW 70TH AVENUE JOHNSTON, IA	UXO	N/A
NDNODS RED OAK 25-ME 7105 NW 70TH AVENUE JOHNSTON, IA	UXO	N/A
U.S. ARMY IOWA ARMY 7105 NW 70TH AVE JOHNSTON, IA 50131	TRIS TRIS ID: 50131SRMYW715NW	50131SRMYW715NW
NDNODS SHELDON 1,000 7105 NW 70TH AVENUE JOHNSTON, IA	UXO	N/A

NDNODS CENTERVILLE 1 7105 NW 70TH AVENUE JOHNSTON, IA	UXO	N/A
NDNODS SIOUX CITY HI 7105 NW 70TH AVENUE JOHNSTON, IA	UXO	N/A
IOWA ARMY NATIONAL G 7105 NW 70TH AVE JOHNSTON, IA 50131	CORRACTS EPA ID:: IAD981504285 RCRA-TSDF EPA ID:: IAD981504285 RCRA-LQG EPA ID:: IAD981504285 RAATS Status: 01 Facility ID: IAD981504285 WI MANIFEST ACT Status: A FID: 0 EPA ID: IAD981504285	IAD981504285
NDNODS DAVENPORT SA 7105 NW 70TH AVENUE JOHNSTON, IA	UXO	N/A

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

EXECUTIVE SUMMARY

SEMS ..... Superfund Enterprise Management System

Federal RCRA generators list

RCRA-SQG ..... RCRA - Small Quantity Generators
RCRA-CESQG ..... RCRA - Conditionally Exempt Small Quantity Generator

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

Federal ERNS list

ERNS ..... Emergency Response Notification System

State- and tribal - equivalent CERCLIS

IA SHWS ..... Registry of Hazardous Waste or Hazardous Substance Disposal Sites

State and tribal landfill and/or solid waste disposal site lists

IA SWF/LF ..... Permitted Solid Waste Management Facilities

State and tribal leaking storage tank lists

IA LUST ..... Leaking Underground Storage Tank Data
IA LAST ..... Leaking Aboveground Storage Tank Sites
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 institutional control / engineering control registries

IA INST CONTROL ..... Sites with Institutional Controls

State and tribal voluntary cleanup sites

IA VCP ..... Land Recycling Program Sites
INDIAN VCP ..... Voluntary Cleanup Priority Listing

State and tribal Brownfields sites

IA BROWNFIELDS ..... Brownfields Site Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS ..... A Listing of Brownfields Sites

EXECUTIVE SUMMARY

Local Lists of Landfill / Solid Waste Disposal Sites

INDIAN ODI	Report on the Status of Open Dumps on Indian Lands
DEBRIS REGION 9	Torres Martinez Reservation Illegal Dump Site Locations
ODI	Open Dump Inventory
IHS OPEN DUMPS	Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL	Delisted National Clandestine Laboratory Register
IA DEL SHWS	Delisted Contaminated Sites Listing
US CDL	National Clandestine Laboratory Register

Local Land Records

IA LIENS	Liens Filed Listing
LIENS 2	CERCLA Lien Information

Records of Emergency Release Reports

HMIRS	Hazardous Materials Information Reporting System
IA SPILLS 90	SPILLS 90 data from FirstSearch

Other Ascertainable Records

RCRA NonGen / NLR	RCRA - Non Generators / No Longer Regulated
FUDS	Formerly Used 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
PRP	Potentially Responsible Parties
PADS	PCB Activity Database 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 MINES	Mines Master Index File
ABANDONED MINES	Abandoned Mines
DOCKET HWC	Hazardous Waste Compliance Docket Listing

EXECUTIVE SUMMARY

FUELS PROGRAM..... EPA Fuels Program Registered Listing
IA COAL ASH..... Coal Ash Disposal Site Listing
IA DRYCLEANERS..... Iowa Drycleaner List

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

IA RGA HWS..... Recovered Government Archive State Hazardous Waste Facilities List
IA RGA LUST..... Recovered Government Archive Leaking Underground Storage Tank

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 07/17/2018 has revealed that there is 1 SEMS-ARCHIVE site within approximately 0.5 miles of the target property.

EXECUTIVE SUMMARY

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
CAMP DODGE	7700 NW BEAVER DR.	E 1/8 - 1/4 (0.157 mi.)	B25	105

State and tribal registered storage tank lists

IA 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 Natural Resources' Underground Storage Tank Data list.

A review of the IA UST list, as provided by EDR, and dated 08/30/2018 has revealed that there is 1 IA UST site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
CAMP DODGE BLDG S-4 Facility Id: 10550 Facility Id: 17130 Registration: 198710686 Registration: 199317591	7700 NW BEAVER DRIVE	E 1/8 - 1/4 (0.157 mi.)	B27	108

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Hazardous waste / Contaminated Sites

IA ALLSITES: All the sites included in the Contaminated Sites Tracking Database. The database includes several regulatory complinace programs and actions.

A review of the IA ALLSITES list, as provided by EDR, and dated 07/16/2018 has revealed that there is 1 IA ALLSITES site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
CAMP DODGE AND POLK Status: Closed Site Id Number: 1236 Site Id Number: 638	***7700 NW BEAVER DRIVE***	***E 1/8 - 1/4 (0.157 mi.)***	***B24***	***104***

Other Ascertainable Records

DOD: 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.

A review of the DOD list, as provided by EDR, and dated 12/31/2005 has revealed that there are 2 DOD sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
CAMP DODGE MILITARY		0 - 1/8 (0.000 mi.)	0	103

EXECUTIVE SUMMARY

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
SAYLORVILLE LAKE		NE 1/2 - 1 (0.625 mi.)	0	103

UXO: A listing of unexploded ordnance site locations

A review of the UXO list, as provided by EDR, and dated 09/30/2017 has revealed that there is 1 UXO site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
ARTILLERY RANGE		NE 0 - 1/8 (0.074 mi.)	23	103

NY MANIFEST: Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

A review of the NY MANIFEST list, as provided by EDR, and dated 07/01/2018 has revealed that there is 1 NY MANIFEST site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
UNITED STATES MILITA EPA ID: IAD981504244	7700 N.W. BEAVER DRI	E 1/8 - 1/4 (0.157 mi.)	B26	106

WI MANIFEST: Hazardous waste manifest information.

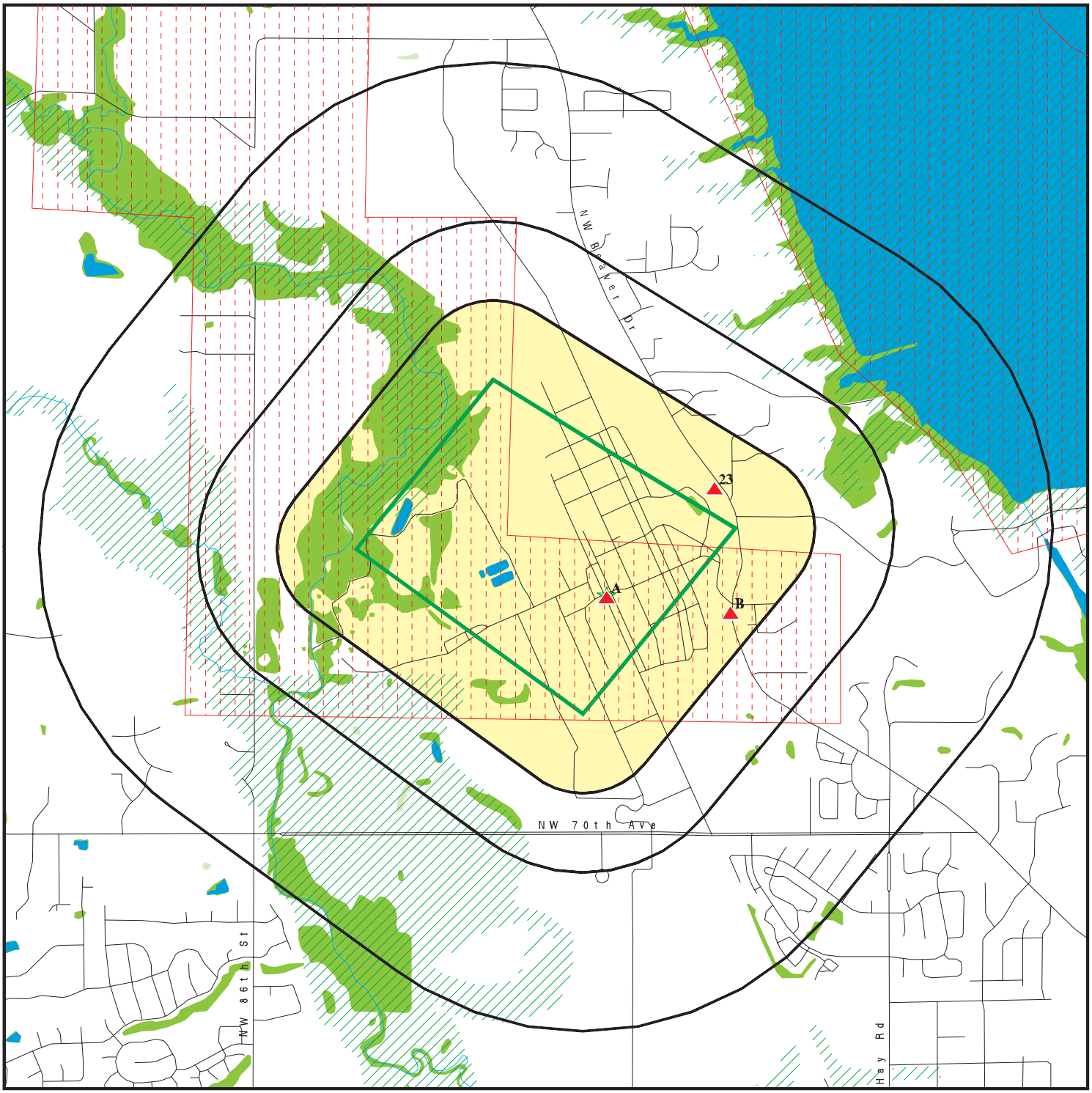
A review of the WI MANIFEST list, as provided by EDR, and dated 12/31/2017 has revealed that there is 1 WI MANIFEST site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
USPFO FOR IOWA, CAMP ACT Status: A FID: 999584520 EPA ID: IAD981712698	7700 NW BEAVER DR CA	E 1/8 - 1/4 (0.157 mi.)	B28	109

EXECUTIVE SUMMARY

There were no unmapped sites in this report.

OVERVIEW MAP - 5441925.2S



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

0 1/4 1/2 1 Miles

Indian Reservations BIA

100-year flood zone

500-year flood zone

National Wetland Inventory

State Wetlands

Upgradient Area

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: Camp Dodge ADDRESS: 7105 Northwest 70th Avenue Johnston IA 50131 LAT/LONG: 41.699189 / 93.714902	CLIENT: AECOM CONTACT: Brittany Kirchmann INQUIRY #: 5441925.2s DATE: October 03, 2018 8:25 am

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DETAIL MAP - 5441925.2S

Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

Sensitive Receptors

National Priority List Sites

Dept. Defense Sites

0 1/8 1/4 1/2 Miles

Indian Reservations BIA

100-year flood zone

500-year flood zone

National Wetland Inventory

State Wetlands

N

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: Camp Dodge	CLIENT: AECOM
ADDRESS: 7105 Northwest 70th Avenue Johnston IA 50131	CONTACT: Brittany Kirchmann INQUIRY #: 5441925.2s
LAT/LONG: 41.699189 / 93.714902	DATE: October 03, 2018 8:26 am

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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	TP		NR	NR	NR	NR	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		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site list								
SEMS-ARCHIVE	0.500		0	1	0	NR	NR	1
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000	1	0	0	0	0	NR	1
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500	1	0	0	0	NR	NR	1
Federal RCRA generators list								
RCRA-LQG	0.250	1	0	0	NR	NR	NR	1
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-CESQG	0.250		0	0	NR	NR	NR	0
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		NR	NR	NR	NR	NR	0
State- and tribal - equivalent CERCLIS								
IA SHWS	1.000		0	0	0	0	NR	0
State and tribal landfill and/or solid waste disposal site lists								
IA SWF/LF	0.500		0	0	0	NR	NR	0
State and tribal leaking storage tank lists								
IA LUST	0.500		0	0	0	NR	NR	0
IA LAST	0.500		0	0	0	NR	NR	0
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
IA UST	0.250	1	0	1	NR	NR	NR	2
IA AST	0.250	1	0	0	NR	NR	NR	1
INDIAN UST	0.250		0	0	NR	NR	NR	0
State and tribal institutional control / engineering control registries								
IA INST CONTROL	0.500		0	0	0	NR	NR	0
State and tribal voluntary cleanup sites								
IA VCP	0.500		0	0	0	NR	NR	0
INDIAN VCP	0.500		0	0	0	NR	NR	0
State and tribal Brownfields sites								
IA BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
INDIAN ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	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								
US HIST CDL	TP		NR	NR	NR	NR	NR	0
IA ALLSITES	0.500		0	1	0	NR	NR	1
IA DEL SHWS	1.000		0	0	0	0	NR	0
US CDL	TP		NR	NR	NR	NR	NR	0
Local Land Records								
IA LIENS	TP		NR	NR	NR	NR	NR	0
LIENS 2	TP		NR	NR	NR	NR	NR	0
Records of Emergency Release Reports								
HMIRS	TP		NR	NR	NR	NR	NR	0
IA SPILLS	TP	1	NR	NR	NR	NR	NR	1
IA SPILLS 90	TP		NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		1	0	0	1	NR	2
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

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
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	1	NR	NR	NR	NR	NR	1
PRP	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
ICIS	TP	1	NR	NR	NR	NR	NR	1
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	2	NR	NR	NR	NR	NR	2
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.250		0	0	NR	NR	NR	0
FINDS	TP	1	NR	NR	NR	NR	NR	1
ECHO	TP	1	NR	NR	NR	NR	NR	1
UXO	1.000	9	1	0	0	0	NR	10
DOCKET HWC	TP		NR	NR	NR	NR	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
IA AIRS	TP	1	NR	NR	NR	NR	NR	1
IA COAL ASH	0.500		0	0	0	NR	NR	0
IA DRYCLEANERS	0.250		0	0	NR	NR	NR	0
IA Financial Assurance	TP	1	NR	NR	NR	NR	NR	1
NY MANIFEST	0.250		0	1	NR	NR	NR	1
WI MANIFEST	0.250	1	0	1	NR	NR	NR	2
IA NPDES	TP	4	NR	NR	NR	NR	NR	4
IA TIER 2	TP	3	NR	NR	NR	NR	NR	3
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
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								
IA RGA HWS	TP		NR	NR	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
IA RGA LUST	TP		NR	NR	NR	NR	NR	0
- Totals --		32	2	5	0	1	0	40

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

A1 Target Property | **CAMP DODGE**
7105 NW 70TH AVENUE
JOHNSTON, IA 50131 | **IA TIER 2** | **S116492798**
N/A

Site 1 of 22 in cluster A

Actual: 856 ft.

TIER 2:

Report Year:	2017
Facility Id:	863
Id:	9711
Description:	NATIONAL SECURITY SIC
Last Modified:	Not reported
Id:	928110
Description:	National Security NAICS
Last Modified:	Not reported
State Id:	Not reported
Fire District:	Johnston Fire Department
Site Map:	Not reported
Site Coord Abbreviation:	Not reported
Date Signed:	01/14/2008
Date Modified:	01/02/2018
Dike Or Other Safeguard:	Not reported
Mailing Address:	NGIA-DIM-E, Bldg. B-61, Camp Dodge, 7105 NW 70th Ave.
Mail City:	Johnston
Mail State:	IA
Mail Zip:	501311824
Latitude:	41.68835
Longitude:	-93.72903
Notes:	Not reported

Contact:

Report Year:	2017
Contact Id:	199181
Date Modified:	Not reported
First Name:	Harlan
Last Name:	Ratcliff
Title:	Not reported
Email:	harlan.r.ratcliff.nfg@mail.mil
Address:	7105 NW 70th Avenue
City:	Johnston
Country:	US
State:	IA
Zip Code:	50131
Type1:	Owner / Operator
Last Modified:	Not reported
Telephone:	515-252-4396
Telephone Type:	Work

Chemical:

Report Year:	2017
Chem Inv Record Id:	5024
CICAS:	7782-50-5
EHS Chemical:	True
Chemical Name:	CHLORINE GAS
Acute:	Not reported
Ave Amount:	375
Ave Amount Code:	02
Max Amount:	600

CAMP DODGE (Continued) **S116492798**

Max Amount Code:	03
Chronic:	Not reported
Last Modified:	Not reported
Days On Site:	365
Fire:	Not reported
Gas:	True
Liquid:	Not reported
Mixture:	Not reported
Pressure:	Not reported
Pure:	True
Reactive:	Not reported
Solid:	Not reported
Trade Secret:	Not reported

Report Year:	2017
Chem Inv Record Id:	5025
CICAS:	68476-34-6
EHS Chemical:	Not reported
Chemical Name:	DIESEL FUEL OIL
Acute:	Not reported
Ave Amount:	60000
Ave Amount Code:	08
Max Amount:	90564
Max Amount Code:	09
Chronic:	Not reported
Last Modified:	Not reported
Days On Site:	365
Fire:	Not reported
Gas:	Not reported
Liquid:	True
Mixture:	True
Pressure:	Not reported
Pure:	Not reported
Reactive:	Not reported
Solid:	Not reported
Trade Secret:	Not reported

Report Year:	2017
Chem Inv Record Id:	5027
CICAS:	8006-61-9
EHS Chemical:	Not reported
Chemical Name:	GASOLINE
Acute:	Not reported
Ave Amount:	12000
Ave Amount Code:	06
Max Amount:	17500
Max Amount Code:	06
Chronic:	Not reported
Last Modified:	Not reported
Days On Site:	365
Fire:	Not reported
Gas:	Not reported
Liquid:	True
Mixture:	True
Pressure:	Not reported
Pure:	Not reported
Reactive:	Not reported

CAMP DODGE (Continued) **S116492798**

Solid:	Not reported
Trade Secret:	Not reported

Report Year:	2017
Chem Inv Record Id:	5028
CICAS:	64-17-5
EHS Chemical:	Not reported
Chemical Name:	E-85 GASOLINE
Acute:	Not reported
Ave Amount:	20000
Ave Amount Code:	06
Max Amount:	35000
Max Amount Code:	07
Chronic:	Not reported
Last Modified:	Not reported
Days On Site:	365
Fire:	Not reported
Gas:	Not reported
Liquid:	True
Mixture:	True
Pressure:	Not reported
Pure:	Not reported
Reactive:	Not reported
Solid:	Not reported
Trade Secret:	Not reported

Chemical Mix:

Report Year:	2017
Record Key:	63908
Chemical Inv Recid:	5028
Mx Chemical:	Gasoline
Mx Cas:	8006-61-9
Percentage:	15.00
Wt Vol:	Not reported
Mx Ehs:	Not reported
Last Modified:	Not reported

Report Year:	2017
Record Key:	63907
Chemical Inv Recid:	5028
Mx Chemical:	Ethyl alcohol
Mx Cas:	64-17-5
Percentage:	85.00
Wt Vol:	Not reported
Mx Ehs:	Not reported
Last Modified:	Not reported

Report Year:	2017
Chem Inv Record Id:	5029
CICAS:	8008-20-6
EHS Chemical:	Not reported
Chemical Name:	Jet Fuel Kerosene (F24)
Acute:	Not reported
Ave Amount:	203000
Ave Amount Code:	10
Max Amount:	350000
Max Amount Code:	10

CAMP DODGE (Continued) **S116492798**

Chronic:	Not reported
Last Modified:	Not reported
Days On Site:	365
Fire:	Not reported
Gas:	Not reported
Liquid:	True
Mixture:	True
Pressure:	Not reported
Pure:	Not reported
Reactive:	Not reported
Solid:	Not reported
Trade Secret:	Not reported

Report Year:	2017
Chem Inv Record Id:	5030
CICAS:	N/A
EHS Chemical:	Not reported
Chemical Name:	BALL POWDER PROPELLANT
Acute:	Not reported
Ave Amount:	14067
Ave Amount Code:	06
Max Amount:	26134
Max Amount Code:	07
Chronic:	Not reported
Last Modified:	Not reported
Days On Site:	365
Fire:	True
Gas:	Not reported
Liquid:	Not reported
Mixture:	True
Pressure:	True
Pure:	Not reported
Reactive:	Not reported
Solid:	True
Trade Secret:	Not reported

Chemical Mix:

Report Year:	2017
Record Key:	51847
Chemical Inv Recid:	5030
Mx Chemical:	ETHYL CENTRALITE
Mx Cas:	85983
Percentage:	7.00
Wt Vol:	Not reported
Mx Ehs:	Not reported
Last Modified:	Not reported

Report Year:	2017
Record Key:	51846
Chemical Inv Recid:	5030
Mx Chemical:	NITROGLYCERIN
Mx Cas:	55630
Percentage:	50.00
Wt Vol:	Not reported
Mx Ehs:	Not reported
Last Modified:	Not reported

Report Year:	2017

CAMP DODGE (Continued) **S116492798**

Record Key: 51848
Chemical Inv Recid: 5030
Mx Chemical: NITROCELLULOSE
Mx Cas: 9004700
Percentage: 40.00
Wt Vol: Not reported
Mx Ehs: Not reported
Last Modified: Not reported

Report Year: 2017
Record Key: 51853
Chemical Inv Recid: 5030
Mx Chemical: POTASSIUM NITRATE
Mx Cas: 7757791
Percentage: 0.50
Wt Vol: Not reported
Mx Ehs: Not reported
Last Modified: Not reported

Report Year: 2017
Record Key: 51850
Chemical Inv Recid: 5030
Mx Chemical: ROSIN
Mx Cas: 8050097
Percentage: 1.00
Wt Vol: Not reported
Mx Ehs: Not reported
Last Modified: Not reported

Report Year: 2017
Record Key: 51851
Chemical Inv Recid: 5030
Mx Chemical: DIPHENYLAMINE
Mx Cas: 122394
Percentage: 0.50
Wt Vol: Not reported
Mx Ehs: Not reported
Last Modified: Not reported

Report Year: 2017
Record Key: 51852
Chemical Inv Recid: 5030
Mx Chemical: N-NITROSODIPHENYL
Mx Cas: 86306
Percentage: 0.10
Wt Vol: Not reported
Mx Ehs: Not reported
Last Modified: Not reported

Report Year: 2017
Record Key: 51849
Chemical Inv Recid: 5030
Mx Chemical: DIBUTYL PHTHALATE
Mx Cas: 84742
Percentage: 1.00
Wt Vol: Not reported
Mx Ehs: Not reported

CAMP DODGE (Continued) **S116492798**

Last Modified:	Not reported

Report Year:	2017
Chem Inv Record Id:	5051
CICAS:	64742-54-7
EHS Chemical:	Not reported
Chemical Name:	MOTOR OIL
Acute:	Not reported
Ave Amount:	30000
Ave Amount Code:	07
Max Amount:	39600
Max Amount Code:	07
Chronic:	Not reported
Last Modified:	Not reported
Days On Site:	365
Fire:	Not reported
Gas:	Not reported
Liquid:	True
Mixture:	True
Pressure:	Not reported
Pure:	Not reported
Reactive:	Not reported
Solid:	Not reported
Trade Secret:	Not reported

Report Year:	2017
Chem Inv Record Id:	79033
CICAS:	8002-05-09
EHS Chemical:	Not reported
Chemical Name:	Used Motor Oi1
Acute:	Not reported
Ave Amount:	17000
Ave Amount Code:	06
Max Amount:	34300
Max Amount Code:	07
Chronic:	Not reported
Last Modified:	Not reported
Days On Site:	365
Fire:	Not reported
Gas:	Not reported
Liquid:	True
Mixture:	Not reported
Pressure:	Not reported
Pure:	Not reported
Reactive:	Not reported
Solid:	Not reported
Trade Secret:	Not reported

Report Year:	2017
Chem Inv Record Id:	79165
CICAS:	7440-20-5
EHS Chemical:	Not reported
Chemical Name:	Road Salt
Acute:	Not reported
Ave Amount:	7500000
Ave Amount Code:	12

CAMP DODGE (Continued) **S116492798**

Max Amount:	30000000
Max Amount Code:	13
Chronic:	Not reported
Last Modified:	Not reported
Days On Site:	100
Fire:	Not reported
Gas:	Not reported
Liquid:	Not reported
Mixture:	True
Pressure:	Not reported
Pure:	Not reported
Reactive:	Not reported
Solid:	True
Trade Secret:	Not reported

Report Year:	2017
Chem Inv Record Id:	90629
CICAS:	7664-93-9
EHS Chemical:	True
Chemical Name:	Sulfuric acid
Acute:	Not reported
Ave Amount:	3800
Ave Amount Code:	04
Max Amount:	3800
Max Amount Code:	04
Chronic:	Not reported
Last Modified:	Not reported
Days On Site:	365
Fire:	Not reported
Gas:	Not reported
Liquid:	True
Mixture:	True
Pressure:	Not reported
Pure:	Not reported
Reactive:	Not reported
Solid:	Not reported
Trade Secret:	Not reported

Report Year:	2016
Facility Id:	863
State Id:	Not reported
Fire District:	Johnston Fire Department
Site Map:	Not reported
Site Coord Abbreviation:	Not reported
Date Signed:	01/14/2008
Date Modified:	01/12/2017
Dike Or Other Safeguard:	Not reported
Mailing Address:	NGIA-DIM-E, Bldg. B-61, Camp Dodge, 7105 NW 70th Ave.
Mail City:	Johnston
Mail State:	IA
Mail Zip:	501311824
Latitude:	41.68835
Longitude:	-93.72903
Notes:	Not reported

Report Year:	2015

CAMP DODGE (Continued) **S116492798**

Facility Id:	863
State Id:	Not reported
Fire District:	Johnston Fire Department
Site Map:	Not reported
Site Coord Abbreviation:	Not reported
Date Signed:	01/14/2008
Date Modified:	01/14/2016
Dike Or Other Safeguard:	Not reported
Mailing Address:	NGIA-DIM-E, Bldg. B-61, Camp Dodge, 7105 NW 70th Ave.
Mail City:	Johnston
Mail State:	IA
Mail Zip:	501311824
Latitude:	41.68835
Longitude:	-93.72903
Notes:	Not reported

Report Year:	2014
Facility Id:	863
State Id:	Not reported
Fire District:	Johnston Fire Department
Site Map:	Not reported
Site Coord Abbreviation:	Not reported
Date Signed:	01/14/2008
Date Modified:	01/16/2015
Dike Or Other Safeguard:	Not reported
Mailing Address:	NGIA-DIM-E, Bldg. B-61, Camp Dodge, 7105 NW 70th Ave.
Mail City:	Johnston
Mail State:	IA
Mail Zip:	501311824
Latitude:	41.68835
Longitude:	-93.72903
Notes:	Not reported

Report Year:	2013
Facility Id:	863
State Id:	Not reported
Fire District:	Johnston Fire Department
Site Map:	Not reported
Site Coord Abbreviation:	Not reported
Date Signed:	01/14/2008
Date Modified:	02/26/2014
Dike Or Other Safeguard:	Not reported
Mailing Address:	NGIA-DIM-E, Bldg. B-61, Camp Dodge, 7105 NW 70th Ave.
Mail City:	Johnston
Mail State:	IA
Mail Zip:	501311824
Latitude:	41.68835
Longitude:	-93.72903
Notes:	Not reported

A2 Target Property | **ARMED FORCES READINESS CENTER**
7105 NW 70TH AVENUE
JOHNSTON, IA 50131 | **IA NPDES** | **S122535900**
N/A

Site 2 of 22 in cluster A

Actual: 856 ft.

NPDES:

Permit Number:	Not reported
Epa Npdes Id Number:	Not reported
Permit Expiration Date:	10/01/2008
Facility Name:	ARMED FORCES READINESS CENTER
Facility Address1:	7105 NW 70TH AVENUE
Facility City:	JOHNSTON
Facility Phone Number:	Not reported
Facility Type:	Not reported
Facility Class:	Not reported
Standard Industrial Classification Code:	Not reported
Owner Name:	IOWA NATIONAL GUARD - ATTN: CURTIS MADSON
Owner Add1:	Not reported
Owner Add2:	Not reported
Owner City:	Not reported
Owner State:	Not reported
Owner Zip:	Not reported
Owner Phone:	Not reported
Indr Regional/Field Office Number:	Not reported
Section:	Not reported
Township:	Not reported
Range:	Not reported
Latitude Degree:	Not reported
Longitude Degree:	Not reported
River Basin:	Not reported
Type Of Treatment:	Not reported
Design Number:	Not reported
Design Population Equivalent:	Not reported
Design Biochemical Oxygen Demand:	Not reported
Design Avg Dry Weather Flow (Mll Glns Per Dy):	Not reported
Design Avg Wet Weather Flow (Mll Glns Per Dy):	Not reported
Operator Certification Facility Type:	Not reported
File No:	12703
Authorization No:	12495
Authorization Date:	11/01/2006
Permit Status:	Discontinued
Permit Type:	GP #2 - Construction Activity
Legal Status:	Federal

A3 Target Property | **CAMP DODGE**
7105 NW 70TH ANENUE
JOHNSTON, IA 50131 | **IA TIER 2** | **S116492814**
N/A

Site 3 of 22 in cluster A

Actual: 856 ft.

TIER 2:

Report Year:	2012
Facility Id:	FAIDSIT2A00000863
State Id:	Not reported
Fire District:	Johnston Fire Department
Site Map:	False
Site Coord Abbreviation:	False
Date Signed:	02/20/2013
Date Modified:	02/20/2013

CAMP DODGE (Continued) **S116492814**

Dike Or Other Safeguard:	False
Mailing Address:	NGIA-DIM-E, Bldg. B-61, Camp Dodge, 7105 NW 70th Ave.
Mail City:	Johnston
Mail State:	IA
Mail Zip:	50131
Latitude:	41.68835
Longitude:	-93.72903
Notes:	Not reported

A4 Target Property | **IOWA LAW ENFORCEMENT ACADEMY** | **US AIRS** | **1016062062**
7105 NW 70TH AVE | **FINDS** | **N/A**
JOHNSTON, IA 50131 | **ECHO**

Site 4 of 22 in cluster A

Actual: 856 ft.

US AIRS (AFS):

Envid:	1016062062
Region Code:	07
County Code:	IA153
Programmatic ID:	AIR IAPLK0001915302144
Facility Registry ID:	110037595064
D and B Number:	Not reported
Facility Site Name:	IOWA LAW ENFORCEMENT ACADEMY
Primary SIC Code:	8221
NAICS Code:	611310
Default Air Classification Code:	SMI
Facility Type of Ownership Code:	STF
Air CMS Category Code:	Not reported
HPV Status:	Not reported

US AIRS (AFS):

Region Code:	07
Programmatic ID:	AIR IAPLK0001915302144
Facility Registry ID:	110037595064
Air Operating Status Code:	OPR
Default Air Classification Code:	SMI
Air Program:	MACT Standards (40 CFR Part 63)
Activity Date:	2015-09-23 00:00:00
Activity Status Date:	2015-10-05 11:51:55
Activity Group:	Compliance Monitoring
Activity Type:	Inspection/Evaluation
Activity Status:	Active

Region Code:	07
Programmatic ID:	AIR IAPLK0001915302144
Facility Registry ID:	110037595064
Air Operating Status Code:	OPR
Default Air Classification Code:	SMI
Air Program:	State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date:	2008-09-24 00:00:00
Activity Status Date:	Not reported
Activity Group:	Compliance Monitoring
Activity Type:	Inspection/Evaluation
Activity Status:	Not reported

Region Code:	07
Programmatic ID:	AIR IAPLK0001915302144
Facility Registry ID:	110037595064

IOWA LAW ENFORCEMENT ACADEMY (Continued) **1016062062**

Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2009-08-12 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 07
Programmatic ID: AIR IAPLK0001915302144
Facility Registry ID: 110037595064
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2010-09-16 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 07
Programmatic ID: AIR IAPLK0001915302144
Facility Registry ID: 110037595064
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2012-03-20 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

FINDS:

Registry ID: 110037595064

Environmental Interest/Information System
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 SYNTHETIC MINOR

Registry ID: 110036386470

Environmental Interest/Information System
AFS (Aerometric Information Retrieval System (AIRS) Facility

IOWA LAW ENFORCEMENT ACADEMY (Continued) **1016062062**

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.

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.

AIR SYNTHETIC MINOR

COMMUNITY WATER SYSTEM

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.

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.

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

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;

IOWA LAW ENFORCEMENT ACADEMY (Continued) **1016062062**

Incident Tracking, Compliance Assistance, and Compliance Monitoring.

IDNR-EFD (Iowa Department Of Natural Resources - Emission Factor Documentation) provides information about existing emission factors

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid:	1016062062
Registry ID:	110036386470
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110036386470
Envid:	1016062062
Registry ID:	110037595064
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110037595064

A5 Target Property **NDNODS LE MARS SA RANGE** **UXO** **1018152519**
7105 NW 70TH AVENUE **N/A**
JOHNSTON, IA

Site 5 of 22 in cluster A

Actual: 856 ft.

UXO:

DoD Component:	Army
Installation Name:	JFHQ IA ARNG
Facility Address 2:	Not reported
Site ID:	IAHQ-004-R-01
Site Type:	Small Arms Range
Latitude:	Not reported
Longitude:	Not reported

A6 Target Property **CAMP DODGE SANITARY SEWER LATERAL REPAIR - CONSTRU** **IA NPDES** **S122553943**
7105 NW 70TH AVE. **N/A**
JOHNSTON, IA 50131

Site 6 of 22 in cluster A

Actual: 856 ft.

NPDES:

Permit Number:	Not reported
Epa Npdes Id Number:	Not reported
Permit Expiration Date:	05/23/2018
Facility Name:	CAMP DODGE SANITARY SEWER LATERAL REPAIR - CONSTRUCTION
Facility Address1:	7105 NW 70TH AVE.
Facility City:	JOHNSTON
Facility Phone Number:	Not reported
Facility Type:	Not reported
Facility Class:	Not reported
Standard Industrial Classification Code:	Not reported
Owner Name:	IOWA ARMY NATIONAL GUARD CONSTRUCTION OFFICE
Owner Add1:	Not reported
Owner Add2:	Not reported
Owner City:	Not reported
Owner State:	Not reported
Owner Zip:	Not reported

CAMP DODGE SANITARY SEWER LATERAL REPAIR - CONSTRUCTION (Continued) **S122553943**

Owner Phone:	Not reported
Indr Regional/Field Office Number:	Not reported
Section:	Not reported
Township:	Not reported
Range:	Not reported
Latitude Degree:	Not reported
Longitude Degree:	Not reported
River Basin:	Not reported
Type Of Treatment:	Not reported
Design Number:	Not reported
Design Population Equivalent:	Not reported
Design Biochemical Oxygen Demand:	Not reported
Design Avg Dry Weather Flow (Mll Glns Per Dy):	Not reported
Design Avg Wet Weather Flow (Mll Glns Per Dy):	Not reported
Operator Certification Facility Type:	Not reported
File No:	28969
Authorization No:	28706
Authorization Date:	05/23/2016
Permit Status:	Discontinued
Permit Type:	GP #2 - Construction Activity
Legal Status:	Public

A7 Target Property | **IOWA ARMY NATIONAL GUARD** | **IA AST** | **A100413834**
7105 NW 70TH AVE, BLDG S42 | **N/A**
JOHNSTON, IA

Site 7 of 22 in cluster A

Actual: 856 ft.

AST:

Key:	Not reported
Owners Name:	HOWARD R CLEGG -ENV PROTECTION SPECIALIST
Owners Address:	7105 NW 70TH AVE BLDG 3535
Owners City,St,Zip:	Johnston, IA 50131
Tank Key Num:	Not reported
Registration Number:	18254
Year Of Manufacture (age):	Not reported
Size:	10000
Type:	Not reported
Contents:	jet fuel
Plan Date:	Not reported
Registration Date:	Not reported
Plan Number:	Not reported
Out of Service Date:	Not reported
Amount Received:	20.00
Date Received:	12/24/2014
Tank Key Num:	Not reported
Registration Number:	18255
Year Of Manufacture (age):	Not reported
Size:	5000
Type:	Not reported
Contents:	E85
Plan Date:	Not reported
Registration Date:	Not reported
Plan Number:	Not reported
Out of Service Date:	Not reported
Amount Received:	20.00

IOWA ARMY NATIONAL GUARD (Continued) **A100413834**

Date Received:	12/24/2014
Tank Key Num:	Not reported
Registration Number:	18253
Year Of Manufacture (age):	Not reported
Size:	10000
Type:	Not reported
Contents:	jet fuel
Plan Date:	Not reported
Registration Date:	Not reported
Plan Number:	Not reported
Out of Service Date:	Not reported
Amount Received:	20.00
Date Received:	12/24/2014

A8 Target Property **CAMP DODGE TRAINING SITE** **IA UST** **U003634981**
7105 NW 70TH AVE BLDG W46 **IA Financial Assurance** **N/A**
JOHNSTON, IA 50131

Site 8 of 22 in cluster A

Actual: 856 ft.

UST:

Facility Id:	6224
Loc Id:	6224
Registration:	198605890
Owner Type:	Federal
Financial Code:	13
Insurer's Name:	FED GOV
Policy Number:	Not reported
Policy Start Date:	01/01/1990
Policy End Date:	01/01/2099
Registration Sign Date:	11/20/1990
Created By:	migration
Created Date:	01/08/2007
Changed By:	Nelson.Paul
Last Changed:	10/20/2015
Latitude:	41.69224
Longitude:	-93.71413
Otype ID Decode:	Federal

Tank Info:

Tank Num:	17167
In Use:	False
Tank Type:	4
Tank Brand Id:	Not reported
Inert Material Id:	Not reported
Filled In Place:	Not reported
Material Construction:	Double Wall Steel
Emergency Power Gen:	Not reported

Tank Num:	17168
In Use:	False
Tank Type:	4
Tank Brand Id:	Not reported
Inert Material Id:	Not reported
Filled In Place:	Not reported
Material Construction:	Double Wall Steel
Emergency Power Gen:	Not reported

CAMP DODGE TRAINING SITE (Continued) **U003634981**

Tank Num:	17169
In Use:	False
Tank Type:	4
Tank Brand Id:	Not reported
Inert Material Id:	Not reported
Filled In Place:	Not reported
Material Construction:	Double Wall Steel
Emergency Power Gen:	Not reported

Tank Num:	17170
In Use:	False
Tank Type:	4
Tank Brand Id:	Not reported
Inert Material Id:	Not reported
Filled In Place:	Not reported
Material Construction:	Double Wall Steel
Emergency Power Gen:	Not reported

Tank Num:	17171
In Use:	True
Tank Type:	4
Tank Brand Id:	Not reported
Inert Material Id:	Not reported
Filled In Place:	Not reported
Material Construction:	Steel Int. Lined with Fiberglass
Emergency Power Gen:	Not reported

Tank Num:	17172
In Use:	True
Tank Type:	4
Tank Brand Id:	Not reported
Inert Material Id:	Not reported
Filled In Place:	Not reported
Material Construction:	Steel Int. Lined with Fiberglass
Emergency Power Gen:	Not reported

IA Financial Assurance 1:

Facility ID:	198605890
Insurers Name:	FED GOV
Policy End Date:	01/01/2099
Site Status:	Not reported
Financial Code:	13
Policy Number:	Not reported
Policy Start Date:	01/01/1990

A9 Target Property **CAMP DODGE** **IA TIER 2** **S109946752**
7105 NW 70TH AVE STREET **N/A**
JOHNSTON, IA 50131

Site 9 of 22 in cluster A

Actual: 856 ft.

TIER 2:

Report Year:	2012
Facility Id:	FAIDSIT2A00000863
State Id:	Not reported
Fire District:	Johnston Fire Department

CAMP DODGE (Continued) **S109946752**

Site Map:	False
Site Coord Abbreviation:	False
Date Signed:	02/12/2007
Date Modified:	02/27/2012
Dike Or Other Safeguard:	False
Mailing Address:	JFHQ-IA-DIM-E, Bldg. B-61, Camp Dodge, 7105 NW 70th Ave.
Mail City:	Johnston
Mail State:	IA
Mail Zip:	50131
Latitude:	41.68835
Longitude:	-93.72903
Notes:	FROM 2006 DATA: Please attempt to contact emergency contacts through work then home phones first. The cell phone should be used if neither person can be contacted.

Report Year:	2010
Facility Id:	FAIDSIT2A00000863
State Id:	Not reported
Fire District:	Johnston Fire Department
Site Map:	False
Site Coord Abbreviation:	False
Date Signed:	2011-01-27T14:17:30
Date Modified:	3/30/2011
Dike Or Other Safeguard:	False
Mailing Address:	JFHQ-IA-DIM-E, Bldg. B-61, Camp Dodge, 7105 NW 70th Ave.
Mail City:	Johnston
Mail State:	IA
Mail Zip:	50131
Latitude:	41.688352000000002
Longitude:	-93.729037000000005
Notes:	FROM 2006 DATA: Please attempt to contact emergency contacts through work then home phones first. The cell phone should be used if neither person can be contacted.

Report Year:	2009
Facility Id:	FAIDSIT2A00000863
State Id:	IA
Fire District:	Johnston Fire Department
Site Map:	False
Site Coord Abbreviation:	False
Date Signed:	2010-02-22T15:42:52
Date Modified:	2010-02-22T15:38:40
Dike Or Other Safeguard:	False
Mailing Address:	JFHQ-IA-DIM-E, Bldg. B-61, Camp Dodge, 7105 NW 70th Ave.
Mail City:	Johnston
Mail State:	IA
Mail Zip:	50131
Latitude:	41.688352000000002
Longitude:	-93.729037000000005
Notes:	FROM 2006 DATA: Please attempt to contact emergency contacts through work then home phones first. The cell phone should be used if neither person can be contacted.

A10 Target Property | **IOWA ARMY NATIONAL GUARD - TRAINING SITE**
7105 NW 70TH AVE.
JOHNSTON, IA 50131

IA NPDES | **S122561846**
N/A

Site 10 of 22 in cluster A

Actual: 856 ft.

NPDES:

Permit Number:	Not reported
Epa Npdes Id Number:	Not reported
Permit Expiration Date:	02/27/2023
Facility Name:	IOWA ARMY NATIONAL GUARD - TRAINING SITE
Facility Address1:	7105 NW 70TH AVE.
Facility City:	JOHNSTON
Facility Phone Number:	Not reported
Facility Type:	Not reported
Facility Class:	Not reported
Standard Industrial Classification Code:	Not reported
Owner Name:	IOWA ARMY NATIONAL GUARD
Owner Add1:	Not reported
Owner Add2:	Not reported
Owner City:	Not reported
Owner State:	Not reported
Owner Zip:	Not reported
Owner Phone:	Not reported
Indr Regional/Field Office Number:	Not reported
Section:	Not reported
Township:	Not reported
Range:	Not reported
Latitude Degree:	Not reported
Longitude Degree:	Not reported
River Basin:	Not reported
Type Of Treatment:	Not reported
Design Number:	Not reported
Design Population Equivalent:	Not reported
Design Biochemical Oxygen Demand:	Not reported
Design Avg Dry Weather Flow (Mll Glns Per Dy):	Not reported
Design Avg Wet Weather Flow (Mll Glns Per Dy):	Not reported
Operator Certification Facility Type:	Not reported
File No:	5748
Authorization No:	5567
Authorization Date:	02/27/2003
Permit Status:	Current
Permit Type:	GP #2 - Construction Activity
Legal Status:	State

A11 Target Property | **CAMP DODGE**
7105 NW 70TH AVE
JOHNSTON, IA 50131

IA SPILLS
IA AIRS
IA NPDES

S108268561
N/A

Site 11 of 22 in cluster A

Actual: 856 ft.

SPILL:

Facility ID:	051214-TWA-1410
Reported Date:	05/12/2014
Reported Time:	14:10:00
Taken By:	Not reported
Spill Date:	Not reported
Spill Time:	Not reported
6 hr Letter:	Not reported
Continuous Release:	Not reported

CAMP DODGE (Continued) **S108268561**

Incident Location:	Not reported
Incident Mode:	Not reported
Incident Type:	Not reported
Incident Medium Land:	Not reported
Incident Medium Water:	Not reported
Incident Medium Air:	Not reported
Field Office:	5
Company Name:	Proctor Mechanical
Company Address1:	100 Hoak Drive
Company Address2:	Not reported
Company City/State/Zip:	West Des Moines, IA 50265
Company Phone:	(515)2882251
Company Fax No:	()
Company Start Date:	05/15/2014
Company End Date:	Not reported
Company Contact Name:	Michael Proctor
Contact Address1:	100 Hoak Drive
Company Contact Address2:	Not reported
Company Contact City/State/Zip:	West Des Moines, IA 50265
Company Contact Phone:	(515)2882251
Company Contact Fax No:	()
Company Contact Start Date:	05/15/2014
Company Contact End Date:	Not reported
Initial Instructions:	Not reported
Events:	Not reported

Facility ID:	022015-BJB-0900
Reported Date:	02/20/2015
Reported Time:	09:00:00
Taken By:	Not reported
Spill Date:	Not reported
Spill Time:	Not reported
6 hr Letter:	Not reported
Continuous Release:	Not reported
Incident Location:	Not reported
Incident Mode:	Not reported
Incident Type:	Not reported
Incident Medium Land:	Not reported
Incident Medium Water:	Not reported
Incident Medium Air:	Not reported
Field Office:	5
Company Name:	Iowa National Guard
Company Address1:	7105 Northwest 70th Avenue
Company Address2:	Not reported
Company City/State/Zip:	Johnston, IA 50131
Company Phone:	(515)2524582
Company Fax No:	()
Company Start Date:	07/24/2009
Company End Date:	Not reported
Company Contact Name:	Howard Clegg
Contact Address1:	1501 West Stone Avenue
Company Contact Address2:	Not reported
Company Contact City/State/Zip:	Fairfield, IA 50131
Company Contact Phone:	(515)2524537
Company Contact Fax No:	()
Company Contact Start Date:	07/24/2009
Company Contact End Date:	Not reported

CAMP DODGE (Continued) **S108268561**

Initial Instructions: Not reported
Events: Not reported

AIRS:

Facility Number:	77-09-004
Status:	MINOR EI
Closed?:	Not reported
Region:	CENTRAL
Site ID:	100000024172
Contact Phone:	515-252-4396
Facility Contact Phone:	Not reported
Mailing Address:	7105 NW 70TH AVE
Mailing Address 2:	Not reported
SIC Primary:	Not reported
NAICS Primary:	Not reported

AIRS:

Facility ID:	77-09-004
NAICS Code:	928110
Year:	2013
PM25:	Not reported
PM10:	0.02954
SO2:	0.0144
NOX:	0.2176
VOC:	0.2728
CO:	0.0469
Lead:	0
Ozone:	Not reported
Ammonia:	0
HAP:	0.0674
Antimony:	Not reported
Arsenic:	Not reported
Beryllium:	Not reported
Cadmium:	Not reported
Chromium:	Not reported
Cobalt:	Not reported
Cokeoven:	Not reported
Cyanide:	Not reported
Finemat:	Not reported
Glycol:	Not reported
H2SO4:	Not reported
Manganese:	Not reported
Mercury:	Not reported
Nickel:	Not reported
Pom:	Not reported
Radionclide:	Not reported
Selenium:	Not reported

Facility ID:	77-09-004
NAICS Code:	928110
Year:	2016
PM25:	0.0205
PM10:	0.0205
SO2:	0.0191
NOX:	0.2883
VOC:	0.1947
CO:	0.0621

CAMP DODGE (Continued) **S108268561**

Lead:	Not reported
Ozone:	Not reported
Ammonia:	Not reported
HAP:	0.0528
Antimony:	Not reported
Arsenic:	Not reported
Beryllium:	Not reported
Cadmium:	Not reported
Chromium:	Not reported
Cobalt:	Not reported
Cokeoven:	Not reported
Cyanide:	Not reported
Finemat:	Not reported
Glycol:	Not reported
H2SO4:	Not reported
Manganese:	Not reported
Mercury:	Not reported
Nickel:	Not reported
Pom:	Not reported
Radionclide:	Not reported
Selenium:	Not reported

NPDES:

Permit Number:	7700901
Epa Npdes Id Number:	0063215
Permit Expiration Date:	09/03/2006
Facility Name:	CAMP DODGE
Facility Address1:	7105 NW 70TH AVE
Facility City:	JOHNSTON
Facility Phone Number:	(515)252-4557
Facility Type:	SEMI-PUBLIC
Facility Class:	MINOR
Standard Industrial Classification Code:	9711
Owner Name:	IOWA ARMY NATIONAL GUARD
Owner Add1:	BLDG. #B61-CAMP DODGE
Owner Add2:	7105 NW 70TH AVENUE
Owner City:	JOHNSTON
Owner State:	IA
Owner Zip:	50131-1824
Owner Phone:	(515)242-4557
Indr Regional/Field Office Number:	5
Section:	35
Township:	80
Range:	25
Latitude Degree:	41.68887
Longitude Degree:	-93.71212
River Basin:	DES MOINES R. BELOW THE EAST FORK DES MOINES
Type Of Treatment:	AERATED LAGOON
Design Number:	1
Design Population Equivalent:	2216
Design Biochemical Oxygen Demand:	370
Design Avg Dry Weather Flow (Mll Glns Per Dy):	0.218
Design Avg Wet Weather Flow (Mll Glns Per Dy):	0.396
Operator Certification Facility Type:	Not reported
File No:	Not reported
Authorization No:	Not reported

CAMP DODGE (Continued) **S108268561**

Authorization Date: Not reported
Permit Status: Not reported
Permit Type: Not reported
Legal Status: Not reported

A12 Target Property **NDNODS MARSHALLTOWN SA RANGE** **UXO** **1018152520**
7105 NW 70TH AVENUE **N/A**
JOHNSTON, IA

Site 12 of 22 in cluster A

Actual: 856 ft.

UXO:

DoD Component:	Army
Installation Name:	JFHQ IA ARNG
Facility Address 2:	Not reported
Site ID:	IAHQ-005-R-01
Site Type:	Small Arms Range
Latitude:	Not reported
Longitude:	Not reported

A13 Target Property **CAMP DODGE** **ICIS** **1011295875**
7105 NW 70TH AVE **US AIRS** **N/A**
JOHNSTON, IA 50131

Site 13 of 22 in cluster A

Actual: 856 ft.

ICIS:

Enforcement Action ID:	IAPLKA0000191530213700026
FRS ID:	110036386470
Action Name:	IOWA ARMY NATIONAL GUARD 191530213700026
Facility Name:	IOWA ARMY NATIONAL GUARD
Facility Address:	7105 NW 70TH AVENUE JOHNSTON, IA 50131
Enforcement Action Type:	Notice of Violation
Facility County:	POLK
Program System Acronym:	AIR
Enforcement Action Forum Desc:	Administrative - Informal
EA Type Code:	NOV
Facility SIC Code:	9711
Federal Facility ID:	Not reported
Latitude in Decimal Degrees:	41.68848
Longitude in Decimal Degrees:	-93.71204
Permit Type Desc:	Not reported
Program System Acronym:	IAPLK0001915302137
Facility NAICS Code:	928110
Tribal Land Code:	Not reported

Enforcement Action ID:	IA-N00004066
FRS ID:	110036386470
Action Name:	CAMP DODGE (Permit IA0063215) Notice Of Violation (Nov) To State
Facility Name:	CAMP DODGE
Facility Address:	7105 NW 70TH AVE JOHNSTON, IA 50131
Enforcement Action Type:	Letter of Violation/ Warning Letter
Facility County:	POLK
Program System Acronym:	NPDES

CAMP DODGE (Continued) **1011295875**

Enforcement Action Forum Desc:	Administrative - Informal
EA Type Code:	LOVWL
Facility SIC Code:	9711
Federal Facility ID:	Not reported
Latitude in Decimal Degrees:	41.68887
Longitude in Decimal Degrees:	-93.71212
Permit Type Desc:	NPDES Individual Permit
Program System Acronym:	IA0063215
Facility NAICS Code:	928110
Tribal Land Code:	Not reported

Enforcement Action ID:	IA-N00002983
FRS ID:	110036386470
Action Name:	CAMP DODGE (Permit IA0063215) Notice Of Violation (Nov) To State
Facility Name:	CAMP DODGE
Facility Address:	7105 NW 70TH AVE JOHNSTON, IA 50131
Enforcement Action Type:	Letter of Violation/ Warning Letter
Facility County:	POLK
Program System Acronym:	NPDES
Enforcement Action Forum Desc:	Administrative - Informal
EA Type Code:	LOVWL
Facility SIC Code:	9711
Federal Facility ID:	Not reported
Latitude in Decimal Degrees:	41.68887
Longitude in Decimal Degrees:	-93.71212
Permit Type Desc:	NPDES Individual Permit
Program System Acronym:	IA0063215
Facility NAICS Code:	928110
Tribal Land Code:	Not reported

US AIRS (AFS):

Envid:	1011295875
Region Code:	07
County Code:	IA153
Programmatic ID:	AIR IAPLK0001915302137
Facility Registry ID:	110036386470
D and B Number:	Not reported
Facility Site Name:	IOWA ARMY NATIONAL GUARD
Primary SIC Code:	9711
NAICS Code:	928110
Default Air Classification Code:	SMI
Facility Type of Ownership Code:	STF
Air CMS Category Code:	SMI
HPV Status:	Not reported

US AIRS (AFS):

Region Code:	07
Programmatic ID:	AIR IAPLK0001915302137
Facility Registry ID:	110036386470
Air Operating Status Code:	OPR
Default Air Classification Code:	SMI
Air Program:	MACT Standards (40 CFR Part 63)
Activity Date:	2014-09-02 00:00:00
Activity Status Date:	2015-02-09 14:19:45
Activity Group:	Compliance Monitoring

CAMP DODGE (Continued) **1011295875**

Activity Type: Inspection/Evaluation
Activity Status: Active

Region Code: 07
Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: MACT Standards (40 CFR Part 63)
Activity Date: 2014-09-24 00:00:00
Activity Status Date: 2015-02-11 10:40:50
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Active

Region Code: 07
Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: MACT Standards (40 CFR Part 63)
Activity Date: 2014-09-25 00:00:00
Activity Status Date: 2015-02-09 14:39:11
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Active

Region Code: 07
Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: MACT Standards (40 CFR Part 63)
Activity Date: 2015-01-28 00:00:00
Activity Status Date: 2015-02-23 11:57:24
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Active

Region Code: 07
Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: MACT Standards (40 CFR Part 63)
Activity Date: 2015-12-14 00:00:00
Activity Status Date: 2016-01-06 16:42:55
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Active

Region Code: 07
Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: MACT Standards (40 CFR Part 63)

CAMP DODGE (Continued) **1011295875**

Activity Date:	2014-09-02 00:00:00
Activity Status Date:	Not reported
Activity Group:	Compliance Monitoring
Activity Type:	Inspection/Evaluation
Activity Status:	Not reported

Region Code:	07
Programmatic ID:	AIR IAPLK0001915302137
Facility Registry ID:	110036386470
Air Operating Status Code:	OPR
Default Air Classification Code:	SMI
Air Program:	New Source Performance Standards (Non-Major)
Activity Date:	2014-10-01 00:00:00
Activity Status Date:	2015-02-11 12:03:30
Activity Group:	Compliance Monitoring
Activity Type:	Inspection/Evaluation
Activity Status:	Active

Region Code:	07
Programmatic ID:	AIR IAPLK0001915302137
Facility Registry ID:	110036386470
Air Operating Status Code:	OPR
Default Air Classification Code:	SMI
Air Program:	State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date:	2014-09-12 00:00:00
Activity Status Date:	2015-02-09 14:28:56
Activity Group:	Compliance Monitoring
Activity Type:	Inspection/Evaluation
Activity Status:	Active

Region Code:	07
Programmatic ID:	AIR IAPLK0001915302137
Facility Registry ID:	110036386470
Air Operating Status Code:	OPR
Default Air Classification Code:	SMI
Air Program:	State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date:	2014-09-12 00:00:00
Activity Status Date:	2015-02-09 14:30:09
Activity Group:	Compliance Monitoring
Activity Type:	Inspection/Evaluation
Activity Status:	Active

Region Code:	07
Programmatic ID:	AIR IAPLK0001915302137
Facility Registry ID:	110036386470
Air Operating Status Code:	OPR
Default Air Classification Code:	SMI
Air Program:	State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date:	2014-09-12 00:00:00
Activity Status Date:	2015-02-09 14:31:35
Activity Group:	Compliance Monitoring
Activity Type:	Inspection/Evaluation
Activity Status:	Active

Region Code:	07
Programmatic ID:	AIR IAPLK0001915302137
Facility Registry ID:	110036386470

CAMP DODGE (Continued) **1011295875**

Air Operating Status Code:	OPR
Default Air Classification Code:	SMI
Air Program:	State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date:	2014-09-12 00:00:00
Activity Status Date:	2015-02-09 14:32:54
Activity Group:	Compliance Monitoring
Activity Type:	Inspection/Evaluation
Activity Status:	Active

Region Code:	07
Programmatic ID:	AIR IAPLK0001915302137
Facility Registry ID:	110036386470
Air Operating Status Code:	OPR
Default Air Classification Code:	SMI
Air Program:	State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date:	2014-09-12 00:00:00
Activity Status Date:	2015-02-09 14:34:29
Activity Group:	Compliance Monitoring
Activity Type:	Inspection/Evaluation
Activity Status:	Active

Region Code:	07
Programmatic ID:	AIR IAPLK0001915302137
Facility Registry ID:	110036386470
Air Operating Status Code:	OPR
Default Air Classification Code:	SMI
Air Program:	State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date:	2014-09-29 00:00:00
Activity Status Date:	2015-02-09 14:40:28
Activity Group:	Compliance Monitoring
Activity Type:	Inspection/Evaluation
Activity Status:	Active

Region Code:	07
Programmatic ID:	AIR IAPLK0001915302137
Facility Registry ID:	110036386470
Air Operating Status Code:	OPR
Default Air Classification Code:	SMI
Air Program:	State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date:	2014-09-29 00:00:00
Activity Status Date:	2015-02-09 14:41:42
Activity Group:	Compliance Monitoring
Activity Type:	Inspection/Evaluation
Activity Status:	Active

Region Code:	07
Programmatic ID:	AIR IAPLK0001915302137
Facility Registry ID:	110036386470
Air Operating Status Code:	OPR
Default Air Classification Code:	SMI
Air Program:	State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date:	1991-09-06 00:00:00
Activity Status Date:	Not reported
Activity Group:	Compliance Monitoring
Activity Type:	Inspection/Evaluation
Activity Status:	Not reported

CAMP DODGE (Continued) **1011295875**

Region Code: 07
Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1992-08-06 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 07
Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1993-08-17 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 07
Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1994-08-11 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 07
Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1995-07-19 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 07
Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1996-09-11 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring

CAMP DODGE (Continued) **1011295875**

Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 07
Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1997-09-09 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 07
Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1998-10-19 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 07
Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1999-03-25 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 07
Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1999-12-10 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 07
Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards

CAMP DODGE (Continued) **1011295875**

Activity Date: 2000-10-23 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 07
Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2001-11-27 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 07
Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2003-01-17 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 07
Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2005-09-21 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 07
Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2006-12-12 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 07
Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470

CAMP DODGE (Continued) **1011295875**

Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2008-09-03 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 07
Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2010-03-29 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 07
Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2012-09-24 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 07
Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2012-10-11 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 07
Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2005-09-01 00:00:00
Activity Status Date: 2005-09-01 00:00:00
Activity Group: Enforcement Action
Activity Type: Administrative - Informal
Activity Status: Achieved

A14 Target Property — **NDNODS MOUNT PLEASANT SA RANGE NTA**, **7105 NW 70TH AVENUE**, **JOHNSTON, IA** — **UXO** — **1018152521** / **N/A**

Site 14 of 22 in cluster A

Actual: 856 ft.

UXO:

DoD Component:	Army
Installation Name:	JFHQ IA ARNG
Facility Address 2:	Not reported
Site ID:	IAHQ-006-R-02
Site Type:	Small Arms Range
Latitude:	Not reported
Longitude:	Not reported

A15 Target Property — **NDNODS OSKALOOSA SA RANGE**, **7105 NW 70TH AVENUE**, **JOHNSTON, IA** — **UXO** — **1018152522** / **N/A**

Site 15 of 22 in cluster A

Actual: 856 ft.

UXO:

DoD Component:	Army
Installation Name:	JFHQ IA ARNG
Facility Address 2:	Not reported
Site ID:	IAHQ-007-R-01
Site Type:	Small Arms Range
Latitude:	Not reported
Longitude:	Not reported

A16 Target Property — **NDNODS RED OAK 25-METER RANGE**, **7105 NW 70TH AVENUE**, **JOHNSTON, IA** — **UXO** — **1018152524** / **N/A**

Site 16 of 22 in cluster A

Actual: 856 ft.

UXO:

DoD Component:	Army
Installation Name:	JFHQ IA ARNG
Facility Address 2:	Not reported
Site ID:	IAHQ-009-R-01
Site Type:	Small Arms Range
Latitude:	Not reported
Longitude:	Not reported

A17 Target Property — **U.S. ARMY IOWA ARMY NATIONAL GUARD CAMP DODGE INST**, **7105 NW 70TH AVE**, **JOHNSTON, IA 50131** — **TRIS** — **1012009617** / **50131SRMYW715NW**

Site 17 of 22 in cluster A

Actual: 856 ft.

TRIS:

Click this hyperlink while viewing on your computer to access
3 additional US_TRIS: record(s) in the EDR Site Report.

A18 Target Property | **NDNODS SHELDON 1,000-YARD RANGE**
7105 NW 70TH AVENUE
JOHNSTON, IA | **UXO** | **1018152525**
N/A

Site 18 of 22 in cluster A

Actual: 856 ft.

UXO:

DoD Component:	Army
Installation Name:	JFHQ IA ARNG
Facility Address 2:	Not reported
Site ID:	IAHQ-010-R-01
Site Type:	Small Arms Range
Latitude:	Not reported
Longitude:	Not reported

A19 Target Property | **NDNODS CENTERVILLE 1,000-YARD RANGE**
7105 NW 70TH AVENUE
JOHNSTON, IA | **UXO** | **1018152517**
N/A

Site 19 of 22 in cluster A

Actual: 856 ft.

UXO:

DoD Component:	Army
Installation Name:	JFHQ IA ARNG
Facility Address 2:	Not reported
Site ID:	IAHQ-002-R-01
Site Type:	Small Arms Range
Latitude:	Not reported
Longitude:	Not reported

A20 Target Property | **NDNODS SIOUX CITY HILL FARM RANGE**
7105 NW 70TH AVENUE
JOHNSTON, IA | **UXO** | **1018152526**
N/A

Site 20 of 22 in cluster A

Actual: 856 ft.

UXO:

DoD Component:	Army
Installation Name:	JFHQ IA ARNG
Facility Address 2:	Not reported
Site ID:	IAHQ-011-R-01
Site Type:	Small Arms Range
Latitude:	Not reported
Longitude:	Not reported

A21 Target Property | **IOWA ARMY NATIONAL GUARD**
7105 NW 70TH AVE
JOHNSTON, IA 50131 | **CORRACTS**
RCRA-TSDF
RCRA-LQG
RAATS
WI MANIFEST | **1000142942**
IAD981504285

Site 21 of 22 in cluster A

Actual: 856 ft.

CORRACTS:

EPA ID:	IAD981504285
EPA Region:	7
Area Name:	ENTIRE FACILITY
Actual Date:	20120523
Action:	CA550NR

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

NAICS Code(s): 928110
National Security
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: IAD981504285
EPA Region: 7
Area Name: ENTIRE FACILITY
Actual Date: 20120523
Action: CA999NF - Corrective Action Process Terminated, No Further Action
NAICS Code(s): 928110
National Security
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: IAD981504285
EPA Region: 7
Area Name: ENTIRE FACILITY
Actual Date: 19960905
Action: CA225NR - Stabilization Measures Evaluation, This facility is, not amenable to stabilization activity at the, present time for reasons other than (1) it appears to be technically, infeasible or inappropriate (NF) or (2) there is a lack of technical, information (IN). Reasons for this conclusion may be the status of, closure at the facility, the degree of risk, timing considerations, the status of corrective action work at the facility, or other, administrative considerations
NAICS Code(s): 928110
National Security
Original schedule date: 19960930
Schedule end date: Not reported

EPA ID: IAD981504285
EPA Region: 7
Area Name: ENTIRE FACILITY
Actual Date: 19950323
Action: CA225IN - Stabilization Measures Evaluation, This facility is not, amenable to stabilization activity because of, a lack of technical data. An evaluation has been completed, but further data is necessary to determine stabilization measures, feasibility or appropriateness. This status should be changed when data becomes available
NAICS Code(s): 928110
National Security
Original schedule date: 19950930
Schedule end date: Not reported

EPA ID: IAD981504285
EPA Region: 7
Area Name: ENTIRE FACILITY
Actual Date: 19930113
Action: CA075ME - CA Prioritization, Facility or area was assigned a medium corrective action priority
NAICS Code(s): 928110
National Security
Original schedule date: Not reported
Schedule end date: Not reported

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

EPA ID:	IAD981504285
EPA Region:	7
Area Name:	ENTIRE FACILITY
Actual Date:	19920128
Action:	CA075LO - CA Prioritization, Facility or area was assigned a low corrective action priority
NAICS Code(s):	928110 National Security
Original schedule date:	Not reported
Schedule end date:	Not reported

RCRA-TSDF:

Date form received by agency:	09/11/2017
Facility name:	IOWA ARMY NATIONAL GUARD
Facility address:	7105 NW 70TH AVE JOHNSTON, IA 50131
EPA ID:	IAD981504285
Mailing address:	NW 70TH AVE JOHNSTON, IA 50131
Contact:	LENA R DOUGLAS
Contact address:	NW 70TH AVE JOHNSTON, IA 50131
Contact country:	US
Contact telephone:	515-252-4486
Contact email:	LENA.R.DOUGLAS.NFG@MAIL.MIL
EPA Region:	07
Land type:	State
Classification:	TSDF
Description:	Handler is engaged in the treatment, storage or disposal of hazardous waste
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:	IOWA STATE OF
Owner/operator address:	NW 70TH AVE JOHNSTON, IA 50131
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:	State
Owner/Operator Type:	Operator
Owner/Op start date:	04/12/1909

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

Owner/Op end date: Not reported

Owner/operator name: IOWA STATE OF
Owner/operator address: NW 70TH AVE
JOHNSTON, IA 50131
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: State
Owner/Operator Type: Owner
Owner/Op start date: 04/12/1909
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: 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.

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

. 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: D027
. Waste name: 1,4-DICHLOROBENZENE

. 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: U226
. Waste name: ETHANE, 1,1,1-TRICHLORO-

Historical Generators:
Date form received by agency: 09/06/2017
Site name: IOWA ARMY NATIONAL GUARD
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

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

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: 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: D027
. Waste name: 1,4-DICHLOROBENZENE

. 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.

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

. Waste code: U080
. Waste name: METHANE, DICHLORO-

. Waste code: U226
. Waste name: ETHANE, 1,1,1-TRICHLORO-

Date form received by agency: 05/11/2016
Site name: IOWA NATIONAL GUARD
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: 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: 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: D027
. Waste name: 1,4-DICHLOROBENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: D040
. Waste name: TRICHLOROETHYLENE

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

. 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: 06/20/2014
Site name: IOWA ARMY NATIONAL GUARD
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: 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

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

. Waste name: CHROMIUM

. Waste code: D008
. Waste name: LEAD

. Waste code: D009
. Waste name: MERCURY

. Waste code: D018
. Waste name: BENZENE

. Waste code: D027
. Waste name: 1,4-DICHLOROBENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D037
. Waste name: PENTRACHLOROPHENOL

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: D040
. Waste name: TRICHLOROETHYLENE

. 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.

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

. Waste code: UOIL
. Waste name: UOIL

Date form received by agency: 02/18/2014
Site name: IOWA NATIONAL GUARD
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: 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: D027
. Waste name: 1,4-DICHLOROBENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: D040
. Waste name: TRICHLOROETHYLENE

. 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

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

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: U226
. Waste name: ETHANE, 1,1,1-TRICHLORO-

Date form received by agency: 02/02/2012
Site name: IOWA ARMY NATIONAL GUARD
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

. Waste code: D006
. Waste name: CADMIUM

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

. 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: D027
. Waste name: 1,4-DICHLOROBENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D037
. Waste name: PENTRACHLOROPHENOL

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: D040
. Waste name: TRICHLOROETHYLENE

. 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

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Date form received by agency: 05/22/2008
Site name: IOWA ARMY NATIONAL GUARD
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: 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: D006
. Waste name: CADMIUM

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D008
. Waste name: LEAD

. Waste code: D013
. Waste name: LINDANE

. Waste code: D018
. Waste name: BENZENE

. Waste code: D027
. Waste name: 1,4-DICHLOROBENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D036
. Waste name: NITROBENZENE

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: D040
. Waste name: TRICHLOROETHYLENE

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

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: U112
. Waste name: ACETIC ACID ETHYL ESTER (I)

. Waste code: U129
. Waste name: CYCLOHEXANE, 1,2,3,4,5,6-HEXACHLORO-, (1ALPHA,2ALPHA,3BETA,4ALPHA,5ALPHA,6BETA)-

. Waste code: U154
. Waste name: METHANOL (I)

Date form received by agency: 01/24/2008
Site name: IOWA ARMY NATIONAL GUARD
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: D006
. Waste name: CADMIUM

. Waste code: D007

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

. Waste name: CHROMIUM

. Waste code: D008
. Waste name: LEAD

. Waste code: D013
. Waste name: LINDANE

. Waste code: D018
. Waste name: BENZENE

. Waste code: D027
. Waste name: 1,4-DICHLOROBENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D036
. Waste name: NITROBENZENE

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: D040
. Waste name: TRICHLOROETHYLENE

. 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: U112
. Waste name: ACETIC ACID ETHYL ESTER (I)

. Waste code: U129
. Waste name: CYCLOHEXANE, 1,2,3,4,5,6-HEXACHLORO-, (1ALPHA,2ALPHA,3BETA,4ALPHA,5ALPHA,6BETA)-

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

. Waste code: U154
. Waste name: METHANOL (I)

Date form received by agency: 01/24/2008
Site name: IOWA ARMY NATIONAL GUARD
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: D006
. Waste name: CADMIUM

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D008
. Waste name: LEAD

. Waste code: D013
. Waste name: LINDANE

. Waste code: D018
. Waste name: BENZENE

. Waste code: D027
. Waste name: 1,4-DICHLOROBENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D036
. Waste name: NITROBENZENE

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: D040
. Waste name: TRICHLOROETHYLENE

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

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: U112
. Waste name: ACETIC ACID ETHYL ESTER (I)

. Waste code: U129
. Waste name: CYCLOHEXANE, 1,2,3,4,5,6-HEXACHLORO-, (1ALPHA,2ALPHA,3BETA,4ALPHA,5ALPHA,6BETA)-

. Waste code: U154
. Waste name: METHANOL (I)

Date form received by agency: 09/28/2007
Site name: IOWA ARMY NATIONAL GUARD
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

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

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: D013
. Waste name: LINDANE

. Waste code: D018
. Waste name: BENZENE

. Waste code: D026
. Waste name: CRESOL

. Waste code: D027
. Waste name: 1,4-DICHLOROBENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D038
. Waste name: PYRIDINE

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: D040
. Waste name: TRICHLOROETHYLENE

. 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

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

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: F004
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: CRESOLS AND CRESYLIC ACID, AND NITROBENZENE; 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, 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: U129
. Waste name: CYCLOHEXANE, 1,2,3,4,5,6-HEXACHLORO-, (1ALPHA,2ALPHA,3BETA,4ALPHA,5ALPHA,6BETA)-

Date form received by agency: 01/30/2006
Site name: IOWA ARMY NATIONAL GUARD
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

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

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: D018
. Waste name: BENZENE

. Waste code: D026
. Waste name: CRESOL

. Waste code: D027
. Waste name: 1,4-DICHLOROBENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D038
. Waste name: PYRIDINE

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: D040
. Waste name: TRICHLOROETHYLENE

. 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

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

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: F004
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: CRESOLS AND CRESYLIC ACID, AND NITROBENZENE; 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, 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: 01/30/2006
Site name: IOWA ARMY NATIONAL GUARD
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: 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

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

. Waste code: D018
. Waste name: BENZENE

. Waste code: D026
. Waste name: CRESOL

. Waste code: D027
. Waste name: 1,4-DICHLOROBENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D038
. Waste name: PYRIDINE

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: D040
. Waste name: TRICHLOROETHYLENE

. 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: F004
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: CRESOLS AND CRESYLIC ACID, AND NITROBENZENE; 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, 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

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

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: U129
. Waste name: CYCLOHEXANE, 1,2,3,4,5,6-HEXACHLORO-, (1ALPHA,2ALPHA,3BETA,4ALPHA,5ALPHA,6BETA)-

Date form received by agency: 02/03/2004
Site name: IOWA ARMY NATIONAL GUARD
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: D006
. Waste name: CADMIUM

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D008
. Waste name: LEAD

. Waste code: D009
. Waste name: MERCURY

. Waste code: D013
. Waste name: LINDANE

. Waste code: D018
. Waste name: BENZENE

. Waste code: D027
. Waste name: 1,4-DICHLOROBENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D038
. Waste name: PYRIDINE

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: D040
. Waste name: TRICHLOROETHYLENE

. 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: U129
. Waste name: CYCLOHEXANE, 1,2,3,4,5,6-HEXACHLORO-, (1ALPHA,2ALPHA,3BETA,4ALPHA,5ALPHA,6BETA)-

Date form received by agency: 10/16/2003
Site name: IOWA ARMY NATIONAL GUARD
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

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

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: D013
. Waste name: LINDANE

. Waste code: D018
. Waste name: BENZENE

. Waste code: D020
. Waste name: CHLORDANE

. Waste code: D021
. Waste name: CHLOROBENZENE

. Waste code: D027
. Waste name: 1,4-DICHLOROBENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: D040
. Waste name: TRICHLOROETHYLENE

. 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: F002
. Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS: TETRACHLOROETHYLENE,

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

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: F004
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: CRESOLS AND CRESYLIC ACID, AND NITROBENZENE; 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, 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: U159
. Waste name: 2-BUTANONE (I,T)

. Waste code: U210
. Waste name: ETHENE, TETRACHLORO-

. Waste code: U220
. Waste name: BENZENE, METHYL-

. 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, WHEN PRESENT AT CONCENTRATIONS OF 0.3% OR LESS

Date form received by agency: 04/30/2003
Site name: IOWA ARMY NATIONAL GUARD
Classification: Large Quantity Generator

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

. 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: D011
. Waste name: SILVER

. Waste code: D013
. Waste name: LINDANE

. Waste code: D018
. Waste name: BENZENE

. Waste code: D020
. Waste name: CHLORDANE

. Waste code: D021
. Waste name: CHLOROBENZENE

. Waste code: D027
. Waste name: 1,4-DICHLOROBENZENE

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: D040
. Waste name: TRICHLOROETHYLENE

. 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: 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: F004
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: CRESOLS AND CRESYLIC ACID, AND NITROBENZENE; 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, 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

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: U159
. Waste name: 2-BUTANONE (I,T)

. Waste code: U210
. Waste name: ETHENE, TETRACHLORO-

. Waste code: U220
. Waste name: BENZENE, METHYL-

. 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, WHEN PRESENT AT CONCENTRATIONS OF 0.3% OR LESS

Date form received by agency: 04/21/2003
Site name: IOWA ARMY NATIONAL GUARD
Classification: Large Quantity Generator

. Waste code: D000
. Waste name: Not Defined

. 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: D006
. Waste name: CADMIUM

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D008

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

. Waste name: LEAD

. Waste code: D009
. Waste name: MERCURY

. Waste code: D018
. Waste name: BENZENE

. Waste code: D021
. Waste name: CHLOROBENZENE

. Waste code: D027
. Waste name: 1,4-DICHLOROBENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: D040
. Waste name: TRICHLOROETHYLENE

. 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: 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: F004

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: CRESOLS AND CRESYLIC ACID, AND NITROBENZENE; 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, 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: U159
. Waste name: 2-BUTANONE (I,T)

. Waste code: U210
. Waste name: ETHENE, TETRACHLORO-

. Waste code: U220
. Waste name: BENZENE, METHYL-

. Waste code: U226
. Waste name: ETHANE, 1,1,1-TRICHLORO-

. Waste code: U239
. Waste name: BENZENE, DIMETHYL- (I,T)

Date form received by agency: 04/17/2002
Site name: IOWA ARMY NATIONAL GUARD
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

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

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: D018
. Waste name: BENZENE

. Waste code: D021
. Waste name: CHLOROBENZENE

. Waste code: D022
. Waste name: CHLOROFORM

. Waste code: D027
. Waste name: 1,4-DICHLOROBENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: D040
. Waste name: TRICHLOROETHYLENE

. 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: 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

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

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: F004
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: CRESOLS AND CRESYLIC ACID, AND NITROBENZENE; 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, 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: P042
. Waste name: 1,2-BENZENEDIOL, 4-[1-HYDROXY-2-(METHYLAMINO)ETHYL]-, (R)-

. Waste code: U088
. Waste name: 1,2-BENZENEDICARBOXYLIC ACID, DIETHYL ESTER

. Waste code: U145
. Waste name: LEAD PHOSPHATE

. Waste code: U159
. Waste name: 2-BUTANONE (I,T)

. Waste code: U210
. Waste name: ETHENE, TETRACHLORO-

. Waste code: U220
. Waste name: BENZENE, METHYL-

. Waste code: U226
. Waste name: ETHANE, 1,1,1-TRICHLORO-

. Waste code: U239
. Waste name: BENZENE, DIMETHYL- (I,T)

Date form received by agency: 01/30/2002

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

Site name: IOWA ARMY NATIONAL GUARD CAMP DODGE
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: 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: D013
. Waste name: LINDANE

. Waste code: D018
. Waste name: BENZENE

. Waste code: D027
. Waste name: 1,4-DICHLOROBENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: D040
. Waste name: TRICHLOROETHYLENE

. Waste code: D043
. Waste name: VINYL CHLORIDE

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

. 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: U248
. Waste name: 2H-1-BENZOPYRAN-2-ONE, 4-HYDROXY-3-(3-OXO-1-PHENYL-BUTYL)-, & SALTS, WHEN PRESENT AT CONCENTRATIONS OF 0.3% OR LESS

Date form received by agency: 01/02/2002
Site name: IOWA ARMY NATIONAL GUARD
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: D006
. Waste name: CADMIUM

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

. 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: D021
. Waste name: CHLOROBENZENE

. Waste code: D027
. Waste name: 1,4-DICHLOROBENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: D040
. Waste name: TRICHLOROETHYLENE

. 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: F004
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: CRESOLS AND CRESYLIC ACID, AND NITROBENZENE; 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, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

. 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: U159
. Waste name: 2-BUTANONE (I,T)

. Waste code: U210
. Waste name: ETHENE, TETRACHLORO-

. Waste code: U220
. Waste name: BENZENE, METHYL-

. Waste code: U226
. Waste name: ETHANE, 1,1,1-TRICHLORO-

. Waste code: U239
. Waste name: BENZENE, DIMETHYL- (I,T)

Date form received by agency: 10/11/2001
Site name: IOWA NATIONAL GUARD
Classification: Not a generator, verified

Date form received by agency: 01/24/2000
Site name: IOWA ARMY NATIONAL GUARD
Classification: Large Quantity Generator

. Waste code: D000
. Waste name: Not Defined

. 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

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

DETONATION OR EXPLOSION WHEN EXPOSED TO HEAT OR A FLAME. ONE EXAMPLE OF SUCH WASTE WOULD BY WASTE GUNPOWDER.

. 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: D021
. Waste name: CHLOROBENZENE

. Waste code: D022
. Waste name: CHLOROFORM

. Waste code: D027
. Waste name: 1,4-DICHLOROBENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: D040
. Waste name: TRICHLOROETHYLENE

. 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: 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.

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

. 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: F004
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: CRESOLS AND CRESYLIC ACID, AND NITROBENZENE; 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, 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: P042
. Waste name: 1,2-BENZENEDIOL, 4-[1-HYDROXY-2-(METHYLAMINO)ETHYL]-, (R)-

. Waste code: U088
. Waste name: 1,2-BENZENEDICARBOXYLIC ACID, DIETHYL ESTER

. Waste code: U145
. Waste name: LEAD PHOSPHATE

. Waste code: U159
. Waste name: 2-BUTANONE (I,T)

. Waste code: U210
. Waste name: ETHENE, TETRACHLORO-

. Waste code: U220
. Waste name: BENZENE, METHYL-

. Waste code: U226
. Waste name: ETHANE, 1,1,1-TRICHLORO-

. Waste code: U239
. Waste name: BENZENE, DIMETHYL- (I,T)

Date form received by agency: 01/24/2000
Site name: IOWA ARMY NATIONAL GUARD
Classification: Large Quantity Generator

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

Date form received by agency: 07/10/1998
Site name: IOWA ARMY NATIONAL GUARD
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: 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: D021
. Waste name: CHLOROBENZENE

. Waste code: D022
. Waste name: CHLOROFORM

. Waste code: D027
. Waste name: 1,4-DICHLOROBENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D039

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

. Waste name: TETRACHLOROETHYLENE

. Waste code: D040
. Waste name: TRICHLOROETHYLENE

. 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: 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: F004
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: CRESOLS AND CRESYLIC ACID, AND NITROBENZENE; 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, 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: P042
. Waste name: 1,2-BENZENEDIOL, 4-[1-HYDROXY-2-(METHYLAMINO)ETHYL]-, (R)-

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

. Waste code: U088
. Waste name: 1,2-BENZENEDICARBOXYLIC ACID, DIETHYL ESTER

. Waste code: U145
. Waste name: LEAD PHOSPHATE

. Waste code: U159
. Waste name: 2-BUTANONE (I,T)

. Waste code: U210
. Waste name: ETHENE, TETRACHLORO-

. Waste code: U220
. Waste name: BENZENE, METHYL-

. Waste code: U226
. Waste name: ETHANE, 1,1,1-TRICHLORO-

. Waste code: U239
. Waste name: BENZENE, DIMETHYL- (I,T)

Date form received by agency: 02/17/1998
Site name: IOWA NATIONAL GUARD - CAMP DOD
Classification: Large Quantity Generator

Date form received by agency: 02/16/1996
Site name: IOWA NATIONAL GUARD-CAMP DODGE
Classification: Large Quantity Generator

Date form received by agency: 02/18/1994
Site name: IOWA NATIONAL GUARD - CAMP DODGE
Classification: Large Quantity Generator

Date form received by agency: 02/11/1994
Site name: STATE OF IOWA MAINTENANCE SHOP
Classification: Not a generator, verified

. Waste code: D000
. Waste name: Not Defined

Date form received by agency: 02/11/1994
Site name: ORGANIZATIONAL MAINT SHOP 1
Classification: Not a generator, verified

. Waste code: D000
. Waste name: Not Defined

Date form received by agency: 02/11/1994
Site name: IOWA NATIONAL GUARD - CAMP DODGE
Classification: Not a generator, verified

. Waste code: NONE
. Waste name: None

Date form received by agency: 02/08/1994
Site name: IOWA ARMY NATIONAL GUARD
Classification: Large Quantity Generator

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

Date form received by agency: 02/07/1994
Site name: IOWA NATIONAL GUARD-DUPLICATE ID#
Classification: Not a generator, verified

. Waste code: NONE
. Waste name: None

Date form received by agency: 01/24/1994
Site name: IOWA NATIONAL GUARD - CAMP DODGE
Classification: Not a generator, verified

. Waste code: NONE
. Waste name: None

Date form received by agency: 02/27/1992
Site name: IOWA ARMY NATIONAL GUARD
Classification: Large Quantity Generator

Date form received by agency: 07/11/1991
Site name: IOWA NATIONAL GUARD
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: D006
. Waste name: CADMIUM

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D008
. Waste name: LEAD

. Waste code: D009

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

. Waste name: MERCURY

. Waste code: D018
. Waste name: BENZENE

. Waste code: D021
. Waste name: CHLOROBENZENE

. Waste code: D027
. Waste name: 1,4-DICHLOROBENZENE

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: D040
. Waste name: TRICHLOROETHYLENE

. 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: 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: F004
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: CRESOLS AND CRESYLIC ACID, AND NITROBENZENE; 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, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

. 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: U088
. Waste name: 1,2-BENZENEDICARBOXYLIC ACID, DIETHYL ESTER

. Waste code: U145
. Waste name: LEAD PHOSPHATE

. Waste code: U159
. Waste name: 2-BUTANONE (I,T)

. Waste code: U210
. Waste name: ETHENE, TETRACHLORO-

. Waste code: U220
. Waste name: BENZENE, METHYL-

. Waste code: U226
. Waste name: ETHANE, 1,1,1-TRICHLORO-

. Waste code: U239
. Waste name: BENZENE, DIMETHYL- (I,T)

Date form received by agency: 02/26/1990
Site name: IOWA ARMY NATIONAL GROUP
Classification: Large Quantity Generator

Date form received by agency: 04/07/1987
Site name: STATE OF IOWA MAINTENANCE SHOP
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.

Date form received by agency: 06/04/1986

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

Site name: COMBINED SUPPORT MAINT SHOP - CAMP DODGE
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: 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: 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: 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: F004
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: CRESOLS AND CRESYLIC ACID, AND NITROBENZENE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING,

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

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, 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: P066
. Waste name: ETHANIMIDOTHIOIC ACID, N-[[(METHYLAMINO)CARBONYL]OXY]-, METHYL ESTER

. Waste code: U103
. Waste name: DIMETHYL SULFATE

. Waste code: U159
. Waste name: 2-BUTANONE (I,T)

. Waste code: U165
. Waste name: NAPHTHALENE

. Waste code: U220
. Waste name: BENZENE, METHYL-

. Waste code: U226
. Waste name: ETHANE, 1,1,1-TRICHLORO-

Date form received by agency: 06/04/1986
Site name: OUSPFO FOR IOWA WAREHOUSE 12 - CAMP DODGE
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: 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: F001
. Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS USED IN DEGREASING: TETRACHLOROETHYLENE, TRICHLOROETHYLENE, METHYLENE CHLORIDE,

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

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: F004
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: CRESOLS AND CRESYLIC ACID, AND NITROBENZENE; 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, 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: P066
. Waste name: ETHANIMIDOTHIOIC ACID, N-[[(METHYLAMINO)CARBONYL]OXY]-, METHYL ESTER

. Waste code: U103
. Waste name: DIMETHYL SULFATE

. Waste code: U159
. Waste name: 2-BUTANONE (I,T)

. Waste code: U165

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

. Waste name: NAPHTHALENE

. Waste code: U220
. Waste name: BENZENE, METHYL-

. Waste code: U226
. Waste name: ETHANE, 1,1,1-TRICHLORO-

Date form received by agency: 06/04/1986
Site name: ORGANIZATIONAL MAINT SHOP 1
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: 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: 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

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

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: F004
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: CRESOLS AND CRESYLIC ACID, AND NITROBENZENE; 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, 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: P066
. Waste name: ETHANIMIDOTHIOIC ACID, N-[[(METHYLAMINO)CARBONYL]OXY]-, METHYL ESTER

. Waste code: U165
. Waste name: NAPHTHALENE

Date form received by agency: 01/01/1979
Site name: IOWA ARMY NATIONAL GUARD
Classification: Not a generator, verified

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): 2629

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): 162

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

Waste code: D005
Waste name: BARIUM
Amount (Lbs): 97

Waste code: D006
Waste name: CADMIUM
Amount (Lbs): 785

Waste code: D007
Waste name: CHROMIUM
Amount (Lbs): 412

Waste code: D008
Waste name: LEAD
Amount (Lbs): 16515

Waste code: D009
Waste name: MERCURY
Amount (Lbs): 17

Waste code: D010
Waste name: SELENIUM
Amount (Lbs): 45

Waste code: D018
Waste name: BENZENE
Amount (Lbs): 252

Waste code: D035
Waste name: METHYL ETHYL KETONE
Amount (Lbs): 2309

Waste code: D038
Waste name: PYRIDINE
Amount (Lbs): 109

Waste code: D039
Waste name: TETRACHLOROETHYLENE
Amount (Lbs): 738

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): 652

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

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

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): 652

Corrective Action Summary:

Event date: 01/28/1992
Event: CA PRIORITIZATION-LOW CA PRIORITY

Event date: 01/13/1993
Event: CA PRIORITIZATION-MEDIUM CA PRIORITY

Event date: 03/23/1995
Event: STABILIZATION MEASURES EVALUATION-FURTHER INVESTIGATION NECESSARY

Event date: 09/05/1996
Event: STABILIZATION MEASURES EVALUATION-FACILITY NOT AMENABLE TO STABILIZATION

Event date: 05/23/2012
Event: REMEDY CONSTRUCTION-NO REMEDY CONSTRUCTED

Event date: 05/23/2012
Event: CA PROCESS IS TERMINATED-NO FURTHER ACTION

Facility Has Received Notices of Violations:

Regulation violated: Not reported
Area of violation: Generators - Pre-transport
Date violation determined: 06/05/2014
Date achieved compliance: 06/16/2014
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 08/18/2014
Enf. disposition status: Action Satisfied (Case Closed)
Enf. disp. status date: 08/18/2014
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 268.7
Area of violation: LDR - General
Date violation determined: 04/09/2003
Date achieved compliance: 04/17/2003
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 06/16/2003
Enf. disposition status: Action Satisfied (Case Closed)
Enf. disp. status date: 06/16/2003
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

Regulation violated: Not reported
Area of violation: Generators - Manifest
Date violation determined: 12/19/2001
Date achieved compliance: 12/21/2001
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 12/19/2001
Enf. disposition status: Action Satisfied (Case Closed)
Enf. disp. status date: 04/19/2002
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD IS-Contingency Plan and Emergency Procedures
Date violation determined: 12/18/2001
Date achieved compliance: 03/21/2002
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 12/19/2001
Enf. disposition status: Action Satisfied (Case Closed)
Enf. disp. status date: 04/19/2002
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 40CFR 265.52(D)
Area of violation: TSD - Contingency Plan and Emergency Procedures
Date violation determined: 12/18/2001
Date achieved compliance: 03/27/2002
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 12/18/2001
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 40CFR 265.53(B)
Area of violation: TSD - Contingency Plan and Emergency Procedures
Date violation determined: 12/18/2001
Date achieved compliance: 03/27/2002
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 12/18/2001
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 40CFR 268.7

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

Area of violation: LDR - General
Date violation determined: 12/18/2001
Date achieved compliance: 03/27/2002
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 12/18/2001
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 40CFR 265.52(E)
Area of violation: TSD - Contingency Plan and Emergency Procedures
Date violation determined: 12/18/2001
Date achieved compliance: 03/27/2002
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 12/18/2001
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
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: 12/18/2001
Date achieved compliance: 12/21/2001
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 12/19/2001
Enf. disposition status: Action Satisfied (Case Closed)
Enf. disp. status date: 04/19/2002
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 40CFR 262.20(A)
Area of violation: Generators - Manifest
Date violation determined: 12/18/2001
Date achieved compliance: 03/27/2002
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 12/18/2001
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
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

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

Date violation determined: 12/28/1993
Date achieved compliance: 01/20/1994
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 12/28/1993
Enf. disposition status: Action Satisfied (Case Closed)
Enf. disp. status date: 01/20/1994
Enforcement lead agency: EPA
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: 11/14/1990
Date achieved compliance: 11/29/1990
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 11/04/1992
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD IS-Container Use and Management
Date violation determined: 11/14/1990
Date achieved compliance: 11/29/1990
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 11/04/1992
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
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: 11/14/1990
Date achieved compliance: 11/29/1990
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 11/04/1992
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD IS-Preparedness and Prevention
Date violation determined: 11/14/1990

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

Date achieved compliance: 11/29/1990
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 11/04/1992
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD - General
Date violation determined: 11/14/1990
Date achieved compliance: 11/29/1990
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 11/04/1992
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD IS-General Facility Standards
Date violation determined: 11/14/1990
Date achieved compliance: 11/04/1992
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 11/04/1992
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
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: 11/14/1990
Date achieved compliance: 11/29/1990
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 11/04/1992
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD - General
Date violation determined: 10/25/1989
Date achieved compliance: 04/25/1990

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 10/25/1989
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
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: 10/25/1989
Date achieved compliance: 11/19/1990
Violation lead agency: EPA
Enforcement action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement action date: 10/17/1994
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: 35000
Paid penalty amount: 35000

Regulation violated: Not reported
Area of violation: Generators - General
Date violation determined: 10/25/1989
Date achieved compliance: 11/19/1990
Violation lead agency: EPA
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 04/06/1990
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: 31300
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD - Manifest/Records/Reporting
Date violation determined: 10/25/1989
Date achieved compliance: 04/25/1990
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 10/25/1989
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD - General
Date violation determined: 10/25/1989
Date achieved compliance: 04/25/1990
Violation lead agency: EPA

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

Enforcement action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement action date: 10/17/1994
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: 35000
Paid penalty amount: 35000

Regulation violated: Not reported
Area of violation: TSD - General
Date violation determined: 10/25/1989
Date achieved compliance: 04/25/1990
Violation lead agency: EPA
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 04/06/1990
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: 31300
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD - General
Date violation determined: 10/25/1989
Date achieved compliance: 04/06/1990
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 10/25/1989
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD - Manifest/Records/Reporting
Date violation determined: 10/25/1989
Date achieved compliance: 04/25/1990
Violation lead agency: EPA
Enforcement action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement action date: 10/17/1994
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: 35000
Paid penalty amount: 35000

Regulation violated: Not reported
Area of violation: TSD - Manifest/Records/Reporting
Date violation determined: 10/25/1989
Date achieved compliance: 04/25/1990
Violation lead agency: EPA
Enforcement action: INITIAL 3008(A) COMPLIANCE

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

Enforcement action date: 04/06/1990
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: 31300
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - General
Date violation determined: 10/25/1989
Date achieved compliance: 11/19/1990
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 10/25/1989
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Evaluation Action Summary:
Evaluation date: 06/04/2014
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Pre-transport
Date achieved compliance: 06/16/2014
Evaluation lead agency: EPA Contractor/Grantee

Evaluation date: 05/22/2008
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA Contractor/Grantee

Evaluation date: 10/16/2003
Evaluation: COMPLIANCE ASSISTANCE VISIT
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA Contractor/Grantee

Evaluation date: 04/09/2003
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: LDR - General
Date achieved compliance: 04/17/2003
Evaluation lead agency: EPA Contractor/Grantee

Evaluation date: 12/18/2001
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - Contingency Plan and Emergency Procedures
Date achieved compliance: 03/27/2002
Evaluation lead agency: EPA

Evaluation date: 12/18/2001
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Manifest
Date achieved compliance: 03/27/2002

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

Evaluation lead agency: EPA

Evaluation date: 12/18/2001
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: LDR - General
Date achieved compliance: 12/21/2001
Evaluation lead agency: EPA

Evaluation date: 12/18/2001
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Manifest
Date achieved compliance: 12/21/2001
Evaluation lead agency: EPA

Evaluation date: 12/18/2001
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD IS-Contingency Plan and Emergency Procedures
Date achieved compliance: 03/21/2002
Evaluation lead agency: EPA

Evaluation date: 12/18/2001
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: LDR - General
Date achieved compliance: 03/27/2002
Evaluation lead agency: EPA

Evaluation date: 09/14/1994
Evaluation: FOCUSED COMPLIANCE INSPECTION
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA Contractor/Grantee

Evaluation date: 02/08/1994
Evaluation: FOCUSED COMPLIANCE INSPECTION
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA Contractor/Grantee

Evaluation date: 02/07/1994
Evaluation: FOCUSED COMPLIANCE INSPECTION
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA Contractor/Grantee

Evaluation date: 01/24/1994
Evaluation: FOCUSED COMPLIANCE INSPECTION
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA Contractor/Grantee

Evaluation date: 01/22/1994
Evaluation: FOCUSED COMPLIANCE INSPECTION
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA Contractor/Grantee

Evaluation date: 12/28/1993

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

Evaluation: NON-FINANCIAL RECORD REVIEW
Area of violation: Generators - Pre-transport
Date achieved compliance: 01/20/1994
Evaluation lead agency: EPA

Evaluation date: 09/10/1992
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA

Evaluation date: 08/12/1992
Evaluation: FOLLOW-UP INSPECTION
Area of violation: TSD IS-General Facility Standards
Date achieved compliance: 11/04/1992
Evaluation lead agency: EPA

Evaluation date: 11/14/1990
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General
Date achieved compliance: 11/29/1990
Evaluation lead agency: EPA Contractor/Grantee

Evaluation date: 11/14/1990
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 11/29/1990
Evaluation lead agency: EPA Contractor/Grantee

Evaluation date: 11/14/1990
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Records/Reporting
Date achieved compliance: 11/29/1990
Evaluation lead agency: EPA Contractor/Grantee

Evaluation date: 11/14/1990
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Pre-transport
Date achieved compliance: 11/29/1990
Evaluation lead agency: EPA Contractor/Grantee

Evaluation date: 11/14/1990
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD IS-Container Use and Management
Date achieved compliance: 11/29/1990
Evaluation lead agency: EPA Contractor/Grantee

Evaluation date: 11/14/1990
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD IS-Preparedness and Prevention
Date achieved compliance: 11/29/1990
Evaluation lead agency: EPA Contractor/Grantee

Evaluation date: 11/14/1990
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD IS-General Facility Standards
Date achieved compliance: 11/04/1992

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

Evaluation lead agency: EPA Contractor/Grantee

Evaluation date: 10/25/1989
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General
Date achieved compliance: 04/25/1990
Evaluation lead agency: EPA

Evaluation date: 10/25/1989
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General
Date achieved compliance: 04/06/1990
Evaluation lead agency: EPA

Evaluation date: 10/25/1989
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - Manifest/Records/Reporting
Date achieved compliance: 04/25/1990
Evaluation lead agency: EPA

Evaluation date: 10/25/1989
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 11/19/1990
Evaluation lead agency: EPA

WI MANIFEST:
Year: 2015
EPA ID: IAD981504285
FID: Not reported
ACT Code: 201
ACT Status: A
ACT Code 1: 201
ACT Name: HW Generator - Large
Contact Title: Not reported
Contact Name: Not reported
Contact Address: Not reported
Contact City/State/Zip: Not reported
Contact Telephone: Not reported
Contact EMail Address: Not reported

Shipped:
Year: 2015
Manifest Doc Id: 002160389GBF
Copy Type: TSDCOPY
Gen EPA ID: IAD981504285
Gen Date: 06/17/2015
GEN Copy Revd Date: Not reported
TSD Date: 06/25/2015
TSD EPA ID: WID988580056
TSD Copy Revd Date: 07/10/2015

Year: 2011
EPA ID: IAD981504285
FID: Not reported
ACT Code: 201

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

ACT Status:	A
ACT Code 1:	201
ACT Name:	HW Generator - Large
Contact Title:	Not reported
Contact Name:	Not reported
Contact Address:	Not reported
Contact City/State/Zip:	Not reported
Contact Telephone:	Not reported
Contact EMail Address:	Not reported

Shipped:

Year:	2011
Manifest Doc Id:	001125163GBF
Copy Type:	TSDCOPY
Gen EPA ID:	IAD981504285
Gen Date:	05/18/2011
GEN Copy Revd Date:	Not reported
TSD Date:	05/20/2011
TSD EPA ID:	WID988580056
TSD Copy Revd Date:	06/09/2011

Year:	2011
Manifest Doc Id:	001125288GBF
Copy Type:	TSDCOPY
Gen EPA ID:	IAD981504285
Gen Date:	05/18/2011
GEN Copy Revd Date:	Not reported
TSD Date:	05/20/2011
TSD EPA ID:	WID988580056
TSD Copy Revd Date:	06/09/2011

Year:	2011
Manifest Doc Id:	001125291GBF
Copy Type:	TSDCOPY
Gen EPA ID:	IAD981504285
Gen Date:	05/18/2011
GEN Copy Revd Date:	Not reported
TSD Date:	05/20/2011
TSD EPA ID:	WID988580056
TSD Copy Revd Date:	06/09/2011

Year:	2009
EPA ID:	IAD981504285
FID:	Not reported
ACT Code:	201
ACT Status:	A
ACT Code 1:	201
ACT Name:	HW Generator - Large
Contact Title:	Not reported
Contact Name:	Not reported
Contact Address:	Not reported
Contact City/State/Zip:	Not reported
Contact Telephone:	Not reported
Contact EMail Address:	Not reported

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

Shipped:

Year:	2009
Manifest Doc Id:	005177593JJK
Copy Type:	TSDCOPY
Gen EPA ID:	IAD981504285
Gen Date:	05/07/2009
GEN Copy Revd Date:	Not reported
TSD Date:	05/13/2009
TSD EPA ID:	WID988580056
TSD Copy Revd Date:	07/02/2009

Year:	2005
EPA ID:	IAD981504285
FID:	0
ACT Code:	201
ACT Status:	A
ACT Code 1:	201
ACT Name:	HW Generator - Large
Contact Title:	Not reported
Contact Name:	Not reported
Contact Address:	Not reported
Contact City/State/Zip:	0
Contact Telephone:	0
Contact EMail Address:	Not reported

Year:	2004
EPA ID:	IAD981504285
FID:	0
ACT Code:	201
ACT Status:	A
ACT Code 1:	201
ACT Name:	HW Generator - Large
Contact Title:	Not reported
Contact Name:	Not reported
Contact Address:	Not reported
Contact City/State/Zip:	Not reported
Contact Telephone:	Not reported
Contact EMail Address:	Not reported

A22 **NDNODS DAVENPORT SA RANGE** **UXO** **1018152518**
Target **7105 NW 70TH AVENUE** **N/A**
Property **JOHNSTON, IA**

Site 22 of 22 in cluster A

Actual:
856 ft.

UXO:

DoD Component:	Army
Installation Name:	JFHQ IA ARNG
Facility Address 2:	Not reported
Site ID:	IAHQ-003-R-01
Site Type:	Small Arms Range
Latitude:	Not reported
Longitude:	Not reported

DOD **CAMP DODGE MILITARY RESERVATION** **DOD** **CUSA115384**
Region **N/A**
CAMP DODGE MILITARY RESER (County), IA
< 1/8
1 ft.

DOD:

Feature 1:	Army DOD
Feature 2:	Not reported
Feature 3:	Not reported
URL:	Not reported
Name 1:	Camp Dodge Military Reservation
Name 2:	Not reported
Name 3:	Not reported
State:	IA
DOD Site:	Yes
Tile name:	IAPOLK

DOD **SAYLORVILLE LAKE** **DOD** **CUSA113747**
Region **N/A**
NE **SAYLORVILLE LAKE (County), IA**
1/2-1
3302 ft.

DOD:

Feature 1:	Army Corps of Engineers DOD
Feature 2:	Not reported
Feature 3:	Not reported
URL:	Not reported
Name 1:	Saylorville Lake
Name 2:	Not reported
Name 3:	Not reported
State:	IA
DOD Site:	Yes
Tile name:	IAPOLK

---

23 **ARTILLERY RANGE** **UXO** **1018150800**
NE **N/A**
< 1/8 **DES MOINES, IA**
0.074 mi.
390 ft.

Relative:
Higher

Actual:
986 ft.

UXO:

DoD Component:	FUDS
Installation Name:	CAMP DODGE
Facility Address 2:	Not reported
Site ID:	02OEW
Site Type:	Training and Maneuver Area
Latitude:	41.704167
Longitude:	-93.708333

B24 East 1/8-1/4 0.157 mi. 831 ft.

CAMP DODGE AND POLK COUNTY TARGET RANGES
7700 NW BEAVER DRIVE
JOHNSTON, IA 50131

Site 1 of 5 in cluster B

IA ALLSITES **S108269641**
IA SPILLS **N/A**

Relative: Higher

Actual: 982 ft.

ALLSITES:

Site Id Number:	1236
Project Manager:	Dan Cook
Ownership Type:	Private
Status:	Closed
Program:	Chapter 133
Site Type:	Federal
Brownfield Eligible:	False
Registry:	False
Institutional Control:	False
Priority:	0
Latitude:	41.704173
Longitude:	-93.69239
XCoord:	442392.7
YCoord:	4617163.37

Site Id Number:	638
Project Manager:	Dan Cook
Ownership Type:	Private
Status:	Closed
Program:	EPA Lead
Site Type:	Federal
Brownfield Eligible:	False
Registry:	False
Institutional Control:	False
Priority:	Not reported
Latitude:	41.69776
Longitude:	-93.7168
XCoord:	440356
YCoord:	4616468

SPILL:

Facility ID:	031314-WCG-1425
Reported Date:	03/13/2014
Reported Time:	14:25:00
Taken By:	Not reported
Spill Date:	Not reported
Spill Time:	Not reported
6 hr Letter:	Not reported
Continuous Release:	Not reported
Incident Location:	Not reported
Incident Mode:	Not reported
Incident Type:	Not reported
Incident Medium Land:	Not reported
Incident Medium Water:	Not reported
Incident Medium Air:	Not reported
Field Office:	5
Company Name:	Iowa Army National Guard
Company Address1:	7700 NW Beaver Drive
Company Address2:	Building B-61
Company City/State/Zip:	Johnston, IA 50131
Company Phone:	(515)2424557
Company Fax No:	()

CAMP DODGE AND POLK COUNTY TARGET RANGES (Continued) **S108269641**

Company Start Date:	07/24/2009
Company End Date:	Not reported
Company Contact Name:	Howard Clegg
Contact Address1:	7700 NW Beaver Drive
Company Contact Address2:	Building B-61
Company Contact City/State/Zip:	Johnston, IA 50131
Company Contact Phone:	(515)2424557
Company Contact Fax No:	()
Company Contact Start Date:	07/24/2009
Company Contact End Date:	Not reported
Initial Instructions:	Not reported
Events:	Not reported

B25 **CAMP DODGE** **SEMS-ARCHIVE** **1003108989**
East **7700 NW BEAVER DR.** **IAN000703253**
1/8-1/4 **JOHNSTON, IA 50131**
0.157 mi.
831 ft. **Site 2 of 5 in cluster B**

Relative:
Higher

Actual:
982 ft.

SEMS Archive:

Site ID:	703253
EPA ID:	IAN000703253
Cong District:	3
FIPS Code:	19153
FF:	N
NPL:	Not on the NPL
Non NPL Status:	NFRAP-Site does not qualify for the NPL based on existing information

SEMS Archive Detail:

Region:	7
Site ID:	703253
EPA ID:	IAN000703253
Site Name:	CAMP DODGE
NPL:	N
FF:	N
OU:	0
Action Code:	TY
Action Name:	FF SI REV
SEQ:	2
Start Date:	2006-05-04 00:00:00
Finish Date:	2008-01-07 00:00:00
Qual:	N
Current Action Lead:	EPA Perf In-Hse

Region:	7
Site ID:	703253
EPA ID:	IAN000703253
Site Name:	CAMP DODGE
NPL:	N
FF:	N
OU:	0
Action Code:	RX
Action Name:	FF PA
SEQ:	1
Start Date:	2001-02-16 00:00:00
Finish Date:	2001-09-28 00:00:00
Qual:	H
Current Action Lead:	EPA Perf

CAMP DODGE (Continued) **1003108989**

Region:	7
Site ID:	703253
EPA ID:	IAN000703253
Site Name:	CAMP DODGE
NPL:	N
FF:	N
OU:	0
Action Code:	DS
Action Name:	DISCVRY
SEQ:	1
Start Date:	2001-02-13 00:00:00
Finish Date:	2001-02-13 00:00:00
Qual:	Not reported
Current Action Lead:	EPA Perf

Region:	7
Site ID:	703253
EPA ID:	IAN000703253
Site Name:	CAMP DODGE
NPL:	N
FF:	N
OU:	0
Action Code:	TY
Action Name:	FF SI REV
SEQ:	1
Start Date:	2005-05-02 00:00:00
Finish Date:	2006-05-04 00:00:00
Qual:	N
Current Action Lead:	EPA Perf

B26 **UNITED STATES MILITARY** **NY MANIFEST** **S121966535**
East **7700 N.W. BEAVER DRIVE** **N/A**
1/8-1/4 **JOHNSTON, IA 50131**
0.157 mi.
831 ft. **Site 3 of 5 in cluster B**

Relative:
Higher

Actual:
982 ft.

NY MANIFEST:

Country:	USA
EPA ID:	IAD981504244
Facility Status:	Not reported
Location Address 1:	7700 N.W. BEAVER DRIVE
Code:	BP
Location Address 2:	Not reported
Total Tanks:	Not reported
Location City:	JOHNSTON
Location State:	IA
Location Zip:	50131
Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	IAD981504244
Mailing Name:	UNITED STATES MILITARY
Mailing Contact:	UNITED STATES MILITARY
Mailing Address 1:	7700 N.W. BEAVER DRIVE
Mailing Address 2:	Not reported
Mailing City:	JOHNSTON
Mailing State:	IA

UNITED STATES MILITARY (Continued) **S121966535**

Mailing Zip:	50131
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	4022944964

NY MANIFEST:

Document ID:	NYB1879677
Manifest Status:	K
seq:	Not reported
Year:	1989
Trans1 State ID:	Not reported
Trans2 State ID:	CC3651GA
Generator Ship Date:	09/15/1989
Trans1 Recv Date:	09/15/1989
Trans2 Recv Date:	09/20/1989
TSD Site Recv Date:	10/11/1989
Part A Recv Date:	09/25/1989
Part B Recv Date:	10/16/1989
Generator EPA ID:	IAD981504244
Trans1 EPA ID:	TND987766292
Trans2 EPA ID:	GAD981233000
TSDF ID 1:	NYD000632372
TSDF ID 2:	Not reported
Manifest Tracking Number:	Not reported
Import Indicator:	Not reported
Export Indicator:	Not reported
Discr Quantity Indicator:	Not reported
Discr Type Indicator:	Not reported
Discr Residue Indicator:	Not reported
Discr Partial Reject Indicator:	Not reported
Discr Full Reject Indicator:	Not reported
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	Not reported
Waste Code:	D003 - NON-LISTED REACTIVE WASTES
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	00045
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

B27 **CAMP DODGE BLDG S-4** **IA UST** **U003632977**
East **7700 NW BEAVER DRIVE** **N/A**
1/8-1/4 **JOHNSTON, IA 50131**
0.157 mi.
831 ft. **Site 4 of 5 in cluster B**

Relative:
Higher

Actual:
982 ft.

UST:

Facility Id:	10550
Loc Id:	10550
Registration:	198710686
Owner Type:	State
Financial Code:	Not reported
Insurer's Name:	Not reported
Policy Number:	Not reported
Policy Start Date:	Not reported
Policy End Date:	Not reported
Registration Sign Date:	06/25/1987
Created By:	migration
Created Date:	01/08/2007
Changed By:	migration
Last Changed:	01/08/2007
Latitude:	41.69946
Longitude:	-93.71342
Otype ID Decode:	State

Tank Info:

Tank Num:	42194
In Use:	False
Tank Type:	4
Tank Brand Id:	Not reported
Inert Material Id:	Not reported
Filled In Place:	Not reported
Material Construction:	Double Wall Steel
Emergency Power Gen:	Not reported

Tank Num:	31122
In Use:	False
Tank Type:	4
Tank Brand Id:	Not reported
Inert Material Id:	Not reported
Filled In Place:	Not reported
Material Construction:	Double Wall FRP
Emergency Power Gen:	Not reported

Tank Info:

Tank Num:	42194
In Use:	False
Tank Type:	4
Tank Brand Id:	Not reported
Inert Material Id:	Not reported
Filled In Place:	Not reported
Material Construction:	Double Wall Steel
Emergency Power Gen:	Not reported

Tank Num:	31122
In Use:	False
Tank Type:	4
Tank Brand Id:	Not reported

CAMP DODGE BLDG S-4 (Continued) **U003632977**

Inert Material Id:	Not reported
Filled In Place:	Not reported
Material Construction:	Double Wall FRP
Emergency Power Gen:	Not reported

B28 **USPFO FOR IOWA, CAMP DODGE MAINT SHOP** **WI MANIFEST** **1004468433**
East **7700 NW BEAVER DR CAMP DODGE** **N/A**
1/8-1/4 **JOHNSTON, IA 50131**
0.157 mi.
831 ft. **Site 5 of 5 in cluster B**

Relative:
Higher

Actual:
982 ft.

WI MANIFEST:

Year:	2005
EPA ID:	IAD981712698
FID:	999584520
ACT Code:	201
ACT Status:	A
ACT Code 1:	201
ACT Name:	HW Generator - Large
Contact Title:	ENV SPECIALIST
Contact Name:	PAUL BRISBOIS
Contact Address:	7700 NW BEAVER DR
Contact City/State/Zip:	JOHNSTON, IA 50131
Contact Telephone:	5152524612
Contact EMail Address:	Not reported

Year:	2004
EPA ID:	IAD981712698
FID:	999584520
ACT Code:	201
ACT Status:	A
ACT Code 1:	201
ACT Name:	HW Generator - Large
Contact Title:	ENV SPECIALIST
Contact Name:	PAUL BRISBOIS
Contact Address:	7700 NW BEAVER DR
Contact City/State/Zip:	JOHNSTON, IA 50131
Contact Telephone:	5152524612
Contact EMail Address:	Not reported

Count: 0 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
		NO SITES FOUND			

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: 07/17/2018
Date Data Arrived at EDR: 08/09/2018
Date Made Active in Reports: 09/07/2018
Number of Days to Update: 29

Source: EPA
Telephone: N/A
Last EDR Contact: 08/09/2018
Next Scheduled EDR Contact: 10/15/2018
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 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

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: 07/17/2018
Date Data Arrived at EDR: 08/09/2018
Date Made Active in Reports: 09/07/2018
Number of Days to Update: 29

Source: EPA
Telephone: N/A
Last EDR Contact: 08/09/2018
Next Scheduled EDR Contact: 10/15/2018
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: 07/17/2018
Date Data Arrived at EDR: 08/09/2018
Date Made Active in Reports: 09/07/2018
Number of Days to Update: 29

Source: EPA
Telephone: N/A
Last EDR Contact: 08/09/2018
Next Scheduled EDR Contact: 10/15/2018
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: 07/06/2018
Next Scheduled EDR Contact: 10/15/2018
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: 07/17/2018
Date Data Arrived at EDR: 08/09/2018
Date Made Active in Reports: 09/07/2018
Number of Days to Update: 29

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 08/09/2018
Next Scheduled EDR Contact: 10/29/2018
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: 07/17/2018
Date Data Arrived at EDR: 08/09/2018
Date Made Active in Reports: 09/07/2018
Number of Days to Update: 29

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 08/09/2018
Next Scheduled EDR Contact: 10/29/2018
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: 09/19/2018
Next Scheduled EDR Contact: 01/07/2019
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: 913-551-7003
Last EDR Contact: 09/19/2018
Next Scheduled EDR Contact: 01/07/2019
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: 913-551-7003
Last EDR Contact: 09/19/2018
Next Scheduled EDR Contact: 01/07/2019
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: 913-551-7003
Last EDR Contact: 09/19/2018
Next Scheduled EDR Contact: 01/07/2019
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: 913-551-7003
Last EDR Contact: 09/19/2018
Next Scheduled EDR Contact: 01/07/2019
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: 05/14/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 07/16/2018
Next Scheduled EDR Contact: 11/26/2018
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: 07/31/2018
Date Data Arrived at EDR: 08/28/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 17

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 08/28/2018
Next Scheduled EDR Contact: 12/10/2018
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: 07/31/2018
Date Data Arrived at EDR: 08/28/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 17

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 08/28/2018
Next Scheduled EDR Contact: 12/10/2018
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: 06/18/2018
Date Data Arrived at EDR: 06/27/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 79

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 09/25/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

SHWS: Registry of Hazardous Waste or Hazardous Substance Disposal Sites

State Hazardous Waste Sites. State hazardous waste site records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. Available information varies by state.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 01/24/2018
Date Made Active in Reports: 02/23/2018
Number of Days to Update: 30

Source: Department of Natural Resources
Telephone: 515-281-8801
Last EDR Contact: 07/16/2018
Next Scheduled EDR Contact: 10/29/2018
Data Release Frequency: Annually

State and tribal landfill and/or solid waste disposal site lists

SWF/LF: Permitted Solid Waste Management Facilities

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: 09/04/2018
Date Data Arrived at EDR: 09/05/2018
Date Made Active in Reports: 10/02/2018
Number of Days to Update: 27

Source: Department of Natural Resources
Telephone: 515-281-8801
Last EDR Contact: 09/05/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

LAST: Leaking Aboveground Storage Tank Sites

A listing of leaking aboveground storage tank sites.

Date of Government Version: 07/16/2018
Date Data Arrived at EDR: 07/18/2018
Date Made Active in Reports: 08/24/2018
Number of Days to Update: 37

Source: Department of Natural Resources
Telephone: 515-281-6001
Last EDR Contact: 07/18/2018
Next Scheduled EDR Contact: 10/29/2018
Data Release Frequency: Quarterly

LUST: Leaking Underground Storage Tank Data

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: 08/30/2018
Date Data Arrived at EDR: 09/07/2018
Date Made Active in Reports: 10/02/2018
Number of Days to Update: 25

Source: Department of Natural Resources
Telephone: 515-281-6001
Last EDR Contact: 08/29/2018
Next Scheduled EDR Contact: 12/17/2018
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: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
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: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
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: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
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: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
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: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
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: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
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: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
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: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
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: 07/11/2018
Next Scheduled EDR Contact: 10/22/2018
Data Release Frequency: Varies

UST: Underground Storage Tank Data
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: 08/30/2018
Date Data Arrived at EDR: 09/07/2018
Date Made Active in Reports: 10/02/2018
Number of Days to Update: 25

Source: Department of Natural Resources
Telephone: 515-281-6001
Last EDR Contact: 08/29/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: Quarterly

AST: Aboveground Storage Tank Sites
Bulk fuel facilities, commercial fuel operations, private farm sites, and any other storage facility that meets the Department of Public Safety?s registration criteria. They register any class I, II or III petroleum product (gas, diesel and oil) above 1,100 gallons.

Date of Government Version: 07/31/2018
Date Data Arrived at EDR: 08/02/2018
Date Made Active in Reports: 08/24/2018
Number of Days to Update: 22

Source: Department of Public Safety
Telephone: 515-281-5821
Last EDR Contact: 09/28/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Varies

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: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
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: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
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: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
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: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
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: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
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: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
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: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
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: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies

State and tribal institutional control / engineering control registries

INST CONTROL: Sites with Institutional Controls
Sites currently enrolled in the Land Recycling Program that have Institutional Controls.

Date of Government Version: 07/16/2018
Date Data Arrived at EDR: 07/18/2018
Date Made Active in Reports: 08/24/2018
Number of Days to Update: 37

Source: Department of Natural Resources
Telephone: 515-242-5818
Last EDR Contact: 07/18/2018
Next Scheduled EDR Contact: 10/29/2018
Data Release Frequency: Varies

State and tribal voluntary cleanup sites

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

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: 09/24/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Varies

VCP: Land Recycling Program Sites
Sites currently enrolled in the Land Recycling Program.

Date of Government Version: 07/16/2018
Date Data Arrived at EDR: 07/18/2018
Date Made Active in Reports: 08/23/2018
Number of Days to Update: 36

Source: Department of Natural Resources
Telephone: 515-242-5818
Last EDR Contact: 07/18/2018
Next Scheduled EDR Contact: 10/29/2018
Data Release Frequency: Varies

State and tribal Brownfields sites

BROWNFIELDS: Brownfields Site Listing
Brownfields are abandoned, idled, or under-used industrial and commercial facilities where expansion or redevelopment is complicated by real or perceived environmental contamination.

Date of Government Version: 07/16/2018
Date Data Arrived at EDR: 07/18/2018
Date Made Active in Reports: 08/23/2018
Number of Days to Update: 36

Source: Department of Natural Resources
Telephone: 515-281-8489
Last EDR Contact: 07/18/2018
Next Scheduled EDR Contact: 10/29/2018
Data Release Frequency: Quarterly

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: 06/18/2018
Date Data Arrived at EDR: 06/20/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 09/18/2018
Next Scheduled EDR Contact: 12/31/2018
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

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: 07/30/2018
Next Scheduled EDR Contact: 11/12/2018
Data Release Frequency: Varies

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

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: 07/17/2018
Next Scheduled EDR Contact: 11/05/2018
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: 08/03/2018
Next Scheduled EDR Contact: 11/12/2018
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

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: 05/18/2018
Date Data Arrived at EDR: 06/20/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 86

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 08/28/2018
Next Scheduled EDR Contact: 12/10/2018
Data Release Frequency: No Update Planned

ALLSITES: Contaminated Sites Tracking Database
All the sites included in the Contaminated Sites Tracking Database. The database includes several regulatory complinace programs and actions.

Date of Government Version: 07/16/2018
Date Data Arrived at EDR: 07/18/2018
Date Made Active in Reports: 08/23/2018
Number of Days to Update: 36

Source: Department of Natural Resources
Telephone: 515-281-4171
Last EDR Contact: 07/18/2018
Next Scheduled EDR Contact: 10/29/2018
Data Release Frequency: Quarterly

DEL SHWS: Delisted Contaminated Sites Listing
A listing of sites delisted from the Contaminated Sites Listing.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 01/24/2018
Date Made Active in Reports: 02/23/2018
Number of Days to Update: 30

Source: Department of Natural Resources
Telephone: 515-281-8801
Last EDR Contact: 07/16/2018
Next Scheduled EDR Contact: 10/29/2018
Data Release Frequency: Annually

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: 05/18/2018
Date Data Arrived at EDR: 06/20/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 86

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 08/28/2018
Next Scheduled EDR Contact: 12/10/2018
Data Release Frequency: Quarterly

Local Land Records

LIENS: Liens Filed Listing
A listing of liens filed with the Iowa Comprehensive Petroleum Underground Storage Tank Fund.

Date of Government Version: 07/05/2018
Date Data Arrived at EDR: 07/24/2018
Date Made Active in Reports: 08/24/2018
Number of Days to Update: 31

Source: Department of Natural Resources
Telephone: 515-281-5523
Last EDR Contact: 07/17/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies

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: 05/13/2018
Date Data Arrived at EDR: 05/30/2018
Date Made Active in Reports: 06/29/2018
Number of Days to Update: 30

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 08/09/2018
Next Scheduled EDR Contact: 11/05/2018
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: 03/26/2018
Date Data Arrived at EDR: 03/27/2018
Date Made Active in Reports: 06/08/2018
Number of Days to Update: 73

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 09/25/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Quarterly

SPILLS: Spills Database
Spill reporting data that is collected during the initial report of an incident.

Date of Government Version: 09/04/2018
Date Data Arrived at EDR: 09/06/2018
Date Made Active in Reports: 10/02/2018
Number of Days to Update: 26

Source: Department of Natural Resources
Telephone: 515-281-4367
Last EDR Contact: 09/06/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: 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: 10/17/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 03/05/2013
Number of Days to Update: 61

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: 913-551-7003
Last EDR Contact: 09/19/2018
Next Scheduled EDR Contact: 01/07/2019
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: 08/24/2018
Next Scheduled EDR Contact: 12/03/2018
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: 07/11/2018
Next Scheduled EDR Contact: 10/22/2018
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: 07/13/2018
Next Scheduled EDR Contact: 10/22/2018
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: 08/17/2018
Next Scheduled EDR Contact: 11/26/2018
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: 03/01/2018
Date Data Arrived at EDR: 03/27/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 87

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 09/25/2018
Next Scheduled EDR Contact: 01/07/2019
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: 08/03/2018
Next Scheduled EDR Contact: 11/19/2018
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: 08/10/2018
Next Scheduled EDR Contact: 11/19/2018
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: 09/21/2018
Next Scheduled EDR Contact: 12/31/2018
Data Release Frequency: Every 4 Years

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: 08/24/2018
Next Scheduled EDR Contact: 12/03/2018
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: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
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: 05/13/2018
Date Data Arrived at EDR: 05/30/2018
Date Made Active in Reports: 06/29/2018
Number of Days to Update: 30

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 09/07/2018
Next Scheduled EDR Contact: 12/17/2018
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: 05/01/2018
Date Data Arrived at EDR: 05/17/2018
Date Made Active in Reports: 09/07/2018
Number of Days to Update: 113

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 07/20/2018
Next Scheduled EDR Contact: 11/05/2018
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

PRP: Potentially Responsible Parties
A listing of verified Potentially Responsible Parties

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 10/17/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 3

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 08/09/2018
Next Scheduled EDR Contact: 11/19/2018
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: 06/01/2017
Date Data Arrived at EDR: 06/09/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 126

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 07/13/2018
Next Scheduled EDR Contact: 10/22/2018
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: 07/09/2018
Next Scheduled EDR Contact: 10/22/2018
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: 09/28/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Quarterly

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: 09/07/2018
Next Scheduled EDR Contact: 12/17/2018
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: 09/04/2018
Next Scheduled EDR Contact: 12/17/2018
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: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
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: 04/03/2018
Date Data Arrived at EDR: 04/05/2018
Date Made Active in Reports: 06/29/2018
Number of Days to Update: 85

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 07/05/2018
Next Scheduled EDR Contact: 10/15/2018
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: 07/31/2012
Date Data Arrived at EDR: 08/07/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 42

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 08/09/2018
Next Scheduled EDR Contact: 11/12/2018
Data Release Frequency: Varies

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: 03/31/2018
Date Data Arrived at EDR: 04/16/2018
Date Made Active in Reports: 06/29/2018
Number of Days to Update: 74

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 10/01/2018
Next Scheduled EDR Contact: 12/31/2018
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: 08/24/2018
Next Scheduled EDR Contact: 12/03/2018
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: 07/11/2018
Next Scheduled EDR Contact: 10/22/2018
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: 09/11/2018
Next Scheduled EDR Contact: 11/19/2018
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: 08/20/2018
Next Scheduled EDR Contact: 12/03/2018
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites
A listing of former lead smelter site locations.

Date of Government Version: 05/13/2018
Date Data Arrived at EDR: 05/30/2018
Date Made Active in Reports: 06/29/2018
Number of Days to Update: 30

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 08/09/2018
Next Scheduled EDR Contact: 10/15/2018
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: 05/03/2018
Date Data Arrived at EDR: 05/31/2018
Date Made Active in Reports: 06/29/2018
Number of Days to Update: 29

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 08/29/2018
Next Scheduled EDR Contact: 12/10/2018
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: 08/31/2018
Next Scheduled EDR Contact: 12/10/2018
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: 08/31/2018
Next Scheduled EDR Contact: 12/10/2018
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: 09/10/2018
Next Scheduled EDR Contact: 12/24/2018
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: 02/21/2018
Date Data Arrived at EDR: 02/23/2018
Date Made Active in Reports: 03/23/2018
Number of Days to Update: 28

Source: EPA
Telephone: (913) 551-7003
Last EDR Contact: 09/18/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: Quarterly

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 09/02/2018
Date Data Arrived at EDR: 09/05/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 9

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 09/05/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: Quarterly

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 06/19/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 87

Source: Department of Defense
Telephone: 703-704-1564
Last EDR Contact: 07/13/2018
Next Scheduled EDR Contact: 10/29/2018
Data Release Frequency: Varies

DOCKET HWC: Hazardous Waste Compliance Docket Listing
A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 01/04/2018
Date Data Arrived at EDR: 01/19/2018
Date Made Active in Reports: 04/13/2018
Number of Days to Update: 84

Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 08/31/2018
Next Scheduled EDR Contact: 12/10/2018
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: 05/21/2018
Date Data Arrived at EDR: 05/23/2018
Date Made Active in Reports: 09/07/2018
Number of Days to Update: 107

Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 08/22/2018
Next Scheduled EDR Contact: 12/03/2018
Data Release Frequency: Quarterly

AIRS: Minor and Title V Sources Listing
A listing of Minor and Title V sources.

Date of Government Version: 06/26/2018
Date Data Arrived at EDR: 07/31/2018
Date Made Active in Reports: 08/24/2018
Number of Days to Update: 24

Source: Department of Natural Resources
Telephone: 515-281-8468
Last EDR Contact: 09/24/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Varies

COAL ASH: Coal Ash Disposal Site Listing
A listing of coal combustion residue landfill locations.

Date of Government Version: 09/04/2018
Date Data Arrived at EDR: 09/05/2018
Date Made Active in Reports: 10/02/2018
Number of Days to Update: 27

Source: Department of Natural Resources
Telephone: 515-281-8308
Last EDR Contact: 09/05/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: Quarterly

DRYCLEANERS: Iowa Drycleaner List
A listing of drycleaners in Iowa.

Date of Government Version: 07/06/2018
Date Data Arrived at EDR: 07/27/2018
Date Made Active in Reports: 08/24/2018
Number of Days to Update: 28

Source: Department of Natural Resources
Telephone: 515-242-5100
Last EDR Contact: 07/24/2018
Next Scheduled EDR Contact: 10/29/2018
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing
A listing of financial assurance information for underground storage tank 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: 08/30/2018
Date Data Arrived at EDR: 09/07/2018
Date Made Active in Reports: 10/02/2018
Number of Days to Update: 25

Source: Department of Natural Resources
Telephone: 515-242-5086
Last EDR Contact: 08/29/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: Quarterly

Financial Assurance 2: Financial Assurance Information Listing
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: 08/29/2018
Date Data Arrived at EDR: 08/30/2018
Date Made Active in Reports: 10/02/2018
Number of Days to Update: 33

Source: Department of Natural Resources
Telephone: 515-242-5818
Last EDR Contact: 08/29/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: Varies

NPDES: List of NPDES Permittees

The files listed below contain information on facilities that hold NPDES permits, or those that are authorized to discharge wastewater to surface waters in Iowa.

Date of Government Version: 08/08/2018
Date Data Arrived at EDR: 08/10/2018
Date Made Active in Reports: 08/24/2018
Number of Days to Update: 14

Source: Department of Natural Resources
Telephone: 515-281-4736
Last EDR Contact: 08/09/2018
Next Scheduled EDR Contact: 11/26/2018
Data Release Frequency: Varies

TIER 2: Tier 2 Information Listing

A listing of facilities which store or manufacture hazardous materials and submit a chemical inventory report.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 09/18/2018
Date Made Active in Reports: 10/02/2018
Number of Days to Update: 14

Source: Department of Natural Resources
Telephone: 515-725-0302
Last EDR Contact: 09/17/2018
Next Scheduled EDR Contact: 12/31/2018
Data Release Frequency: Annually

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 Natural Resources in Iowa.

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 Natural Resources
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 Natural Resources in Iowa.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/26/2013
Number of Days to Update: 178

Source: Department of Natural Resources
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.

CT MANIFEST: Hazardous Waste Manifest Data

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: 08/10/2018
Date Data Arrived at EDR: 08/10/2018
Date Made Active in Reports: 09/10/2018
Number of Days to Update: 31

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 08/09/2018
Next Scheduled EDR Contact: 11/26/2018
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 07/13/2018
Date Made Active in Reports: 08/01/2018
Number of Days to Update: 19

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 07/13/2018
Next Scheduled EDR Contact: 10/22/2018
Data Release Frequency: Annually

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: 07/01/2018
Date Data Arrived at EDR: 08/01/2018
Date Made Active in Reports: 08/31/2018
Number of Days to Update: 30

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 08/01/2018
Next Scheduled EDR Contact: 11/12/2018
Data Release Frequency: Quarterly

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 02/23/2018
Date Made Active in Reports: 04/09/2018
Number of Days to Update: 45

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 08/21/2018
Next Scheduled EDR Contact: 12/03/2018
Data Release Frequency: Annually

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: 09/06/2018
Next Scheduled EDR Contact: 12/24/2018
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 Facilities
Source: Department of Human Services
Telephone: 515-281-4357

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: National Wetland Inventory of Iowa
Source: Department of Natural Resources
Telephone: 319-335-1575

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

CAMP DODGE
7105 NORTHWEST 70TH AVENUE
JOHNSTON, IA 50131

TARGET PROPERTY COORDINATES

Latitude (North):	41.699189 - 41˚ 41' 57.08''
Longitude (West):	93.714902 - 93˚ 42' 53.65''
Universal Tranverse Mercator:	Zone 15
UTM X (Meters):	440513.7
UTM Y (Meters):	4616412.0
Elevation:	856 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	5942453 DES MOINES NW, IA
Version Date:	2013
West Map:	5942459 GRIMES, IA
Version Date:	2013

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).

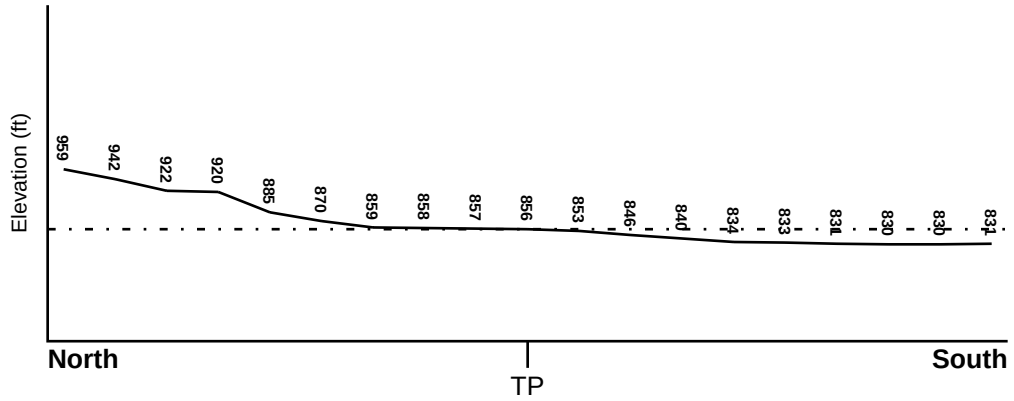
TOPOGRAPHIC INFORMATION

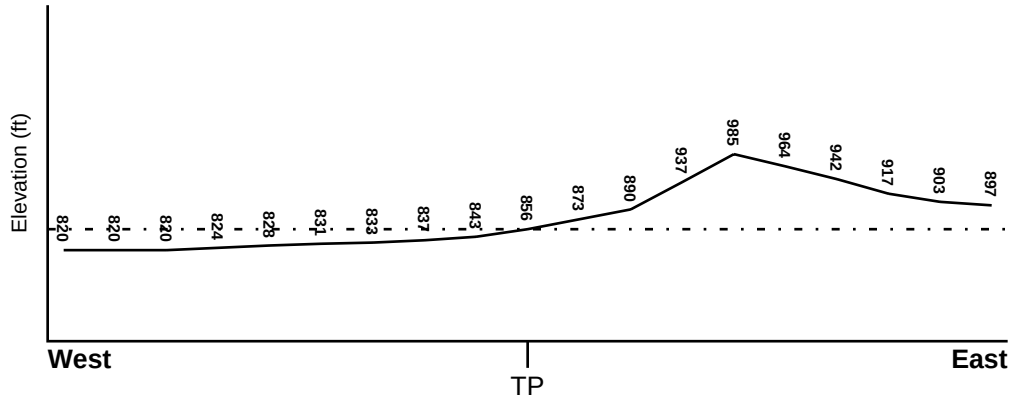
Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General West

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES





Target Property Elevation: 856 ft.

0 1/2 1 Miles

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
1907450003C	FEMA Q3 Flood data

Additional Panels in search area:	FEMA Source Type
1909010085C	FEMA Q3 Flood data
1907450001C	FEMA Q3 Flood data
1907450002C	FEMA Q3 Flood data
1907450004C	FEMA Q3 Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
DES MOINES NW	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

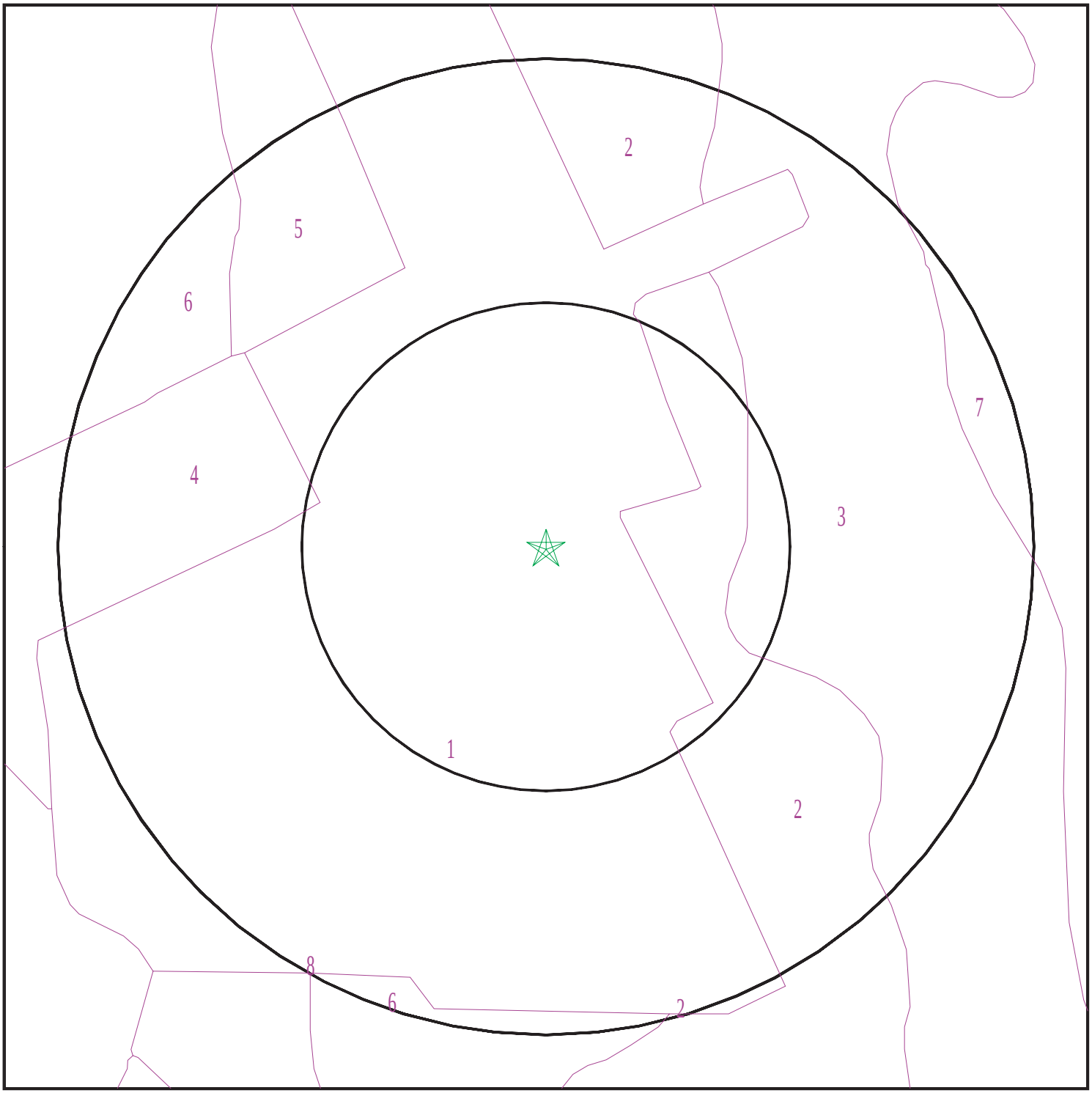
Era:	Paleozoic
System:	Pennsylvanian
Series:	Des Moinesian Series
Code:	PP2 *(decoded above as Era, System & Series)*

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 - 5441925.2s



Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

SITE NAME: Camp Dodge ADDRESS: 7105 Northwest 70th Avenue Johnston IA 50131 LAT/LONG: 41.699189 / 93.714902	CLIENT: AECOM CONTACT: Brittany Kirchmann INQUIRY #: 5441925.2s DATE: October 03, 2018 8:26 am

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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: Urban land

Soil Surface Texture:
Hydrologic Group: Not reported

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: 2

Soil Component Name: Ankeny

Soil Surface Texture: fine sandy 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: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

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		
1	0 inches	29 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 141 Min: 42	Max: 7.3 Min: 6.1
2	29 inches	44 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 141 Min: 42	Max: 7.3 Min: 6.1
3	44 inches	59 inches	loamy fine sand	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 141 Min: 42	Max: 7.3 Min: 6.1

Soil Map ID: 3

Soil Component Name: Dickinson

Soil Surface Texture: fine sandy 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: Somewhat excessively drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

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	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.3 Min: 5.6
2	11 inches	35 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.3 Min: 5.6
3	35 inches	59 inches	loamy fine sand	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.3 Min: 5.6

Soil Map ID: 4

Soil Component Name: Udorthents, loamy

Soil Surface Texture: fine sandy 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:
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: 5

Soil Component Name: Spillville

Soil Surface Texture: 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: Moderately well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 122 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	44 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 42 Min: 4	Max: 7.3 Min: 5.6
2	44 inches	59 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 42 Min: 4	Max: 7.3 Min: 5.6

Soil Map ID: 6

Soil Component Name: Cylinder

Soil Surface Texture: 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: Somewhat poorly drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 30 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	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 705 Min: 141	Max: 8.4 Min: 6.6
2	14 inches	33 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 705 Min: 141	Max: 8.4 Min: 6.6
3	33 inches	59 inches	gravelly coarse sand	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 705 Min: 141	Max: 8.4 Min: 6.6

Soil Map ID: 7

Soil Component Name: Dickinson

Soil Surface Texture: fine sandy 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: Somewhat excessively drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

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	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.3 Min: 5.6
2	11 inches	31 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.3 Min: 5.6
3	31 inches	59 inches	loamy fine sand	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.3 Min: 5.6

Soil Map ID: 8

Soil Component Name: Biscay

Soil Surface Texture: loam

Hydrologic Group: Class B/D - Drained/undrained hydrology class of soils that can be drained and are classified.

Soil Drainage Class: Poorly drained

Hydric Status: All hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

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		
1	0 inches	20 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Clean Sands, Poorly graded sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 8.4 Min: 7.4
2	20 inches	35 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Clean Sands, Poorly graded sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 8.4 Min: 7.4
3	35 inches	59 inches	stratified very gravelly coarse sand to loamy sand	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Clean Sands, Poorly graded sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 8.4 Min: 7.4

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

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

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.

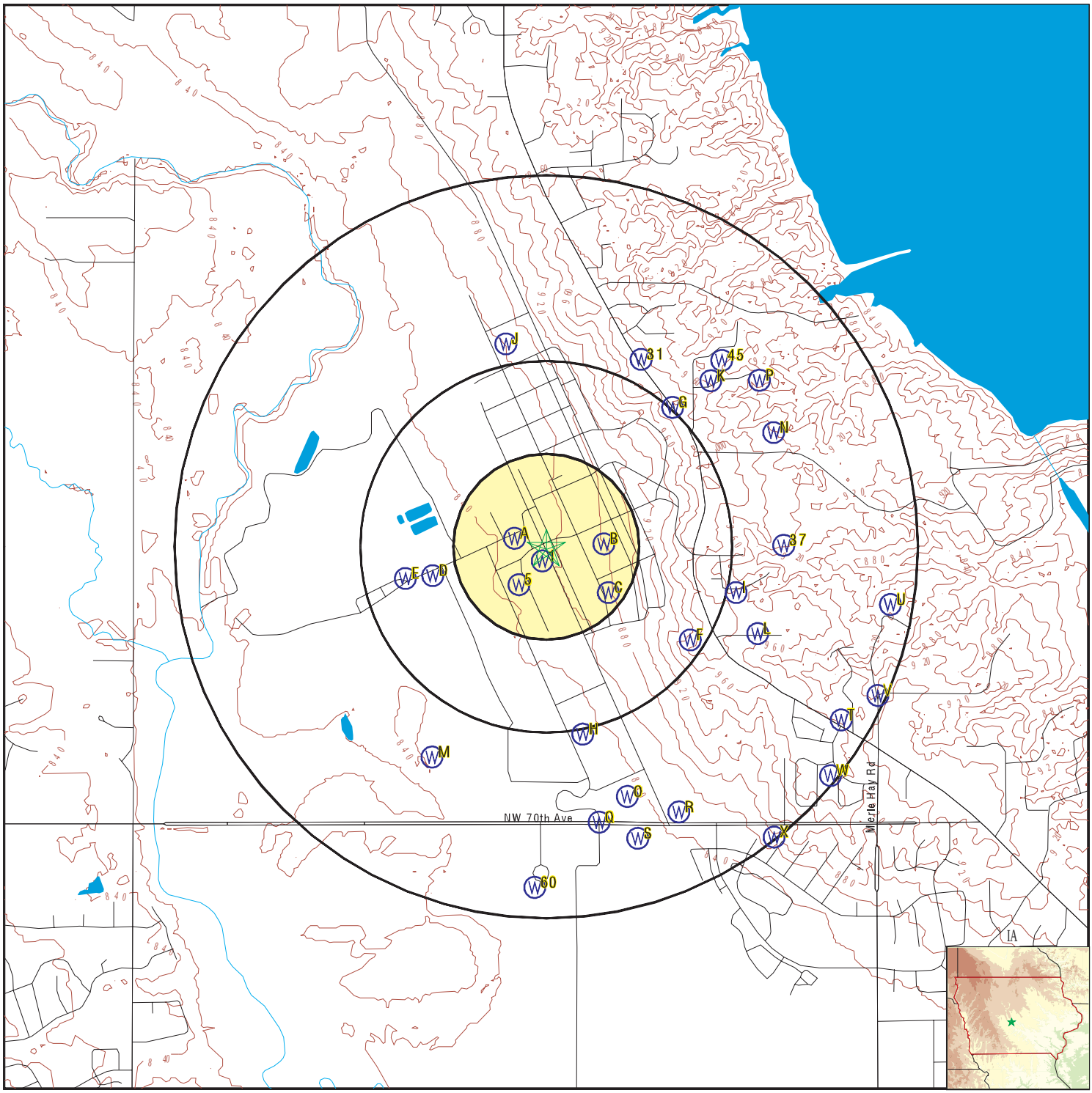
STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	IAPU40000027116	0 - 1/8 Mile SSW
A2	IAUS30000004178	0 - 1/8 Mile West
A3	IAPU40000027076	0 - 1/8 Mile WNW
A4	IAPU40000346500	0 - 1/8 Mile WNW
5	IAPU40000027114	1/8 - 1/4 Mile SW
B6	IAPW40000050973	1/8 - 1/4 Mile ENE
B7	IAPW40000068480	1/8 - 1/4 Mile East
C8	IAPU40000124822	1/8 - 1/4 Mile ESE
C9	IAPU40000124850	1/8 - 1/4 Mile SE
D10	IAPU40000072091	1/4 - 1/2 Mile WSW
D11	IAUS30000001484	1/4 - 1/2 Mile WSW
D12	IAPU40000351006	1/4 - 1/2 Mile WSW
E13	IAUS30000000704	1/4 - 1/2 Mile WSW
E14	IAUS30000003856	1/4 - 1/2 Mile WSW
E15	IAPU40000072089	1/4 - 1/2 Mile WSW
E16	IAPU40000351004	1/4 - 1/2 Mile WSW
F17	IAPU40000027252	1/4 - 1/2 Mile ESE
F18	IAPU40000027253	1/4 - 1/2 Mile ESE
G19	IAPW40000095315	1/2 - 1 Mile NE
G20	IAPW40000095545	1/2 - 1 Mile NE
G21	IAPU40000124748	1/2 - 1 Mile NE
G22	IAPU40000124749	1/2 - 1 Mile NE
H23	IAPU40000124925	1/2 - 1 Mile South
H24	IAPW40000087449	1/2 - 1 Mile South
H25	IAPU40000027227	1/2 - 1 Mile South
I26	IAPU40000316462	1/2 - 1 Mile ESE
H27	IAPU40000027244	1/2 - 1 Mile SSE
I28	IAPU40000316465	1/2 - 1 Mile ESE
J29	IAPW40000104203	1/2 - 1 Mile North
J30	IAPU40000124484	1/2 - 1 Mile North
31	IAPU40000124672	1/2 - 1 Mile NNE
K32	IAPW40000088086	1/2 - 1 Mile NE
K33	IAPU40000124774	1/2 - 1 Mile NE
L34	IAPW40000006779	1/2 - 1 Mile ESE
L35	IAPU40000125002	1/2 - 1 Mile ESE
K36	IAPU40000027131	1/2 - 1 Mile NE

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
37	IAPU40000027260	1/2 - 1 Mile East
M38	IAPU40000316417	1/2 - 1 Mile SSW
M39	IAPU40000316418	1/2 - 1 Mile SSW
K40	IAPW40000075205	1/2 - 1 Mile NE
K41	IAPU40000027135	1/2 - 1 Mile NE
K42	IAPU40000124769	1/2 - 1 Mile NE
N43	IAPW40000060221	1/2 - 1 Mile ENE
N44	IAPU40000124874	1/2 - 1 Mile ENE
45	IAPU40000124763	1/2 - 1 Mile NE
O46	IAPU40000125013	1/2 - 1 Mile SSE
O47	IAPU40000125010	1/2 - 1 Mile SSE
O48	IAPU40000125012	1/2 - 1 Mile SSE
P49	IAPW40000069880	1/2 - 1 Mile NE
P50	IAPU40000124811	1/2 - 1 Mile NE
Q51	IAPU40000027302	1/2 - 1 Mile South
Q52	IAPU40000125004	1/2 - 1 Mile South
Q53	IAPW40000087471	1/2 - 1 Mile South
R54	IAPU40000027335	1/2 - 1 Mile SSE
R55	IAUS30000000364	1/2 - 1 Mile SSE
R56	IAPU40000027345	1/2 - 1 Mile SSE
R57	IAUS30000000241	1/2 - 1 Mile SSE
S58	IAPU40000125045	1/2 - 1 Mile SSE
S59	IAPW40000081515	1/2 - 1 Mile SSE
60	IAPW40000065758	1/2 - 1 Mile South
T61	IAPW40000087249	1/2 - 1 Mile ESE
T62	IAPU40000125149	1/2 - 1 Mile ESE
U63	IAPW40000099536	1/2 - 1 Mile East
U64	IAPU40000125098	1/2 - 1 Mile East
U65	IAPU40000027366	1/2 - 1 Mile East
V66	IAPU40000027405	1/2 - 1 Mile ESE
W67	IAPU40000316585	1/2 - 1 Mile SE
V68	IAPU40000125164	1/2 - 1 Mile ESE
V69	IAPW40000091342	1/2 - 1 Mile ESE
V70	IAPU40000125165	1/2 - 1 Mile ESE
W71	IAPU40000316597	1/2 - 1 Mile SE
W72	IAPU40000316600	1/2 - 1 Mile SE
X73	IAPU40000125174	1/2 - 1 Mile SE
X74	IAPW40000085917	1/2 - 1 Mile SE

PHYSICAL SETTING SOURCE MAP - 5441925.2s



County Boundary
Major Roads
Contour Lines
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: Camp Dodge	CLIENT: AECOM
ADDRESS: 7105 Northwest 70th Avenue Johnston IA 50131	CONTACT: Brittany Kirchmann
LAT/LONG: 41.699189 / 93.714902	INQUIRY #: 5441925.2s
	DATE: October 03, 2018 8:26 am

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Map ID Direction Distance Elevation	Database	EDR ID Number
1 **SSW** **0 - 1/8 Mile** **Lower**	**IA WELLS**	**IAPU40000027116**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	763	Well Type:	IGS well database
Well Depth:	120	Construction/Permit Date:	4/29/1938
Notes:	Bedrock depth: 0; Well type: Test (water only)		

A2 **West** **0 - 1/8 Mile** **Lower**	**IA WELLS**	**IAUS30000004178**

Database:	Water Use Permits	IEFD Location ID:	20000314770
Facility ID:	310336357	Program ID:	2830
Facility Name:	Camp Dodge Water Supply	Operating Status:	Drilled
Well ID:	W5796	Well Location ID:	5948
Well Name:	Not Reported	Well Depth:	75
Construction Date:	Not Reported	Aquifer Type:	Unconsolidated - Drift, Alluv, Bur
Aquifer Rank:	Primary	Field Office #:	5
Coordinate Method:	INTERPOLATION-PHOTO	Coordinate Reference:	CENTER OF FACILITY
Coordinate Verification:	Not Reported	HUC #:	071000040811
URL:	http://programs.iowadnr.gov/wateruse/		

A3 **WNW** **0 - 1/8 Mile** **Lower**	**IA WELLS**	**IAPU40000027076**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	42712	Well Type:	IGS well database
Well Depth:	70	Construction/Permit Date:	1/1/1912
Notes:	Bedrock depth: 0; Well type: Public Supply		

A4 **WNW** **0 - 1/8 Mile** **Lower**	**IA WELLS**	**IAPU40000346500**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	2408130	Well Type:	Public Water Supply well
Well Depth:	unkn	Construction/Permit Date:	unkn
Notes:	PWSID: 7700901; Permit Status: Acitve		

Map ID Direction Distance Elevation	Database	EDR ID Number
5 **SW** **1/8 - 1/4 Mile** **Lower**	**IA WELLS**	**IAPU40000027114**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	764	Well Type:	IGS well database
Well Depth:	83	Construction/Permit Date:	12/6/1940
Notes:	Bedrock depth: 0; Well type: Test (water only)		

B6 **ENE** **1/8 - 1/4 Mile** **Higher**	**IA WELLS**	**IAPW40000050973**

Database:	Private Well Tracking System Wells		
PWTS Well #:	2131393	Permit #:	Not Reported
Tier #:	80	Range #:	25
Elevation:	0	Elevation Accuracy:	Not Reported
Total Well Depth:	15	Bedrock Depth:	0
Depth to Water:	0	Well Finished:	10-JUN-00
Driller:	Not Reported	Construction Method:	Auger, Bored or Bucket
Remarks:	Not Reported	Well Use:	Monitoring
Well Status:	Plugged	Heat Pump Wells:	0
Permitted Private Well:	Not Reported	Abandoned Well:	X
Renovated Well:	Not Reported	Registered for Tests:	Not Reported

---

B7 **East** **1/8 - 1/4 Mile** **Higher**	**IA WELLS**	**IAPW40000068480**

Database:	Private Well Tracking System Wells		
PWTS Well #:	2131396	Permit #:	Not Reported
Tier #:	80	Range #:	25
Elevation:	0	Elevation Accuracy:	Not Reported
Total Well Depth:	16	Bedrock Depth:	0
Depth to Water:	0	Well Finished:	10-JUN-35
Driller:	Not Reported	Construction Method:	Unknown
Remarks:	Not Reported	Well Use:	Household
Well Status:	Plugged	Heat Pump Wells:	0
Permitted Private Well:	Not Reported	Abandoned Well:	X
Renovated Well:	Not Reported	Registered for Tests:	Not Reported

---

C8 **ESE** **1/8 - 1/4 Mile** **Higher**	**IA WELLS**	**IAPU40000124822**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	2131393	Well Type:	Private well tracking system
Well Depth:	15	Construction/Permit Date:	6/10/2000
Notes:	Status: Plugged		

Map ID Direction Distance Elevation	Database	EDR ID Number
C9 **SE** **1/8 - 1/4 Mile** **Higher**	**IA WELLS**	**IAPU40000124850**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	2131396	Well Type:	Private well tracking system
Well Depth:	16	Construction/Permit Date:	6/10/1935
Notes:	Status: Plugged		

D10 **WSW** **1/4 - 1/2 Mile** **Lower**	**IA WELLS**	**IAPU40000072091**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	42713	Well Type:	IGS well database
Well Depth:	75	Construction/Permit Date:	4/10/1965
Notes:	Bedrock depth: 0; Well type: Public Supply		

D11 **WSW** **1/4 - 1/2 Mile** **Lower**	**IA WELLS**	**IAUS30000001484**

Database:	Water Use Permits	IEFD Location ID:	20000314772
Facility ID:	310336357	Program ID:	2830
Facility Name:	Camp Dodge Water Supply	Operating Status:	Drilled
Well ID:	W4399	Well Location ID:	5949
Well Name:	Not Reported	Well Depth:	75
Construction Date:	Not Reported	Aquifer Type:	Unconsolidated - Drift, Alluv, Bur
Aquifer Rank:	Primary	Field Office #:	5
Coordinate Method:	GPS CODE (PSEUDO RANGE) STANDARD POSITION (SA OFF)		
Coordinate Reference:	CENTER OF FACILITY	Coordinate Verification:	Not Reported
HUC #:	071000040811		
URL:	http://programs.iowadnr.gov/wateruse/		

D12 **WSW** **1/4 - 1/2 Mile** **Lower**	**IA WELLS**	**IAPU40000351006**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	2411135	Well Type:	Public Water Supply well
Well Depth:	65	Construction/Permit Date:	1/1/1973
Notes:	PWSID: 7700901; Permit Status: Acitve		

Map ID Direction Distance Elevation	Database	EDR ID Number
E13 **WSW** **1/4 - 1/2 Mile** **Lower**	**IA WELLS**	**IAUS30000000704**

Database:	Water Use Permits	IEFD Location ID:	20000314636
Facility ID:	310335503	Program ID:	1829
Facility Name:	Mapleton Municipal Water Plant		
Operating Status:	Drilled	Well ID:	W4609
Well Location ID:	5953	Well Name:	Not Reported
Well Depth:	77	Construction Date:	Not Reported
Aquifer Type:	Unconsolidated - Drift, Alluv, Bur		
Aquifer Rank:	Primary	Field Office #:	4
Coordinate Method:	GPS CODE (PSEUDO RANGE) STANDARD POSITION (SA OFF)		
Coordinate Reference:	WELL	Coordinate Verification:	Not Reported
HUC #:	071000040811		
URL:	http://programs.iowadnr.gov/wateruse/		

E14 **WSW** **1/4 - 1/2 Mile** **Lower**	**IA WELLS**	**IAUS30000003856**

Database:	Water Use Permits	IEFD Location ID:	20000314771
Facility ID:	310336357	Program ID:	2830
Facility Name:	Camp Dodge Water Supply	Operating Status:	Drilled
Well ID:	W4660	Well Location ID:	5950
Well Name:	Not Reported	Well Depth:	75
Construction Date:	Not Reported	Aquifer Type:	Unconsolidated - Drift, Alluv, Bur
Aquifer Rank:	Primary	Field Office #:	5
Coordinate Method:	GPS CODE (PSEUDO RANGE) STANDARD POSITION (SA OFF)		
Coordinate Reference:	CENTER OF FACILITY	Coordinate Verification:	Not Reported
HUC #:	071000040811		
URL:	http://programs.iowadnr.gov/wateruse/		

E15 **WSW** **1/4 - 1/2 Mile** **Lower**	**IA WELLS**	**IAPU40000072089**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	42714	Well Type:	IGS well database
Well Depth:	65	Construction/Permit Date:	1/1/1979
Notes:	Bedrock depth: 0; Well type: Public Supply		

E16 **WSW** **1/4 - 1/2 Mile** **Lower**	**IA WELLS**	**IAPU40000351004**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	2411845	Well Type:	Public Water Supply well
Well Depth:	65	Construction/Permit Date:	1/1/1978
Notes:	PWSID: 7700901; Permit Status: Acitve		

Map ID Direction Distance Elevation	Database	EDR ID Number
F17 **ESE** **1/4 - 1/2 Mile** **Higher**	**IA WELLS**	**IAPU40000027252**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	43758	Well Type:	IGS well database
Well Depth:	15	Construction/Permit Date:	3/22/1996
Notes:	Bedrock depth: 0; Well type: Test (water only)		

F18 **ESE** **1/4 - 1/2 Mile** **Higher**	**IA WELLS**	**IAPU40000027253**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	22818	Well Type:	IGS well database
Well Depth:	467	Construction/Permit Date:	5/10/1971
Notes:	Bedrock depth: 0; Well type: Private		

G19 **NE** **1/2 - 1 Mile** **Higher**	**IA WELLS**	**IAPW40000095315**

Database:	Private Well Tracking System Wells		
PWTS Well #:	2161209	Permit #:	36688
Tier #:	80	Range #:	25
Elevation:	0	Elevation Accuracy:	Not Reported
Total Well Depth:	0	Bedrock Depth:	0
Depth to Water:	0	Well Finished:	Not Reported
Driller:	Not Reported	Construction Method:	Not Reported
Remarks:	Not Reported	Well Use:	Irrigation
Well Status:	Permitted	Heat Pump Wells:	0
Permitted Private Well:	X	Abandoned Well:	Not Reported
Renovated Well:	Not Reported	Registered for Tests:	Not Reported

---

G20 **NE** **1/2 - 1 Mile** **Higher**	**IA WELLS**	**IAPW40000095545**

Database:	Private Well Tracking System Wells		
PWTS Well #:	2161129	Permit #:	36656
Tier #:	80	Range #:	25
Elevation:	0	Elevation Accuracy:	Not Reported
Total Well Depth:	200	Bedrock Depth:	0
Depth to Water:	0	Well Finished:	08-JUN-12
Driller:	Iowa Geothermal	Construction Method:	Not Reported
Remarks:	Not Reported	Well Use:	Heat pump
Well Status:	Active Log	Heat Pump Wells:	5
Permitted Private Well:	X	Abandoned Well:	Not Reported
Renovated Well:	Not Reported	Registered for Tests:	Not Reported

Map ID Direction Distance Elevation	Database	EDR ID Number
G21 **NE** **1/2 - 1 Mile** **Higher**	**IA WELLS**	**IAPU40000124748**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	2161129	Well Type:	Private well tracking system
Well Depth:	200	Construction/Permit Date:	6/8/2012
Notes:	Status: Active Logged		

G22 **NE** **1/2 - 1 Mile** **Higher**	**IA WELLS**	**IAPU40000124749**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	2161209	Well Type:	Private well tracking system
Well Depth:	unkn	Construction/Permit Date:	unkn
Notes:	Status: Permitted		

H23 **South** **1/2 - 1 Mile** **Lower**	**IA WELLS**	**IAPU40000124925**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	2145629	Well Type:	Private well tracking system
Well Depth:	unkn	Construction/Permit Date:	unkn
Notes:	Status: Permitted		

H24 **South** **1/2 - 1 Mile** **Lower**	**IA WELLS**	**IAPW40000087449**

Database:	Private Well Tracking System Wells		
PWTS Well #:	2145629	Permit #:	31733
Tier #:	80	Range #:	25
Elevation:	0	Elevation Accuracy:	Not Reported
Total Well Depth:	0	Bedrock Depth:	0
Depth to Water:	0	Well Finished:	Not Reported
Driller:	Not Reported	Construction Method:	Not Reported
Remarks:	Not Reported	Well Use:	Commercial
Well Status:	Permitted	Heat Pump Wells:	0
Permitted Private Well:	X	Abandoned Well:	Not Reported
Renovated Well:	Not Reported	Registered for Tests:	Not Reported

Map ID Direction Distance Elevation	Database	EDR ID Number
H25 **South** **1/2 - 1 Mile** **Lower**	**IA WELLS**	**IAPU40000027227**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	75563	Well Type:	IGS well database
Well Depth:	84	Construction/Permit Date:	12/20/2010
Notes:	Bedrock depth: 80; Well type: Public Supply		

I26 **ESE** **1/2 - 1 Mile** **Higher**	**IA WELLS**	**IAPU40000316462**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	29631	Well Type:	Registered abandoned wells
Well Depth:	81	Construction/Permit Date:	n.a.
Notes:	Well plugged: 9/5/1997; Well type: < 18" dia.		

H27 **SSE** **1/2 - 1 Mile** **Lower**	**IA WELLS**	**IAPU40000027244**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	9122	Well Type:	IGS well database
Well Depth:	450	Construction/Permit Date:	7/1/1957
Notes:	Bedrock depth: 25; Well type: Private		

I28 **ESE** **1/2 - 1 Mile** **Higher**	**IA WELLS**	**IAPU40000316465**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	29632	Well Type:	Registered abandoned wells
Well Depth:	77	Construction/Permit Date:	n.a.
Notes:	Well plugged: 9/5/1997; Well type: < 18" dia.		

J29 **North** **1/2 - 1 Mile** **Higher**	**IA WELLS**	**IAPW40000104203**

Database:	Private Well Tracking System Wells		
PWTS Well #:	2178863	Permit #:	42893
Tier #:	80	Range #:	25
Elevation:	0	Elevation Accuracy:	Not Reported
Total Well Depth:	0	Bedrock Depth:	0
Depth to Water:	0	Well Finished:	Not Reported
Driller:	Barker Lamar Consulting Engineers		

Construction Method:	Not Reported	Remarks:	Not Reported
Well Use:	Heat pump	Well Status:	Permitted
Heat Pump Wells:	9	Permitted Private Well:	X
Abandoned Well:	Not Reported	Renovated Well:	Not Reported
Registered for Tests:	Not Reported		

J30
North
1/2 - 1 Mile
Higher

IA WELLS **IAPU40000124484**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	2178863	Well Type:	Private well tracking system
Well Depth:	305	Construction/Permit Date:	11/25/2014
Notes:	Status: Active Logged		

31
NNE
1/2 - 1 Mile
Higher

IA WELLS **IAPU40000124672**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	2181290	Well Type:	Private well tracking system
Well Depth:	200	Construction/Permit Date:	7/24/2015
Notes:	Status: Active Logged		

K32
NE
1/2 - 1 Mile
Higher

IA WELLS **IAPW40000088086**

Database:	Private Well Tracking System Wells		
PWTS Well #:	2145258	Permit #:	31584
Tier #:	80	Range #:	25
Elevation:	0	Elevation Accuracy:	Not Reported
Total Well Depth:	180	Bedrock Depth:	0
Depth to Water:	0	Well Finished:	22-FEB-10
Driller:	Thorpe Water Development Company		
Construction Method:	Not Reported	Remarks:	Not Reported
Well Use:	Heat pump	Well Status:	Active Log
Heat Pump Wells:	5	Permitted Private Well:	X
Abandoned Well:	Not Reported	Renovated Well:	Not Reported
Registered for Tests:	Not Reported		

K33
NE
1/2 - 1 Mile
Higher

IA WELLS **IAPU40000124774**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	2145258	Well Type:	Private well tracking system
Well Depth:	180	Construction/Permit Date:	2/22/2010
Notes:	Status: Active Logged		

Map ID Direction Distance Elevation	Database	EDR ID Number
L34 **ESE** **1/2 - 1 Mile** **Higher**	**IA WELLS**	**IAPW40000006779**

Database:	Private Well Tracking System Wells		
PWTS Well #:	2077088	Permit #:	10694
Tier #:	80	Range #:	25
Elevation:	0	Elevation Accuracy:	Not Reported
Total Well Depth:	200	Bedrock Depth:	0
Depth to Water:	0	Well Finished:	12-FEB-02
Driller:	Huff & Son Well Boring	Construction Method:	Rotary Drill
Remarks:	Not Reported	Well Use:	Heat pump
Well Status:	Active	Heat Pump Wells:	5
Permitted Private Well:	X	Abandoned Well:	Not Reported
Renovated Well:	Not Reported	Registered for Tests:	Not Reported

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L35 **ESE** **1/2 - 1 Mile** **Higher**	**IA WELLS**	**IAPU40000125002**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	2077088	Well Type:	Private well tracking system
Well Depth:	200	Construction/Permit Date:	2/12/2002
Notes:	Status: Active		

K36 **NE** **1/2 - 1 Mile** **Higher**	**IA WELLS**	**IAPU40000027131**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	69739	Well Type:	IGS well database
Well Depth:	180	Construction/Permit Date:	2/22/2010
Notes:	Bedrock depth: 120; Well type: Heat Pump		

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37 **East** **1/2 - 1 Mile** **Higher**	**IA WELLS**	**IAPU40000027260**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	55866	Well Type:	IGS well database
Well Depth:	200	Construction/Permit Date:	2/12/2002
Notes:	Bedrock depth: 90; Well type: Heat Pump		

Map ID Direction Distance Elevation	Database	EDR ID Number
M38 **SSW** **1/2 - 1 Mile** **Lower**	**IA WELLS**	**IAPU40000316417**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	26528	Well Type:	Registered abandoned wells
Well Depth:	25	Construction/Permit Date:	n.a.
Notes:	Well plugged: 10/17/1996; Well type: > 18" dia.		

M39 **SSW** **1/2 - 1 Mile** **Lower**	**IA WELLS**	**IAPU40000316418**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	26608	Well Type:	Registered abandoned wells
Well Depth:	25	Construction/Permit Date:	n.a.
Notes:	Well plugged: 10/17/1996; Well type: > 18" dia.		

K40 **NE** **1/2 - 1 Mile** **Higher**	**IA WELLS**	**IAPW40000075205**

Database:	Private Well Tracking System Wells		
PWTS Well #:	2162205	Permit #:	37086
Tier #:	80	Range #:	25
Elevation:	0	Elevation Accuracy:	Not Reported
Total Well Depth:	200	Bedrock Depth:	0
Depth to Water:	0	Well Finished:	01-OCT-12
Driller:	Thorpe Water Development Company		
Construction Method:	Not Reported	Remarks:	Not Reported
Well Use:	Heat pump	Well Status:	Active Log
Heat Pump Wells:	5	Permitted Private Well:	X
Abandoned Well:	Not Reported	Renovated Well:	Not Reported
Registered for Tests:	Not Reported		

K41 **NE** **1/2 - 1 Mile** **Higher**	**IA WELLS**	**IAPU40000027135**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	75176	Well Type:	IGS well database
Well Depth:	200	Construction/Permit Date:	10/1/2012
Notes:	Bedrock depth: 38; Well type: Heat Pump		

Map ID Direction Distance Elevation	Database	EDR ID Number
K42 **NE** **1/2 - 1 Mile** **Higher**	**IA WELLS**	**IAPU40000124769**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	2162205	Well Type:	Private well tracking system
Well Depth:	200	Construction/Permit Date:	10/1/2012
Notes:	Status: Active Logged		

N43 **ENE** **1/2 - 1 Mile** **Higher**	**IA WELLS**	**IAPW40000060221**

Database:	Private Well Tracking System Wells		
PWTS Well #:	2144646	Permit #:	Not Reported
Tier #:	80	Range #:	25
Elevation:	0	Elevation Accuracy:	Not Reported
Total Well Depth:	100	Bedrock Depth:	0
Depth to Water:	0	Well Finished:	01-JAN-73
Driller:	Not Reported	Construction Method:	Unknown
Remarks:	Not Reported	Well Use:	Household
Well Status:	Active	Heat Pump Wells:	0
Permitted Private Well:	Not Reported	Abandoned Well:	Not Reported
Renovated Well:	Not Reported	Registered for Tests:	X

N44 **ENE** **1/2 - 1 Mile** **Higher**	**IA WELLS**	**IAPU40000124874**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	2144646	Well Type:	Private well tracking system
Well Depth:	100	Construction/Permit Date:	1/1/1973
Notes:	Status: Active		

---

45 **NE** **1/2 - 1 Mile** **Higher**	**IA WELLS**	**IAPU40000124763**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	2185902	Well Type:	Private well tracking system
Well Depth:	unkn	Construction/Permit Date:	unkn
Notes:	Status: Permitted		

Map ID Direction Distance Elevation	Database	EDR ID Number
O46 **SSE** **1/2 - 1 Mile** **Lower**	**IA WELLS**	**IAPU40000125013**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	2180478	Well Type:	Private well tracking system
Well Depth:	42	Construction/Permit Date:	1/1/1970
Notes:	Status: Inactive		

O47 **SSE** **1/2 - 1 Mile** **Lower**	**IA WELLS**	**IAPU40000125010**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	2185906	Well Type:	Private well tracking system
Well Depth:	unkn	Construction/Permit Date:	unkn
Notes:	Status: Permitted		

O48 **SSE** **1/2 - 1 Mile** **Lower**	**IA WELLS**	**IAPU40000125012**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	2181494	Well Type:	Private well tracking system
Well Depth:	unkn	Construction/Permit Date:	unkn
Notes:	Status: Permitted		

P49 **NE** **1/2 - 1 Mile** **Higher**	**IA WELLS**	**IAPW40000069880**

Database:	Private Well Tracking System Wells		
PWTS Well #:	2151802	Permit #:	33701
Tier #:	80	Range #:	25
Elevation:	0	Elevation Accuracy:	Not Reported
Total Well Depth:	180	Bedrock Depth:	0
Depth to Water:	0	Well Finished:	28-FEB-11
Driller:	Thorpe Water Development Company		
Construction Method:	Not Reported	Remarks:	Not Reported
Well Use:	Heat pump	Well Status:	Active Log
Heat Pump Wells:	6	Permitted Private Well:	X
Abandoned Well:	Not Reported	Renovated Well:	Not Reported
Registered for Tests:	Not Reported		

Map ID Direction Distance Elevation	Database	EDR ID Number
P50 **NE** **1/2 - 1 Mile** **Higher**	**IA WELLS**	**IAPU40000124811**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	2151802	Well Type:	Private well tracking system
Well Depth:	180	Construction/Permit Date:	2/28/2011
Notes:	Status: Active Logged		

Q51 **South** **1/2 - 1 Mile** **Lower**	**IA WELLS**	**IAPU40000027302**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	68337	Well Type:	IGS well database
Well Depth:	200	Construction/Permit Date:	10/17/2009
Notes:	Bedrock depth: 78; Well type: Heat Pump		

Q52 **South** **1/2 - 1 Mile** **Lower**	**IA WELLS**	**IAPU40000125004**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	2144321	Well Type:	Private well tracking system
Well Depth:	200	Construction/Permit Date:	10/17/2009
Notes:	Status: Active Logged		

Q53 **South** **1/2 - 1 Mile** **Lower**	**IA WELLS**	**IAPW40000087471**

Database:	Private Well Tracking System Wells		
PWTS Well #:	2144321	Permit #:	31254
Tier #:	80	Range #:	25
Elevation:	0	Elevation Accuracy:	Not Reported
Total Well Depth:	200	Bedrock Depth:	0
Depth to Water:	0	Well Finished:	17-OCT-09
Driller:	Geothermal Systems, Llc	Construction Method:	Not Reported
Remarks:	Not Reported	Well Use:	Heat pump
Well Status:	Active Log	Heat Pump Wells:	5
Permitted Private Well:	X	Abandoned Well:	Not Reported
Renovated Well:	Not Reported	Registered for Tests:	Not Reported

Map ID Direction Distance Elevation	Database	EDR ID Number
R54 **SSE** **1/2 - 1 Mile** **Lower**	**IA WELLS**	**IAPU40000027335**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	47077	Well Type:	IGS well database
Well Depth:	89	Construction/Permit Date:	1/1/1968
Notes:	Bedrock depth: 0; Well type: Irrigation		

R55 **SSE** **1/2 - 1 Mile** **Lower**	**IA WELLS**	**IAUS30000000364**

Database:	Water Use Permits	IEFD Location ID:	20000319454
Facility ID:	310412489	Program ID:	2092
Facility Name:	Hyperion Field Club	Operating Status:	Drilled
Well ID:	W5846	Well Location ID:	9374
Well Name:	Not Reported	Well Depth:	90
Construction Date:	Not Reported	Aquifer Type:	Unconsolidated - Drift, Alluv, Bur
Aquifer Rank:	Primary	Field Office #:	5
Coordinate Method:	INTERPOLATION-PHOTO	Coordinate Reference:	CENTER OF FACILITY
Coordinate Verification:	Not Reported	HUC #:	071000040811
URL:	http://programs.iowadnr.gov/wateruse/		

R56 **SSE** **1/2 - 1 Mile** **Lower**	**IA WELLS**	**IAPU40000027345**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	47076	Well Type:	IGS well database
Well Depth:	92	Construction/Permit Date:	unkn
Notes:	Bedrock depth: 0; Well type: Irrigation		

R57 **SSE** **1/2 - 1 Mile** **Lower**	**IA WELLS**	**IAUS30000000241**

Database:	Water Use Permits	IEFD Location ID:	20000319455
Facility ID:	310412489	Program ID:	2092
Facility Name:	Hyperion Field Club	Operating Status:	Drilled
Well ID:	W4841	Well Location ID:	9375
Well Name:	Not Reported	Well Depth:	90
Construction Date:	Not Reported	Aquifer Type:	Unconsolidated - Drift, Alluv, Bur
Aquifer Rank:	Primary	Field Office #:	5
Coordinate Method:	INTERPOLATION-PHOTO	Coordinate Reference:	CENTER OF FACILITY
Coordinate Verification:	Not Reported	HUC #:	071000040811
URL:	http://programs.iowadnr.gov/wateruse/		

Map ID Direction Distance Elevation	Database	EDR ID Number
S58 **SSE** **1/2 - 1 Mile** **Lower**	**IA WELLS**	**IAPU40000125045**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	2136959	Well Type:	Private well tracking system
Well Depth:	180	Construction/Permit Date:	11/3/2008
Notes:	Status: Active Logged		

S59 **SSE** **1/2 - 1 Mile** **Lower**	**IA WELLS**	**IAPW40000081515**

Database:	Private Well Tracking System Wells		
PWTS Well #:	2136959	Permit #:	28818
Tier #:	80	Range #:	25
Elevation:	0	Elevation Accuracy:	Not Reported
Total Well Depth:	180	Bedrock Depth:	0
Depth to Water:	0	Well Finished:	03-NOV-08
Driller:	Barker Lamar Consulting Engineers		
Construction Method:	Not Reported	Remarks:	Not Reported
Well Use:	Heat pump	Well Status:	Active Log
Heat Pump Wells:	10	Permitted Private Well:	X
Abandoned Well:	Not Reported	Renovated Well:	Not Reported
Registered for Tests:	Not Reported		

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60 **South** **1/2 - 1 Mile** **Lower**	**IA WELLS**	**IAPW40000065758**

Database:	Private Well Tracking System Wells		
PWTS Well #:	2128504	Permit #:	26139
Tier #:	79	Range #:	25
Elevation:	0	Elevation Accuracy:	Not Reported
Total Well Depth:	190	Bedrock Depth:	0
Depth to Water:	0	Well Finished:	27-JUL-07
Driller:	Enviro-Tec Inc.	Construction Method:	Auger, Bored or Bucket
Remarks:	Not Reported	Well Use:	Heat pump
Well Status:	Active	Heat Pump Wells:	8
Permitted Private Well:	X	Abandoned Well:	Not Reported
Renovated Well:	Not Reported	Registered for Tests:	Not Reported

---

T61 **ESE** **1/2 - 1 Mile** **Higher**	**IA WELLS**	**IAPW40000087249**

Database:	Private Well Tracking System Wells		
PWTS Well #:	2133851	Permit #:	27763
Tier #:	80	Range #:	25
Elevation:	0	Elevation Accuracy:	Not Reported

Total Well Depth:	200	Bedrock Depth:	0
Depth to Water:	0	Well Finished:	30-MAY-08
Driller:	Iowa Geothermal	Construction Method:	Not Reported
Remarks:	Not Reported	Well Use:	Heat pump
Well Status:	Active Log	Heat Pump Wells:	3
Permitted Private Well:	X	Abandoned Well:	Not Reported
Renovated Well:	Not Reported	Registered for Tests:	Not Reported

---

T62
ESE
1/2 - 1 Mile
Higher

IA WELLS **IAPU40000125149**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	2133851	Well Type:	Private well tracking system
Well Depth:	200	Construction/Permit Date:	5/30/2008
Notes:	Status: Active Logged		

U63
East
1/2 - 1 Mile
Higher

IA WELLS **IAPW40000099536**

Database:	Private Well Tracking System Wells		
PWTS Well #:	2168861	Permit #:	39474
Tier #:	80	Range #:	24
Elevation:	0	Elevation Accuracy:	Not Reported
Total Well Depth:	175	Bedrock Depth:	0
Depth to Water:	0	Well Finished:	15-JUL-13
Driller:	Thorpe Water Development Company		
Construction Method:	Not Reported	Remarks:	Not Reported
Well Use:	Heat pump	Well Status:	Active Log
Heat Pump Wells:	6	Permitted Private Well:	X
Abandoned Well:	Not Reported	Renovated Well:	Not Reported
Registered for Tests:	Not Reported		

U64
East
1/2 - 1 Mile
Higher

IA WELLS **IAPU40000125098**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	2168861	Well Type:	Private well tracking system
Well Depth:	175	Construction/Permit Date:	7/15/2013
Notes:	Status: Active Logged		

U65
East
1/2 - 1 Mile
Higher

IA WELLS **IAPU40000027366**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	76150	Well Type:	IGS well database
Well Depth:	175	Construction/Permit Date:	7/15/2013

Notes: Bedrock depth: 110; Well type: Heat Pump

V66
ESE
1/2 - 1 Mile
Higher

IA WELLS **IAPU40000027405**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	72437	Well Type:	IGS well database
Well Depth:	180	Construction/Permit Date:	5/24/2010
Notes:	Bedrock depth: 160; Well type: Heat Pump		

W67
SE
1/2 - 1 Mile
Higher

IA WELLS **IAPU40000316585**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	34266	Well Type:	Registered abandoned wells
Well Depth:	40	Construction/Permit Date:	n.a.
Notes:	Well plugged: 6/5/1998; Well type: other		

V68
ESE
1/2 - 1 Mile
Higher

IA WELLS **IAPU40000125164**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	2179884	Well Type:	Private well tracking system
Well Depth:	300	Construction/Permit Date:	4/8/2015
Notes:	Status: Active Logged		

V69
ESE
1/2 - 1 Mile
Higher

IA WELLS **IAPW40000091342**

Database:	Private Well Tracking System Wells		
PWTS Well #:	2147161	Permit #:	32186
Tier #:	80	Range #:	25
Elevation:	0	Elevation Accuracy:	Not Reported
Total Well Depth:	180	Bedrock Depth:	0
Depth to Water:	0	Well Finished:	24-MAY-10
Driller:	Thorpe Water Development Company		
Construction Method:	Not Reported	Remarks:	Not Reported
Well Use:	Heat pump	Well Status:	Active Log
Heat Pump Wells:	4	Permitted Private Well:	X
Abandoned Well:	Not Reported	Renovated Well:	Not Reported
Registered for Tests:	Not Reported		

Map ID Direction Distance Elevation	Database	EDR ID Number
V70 **ESE** **1/2 - 1 Mile** **Higher**	**IA WELLS**	**IAPU40000125165**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	2147161	Well Type:	Private well tracking system
Well Depth:	180	Construction/Permit Date:	5/24/2010
Notes:	Status: Active Logged		

W71 **SE** **1/2 - 1 Mile** **Higher**	**IA WELLS**	**IAPU40000316597**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	34265	Well Type:	Registered abandoned wells
Well Depth:	340	Construction/Permit Date:	n.a.
Notes:	Well plugged: 5/28/1998; Well type: < 18" dia.		

W72 **SE** **1/2 - 1 Mile** **Higher**	**IA WELLS**	**IAPU40000316600**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	34267	Well Type:	Registered abandoned wells
Well Depth:	unkn	Construction/Permit Date:	n.a.
Notes:	Well plugged: 6/5/1998; Well type: < 18" dia.		

X73 **SE** **1/2 - 1 Mile** **Higher**	**IA WELLS**	**IAPU40000125174**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	2136958	Well Type:	Private well tracking system
Well Depth:	180	Construction/Permit Date:	8/19/2009
Notes:	Status: Active Logged		

X74 **SE** **1/2 - 1 Mile** **Higher**	**IA WELLS**	**IAPW40000085917**

Database:	Private Well Tracking System Wells		
PWTS Well #:	2136958	Permit #:	28817
Tier #:	80	Range #:	25
Elevation:	0	Elevation Accuracy:	Not Reported
Total Well Depth:	180	Bedrock Depth:	0
Depth to Water:	0	Well Finished:	19-AUG-09
Driller:	Thorpe Water Development Company		

Construction Method:	Not Reported	Remarks:	Not Reported
Well Use:	Heat pump	Well Status:	Active Log
Heat Pump Wells:	4	Permitted Private Well:	X
Abandoned Well:	Not Reported	Renovated Well:	Not Reported
Registered for Tests:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: IA Radon

Radon Test Results

Zipcode	Num Tests	Minimum	Maximum	Average
50131	172	0.1	30.6	4.9

Federal EPA Radon Zone for POLK County: 1

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 Zip Code: 50131

Number of sites tested: 1

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	Not Reported	Not Reported	Not Reported	Not Reported
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	13.100 pCi/L	0%	100%	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: National Wetland Inventory of Iowa
Source: Department of Natural Resources
Telephone: 319-335-1575

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

All Known Water Wells in the State of Iowa
Source: Department of Natural Resources
Telephone: 319-335-1353
Well types included are agricultural drainage, permitted private, public, registered abandoned, SDWIS public, water use permit sites, wells registered for testing.

Agricultural Drainage Wells
Source: Department of Natural Resources
Telephone: 515-281-5029
Agricultural drainage wells are required to be registered both with the Iowa Department of Natural Resources as a part of the 1987 Groundwater Protection Act, and with the U.S. Environmental Protection Agency as a part of the Underground Injection Control Program.

Private Well Tracking System Wells
Source: Department of Natural Resources
Telephone: 319-335-1353

Water Use Permits
Source: Department of Natural Resources
Telephone: 515-725-0336
Wells under Water Use permits. A water use permit is required of any person or entity that withdraws or diverts at least 25,000 gallons of water in a 24-hour period during any calendar year.

Private Wells Tested
Source: Department of Natural Resources
Telephone: 515-335-1353
This is a point coverage for private wells which have been tested for bacteria and nitrate contamination under the Grants to Counties program.

OTHER STATE DATABASE INFORMATION

Oil and Gas Well Database
Source: Department of Natural Resources
Oil and gas well locations.

RADON

State Database: IA Radon
Source: Department of Public Health
Telephone: 515-281-4340
Radon Test Results

PHYSICAL SETTING SOURCE RECORDS SEARCHED

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

STREET AND ADDRESS INFORMATION

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Fax To: AECOM
Contact: Brittany Bailey
Fax : 000-000-0000
Date: 10/03/2018

Fax From: Sean McLaughlin
EDR
Phone: 1-800-352-0050

EDR PUR-IQ® Report

"the intelligent way to conduct historical research"

for
Camp Dodge
7105 Northwest 70th Avenue
Johnston, IA 50131
Lat./Long. 41.724209 / 93.7411
EDR Inquiry # 5441936.2s

The EDR PUR-IQ report facilitates historical research planning required to complete the Phase I ESA process. The report identifies the *likelihood* of prior use coverage by searching proprietary EDR-Prior Use Reports® comprising nationwide information on: city directories, fire insurance maps, aerial photographs, historical topographic maps, flood maps and National Wetland Inventory maps.

Potential for EDR Historical (Prior Use) Coverage - Coverage in the following historical information sources may be used as a guide to develop your historical research strategy:

1. Building Permits:	Building Permits are available for 'JOHNSTON', IA (2001 - 2017).
2. City Directory:	Coverage may exist for portions of Polk County, IA.
3. Fire Insurance Map:	When you order online any EDR Package or the EDR Radius Map with EDR Sanborn Map Search/Print, you receive site specific Sanborn Map coverage information at no charge.
4. Aerial Photograph:	Aerial photography coverage may exist for portions of Polk County. Please contact your EDR Account Executive for information about USGS photos available through EDR.
5. Topographic Map:	The USGS 7.5 min. quad topo sheet(s) associated with this site:

Historical: Coverage exists for POLK County

Current: Target Property: TP | 2013 | 5942453 Des Moines NW, IA

Additional required for 1 Mile radius: SW | 2013 | 5942459 Grimes, IA

EDR's network of professional researchers, located throughout the United States, accesses the most extensive national collections of city directory, fire insurance maps, aerial photographs and historical topographic map resources available for Johnston, IA. These collections may be located in multiple libraries throughout the country. To ensure maximum coverage, EDR will often assign researchers at these multiple locations on your behalf. Please call or fax your EDR representative to authorize a search.

EDR™ Environmental Data Resources Inc

EDR - HISTORICAL SOURCE(S) ORDER FORM

AECOM
Brittany Bailey
Account # 1861179

Camp Dodge
7105 Northwest 70th Avenue
Johnston, IA 50131
POLK County
Lat./Long. 41.724209 / 93.7411
EDR Inquiry # 5441936.2s

Should you wish to change or add to your order, fax this form to your EDR account executive:

Sean McLaughlin
Ph: 1-800-352-0050 Fax: 1-800-231-6802

Reports

___ EDR Sanborn Map® Search/Print

___ EDR Fire Insurance Map Abstract

___ EDR Multi-Tenant Retail Facility® Report

___ EDR City Directory Abstract

___ EDR Aerial Photo Decade Package

___ USGS Aerial 5 Package

___ USGS Aerial 3 Package

___ EDR Historical Topographic Maps

___ Paper Current USGS Topo (7.5 min.)

___ Environmental Lien Search

___ Chain of Title Search

___ NJ MacRaes Industrial Directory Report

___ EDR Telephone Interview

Shipping:

___ Email
___ Express, Next Day Delivery — RUSH SERVICE IS AVAILABLE
___ Express, Second Day Delivery
___ Express, Next day Delivery — Customer Account — Acct # _____
___ Express, Second Day Delivery — Customer Account — Acct # _____
___ U.S. Mail

Thank you

Camp Dodge

7105 Northwest 70th Avenue

Johnston, IA 50131

Inquiry Number: 5441936.3

October 02, 2018

Certified Sanborn® Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

10/02/18

Site Name:	Client Name:
Camp Dodge	AECOM
7105 Northwest 70th Avenue	12120 Shamrock Plaza
Johnston, IA 50131	Omaha, NE 68154
EDR Inquiry # 5441936.3	Contact: Brittany Bailey

The Sanborn Library has been searched by EDR and maps covering the target property location as provided by AECOM were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Certification # E395-4BA0-89EC

PO # NA

Project Camp Dodge 2

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

Sanborn® Library search results

Certification #: E395-4BA0-89EC

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ✔ Library of Congress
- ✔ University Publications of America
- ✔ EDR Private Collection

The Sanborn Library LLC Since 1866™

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Camp Dodge

7105 Northwest 70th Avenue

Johnston, IA 50131

Inquiry Number: 5441936.5

October 05, 2018

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

10/05/18

Site Name:

Camp Dodge
7105 Northwest 70th Avenue
Johnston, IA 50131
EDR Inquiry # 5441936.5

Client Name:

AECOM
12120 Shamrock Plaza
Omaha, NE 68154
Contact: Brittany Bailey

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

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
2008	1"=500'	Flight Year: 2008	USDA/NAIP
2005	1"=500'	Flight Year: 2005	USDA/NAIP
2000	1"=500'	Acquisition Date: April 05, 2000	USGS/DOQQ
1990	1"=500'	Flight Date: January 01, 1990	USGS
1983	1"=500'	Flight Date: January 01, 1983	USGS
1974	1"=500'	Flight Date: August 18, 1974	USDA
1961	1"=500'	Flight Date: January 01, 1961	ASCS
1955	1"=500'	Flight Date: September 05, 1955	USDA
1950	1"=500'	Flight Date: October 12, 1950	USGS
1938	1"=500'	Flight Date: January 01, 1938	ASCS

When delivered electronically by EDR, the aerial photo images included with this report are for ONE TIME USE ONLY. Further reproduction of these aerial photo images is prohibited without permission from EDR. For more information contact your EDR Account Executive.

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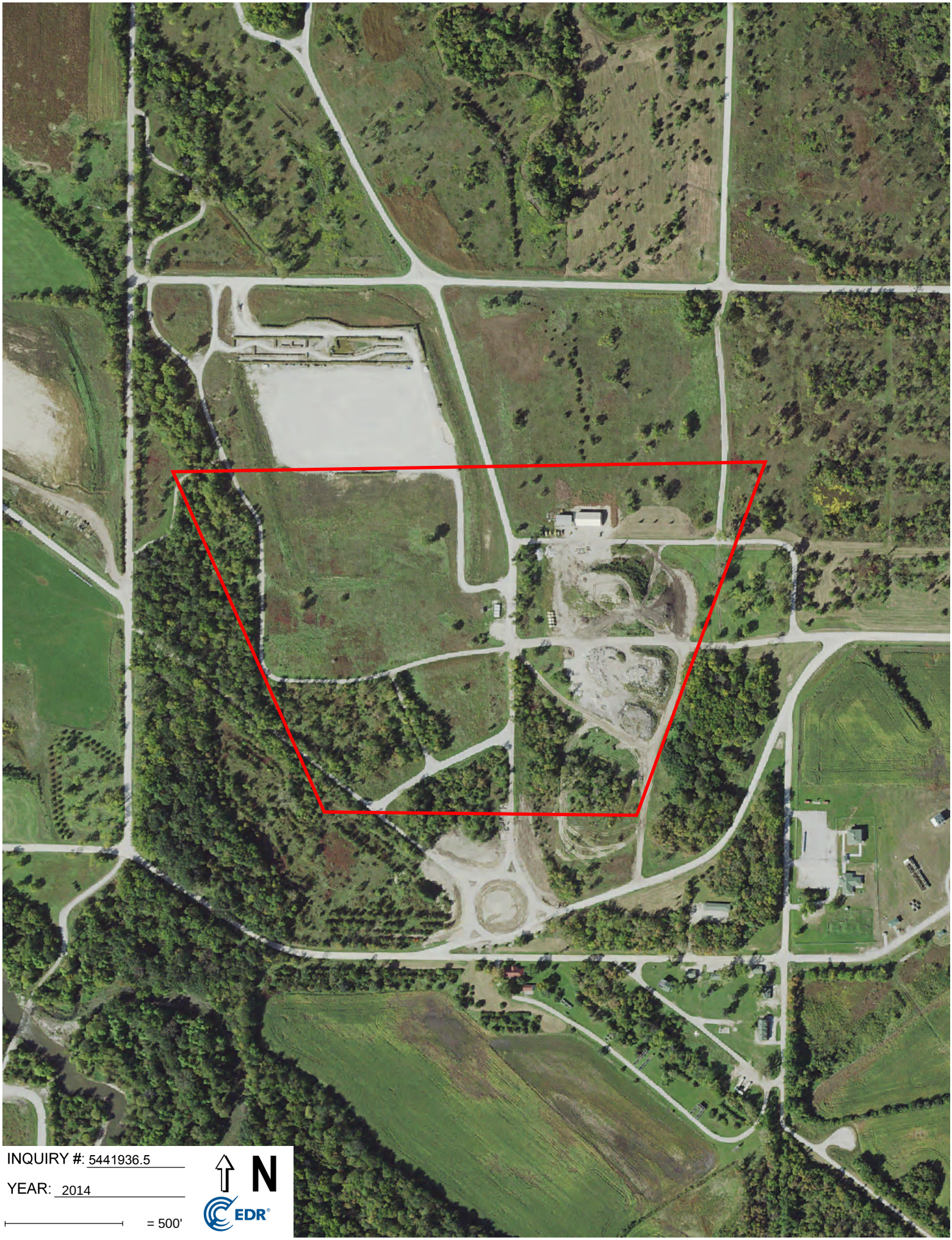
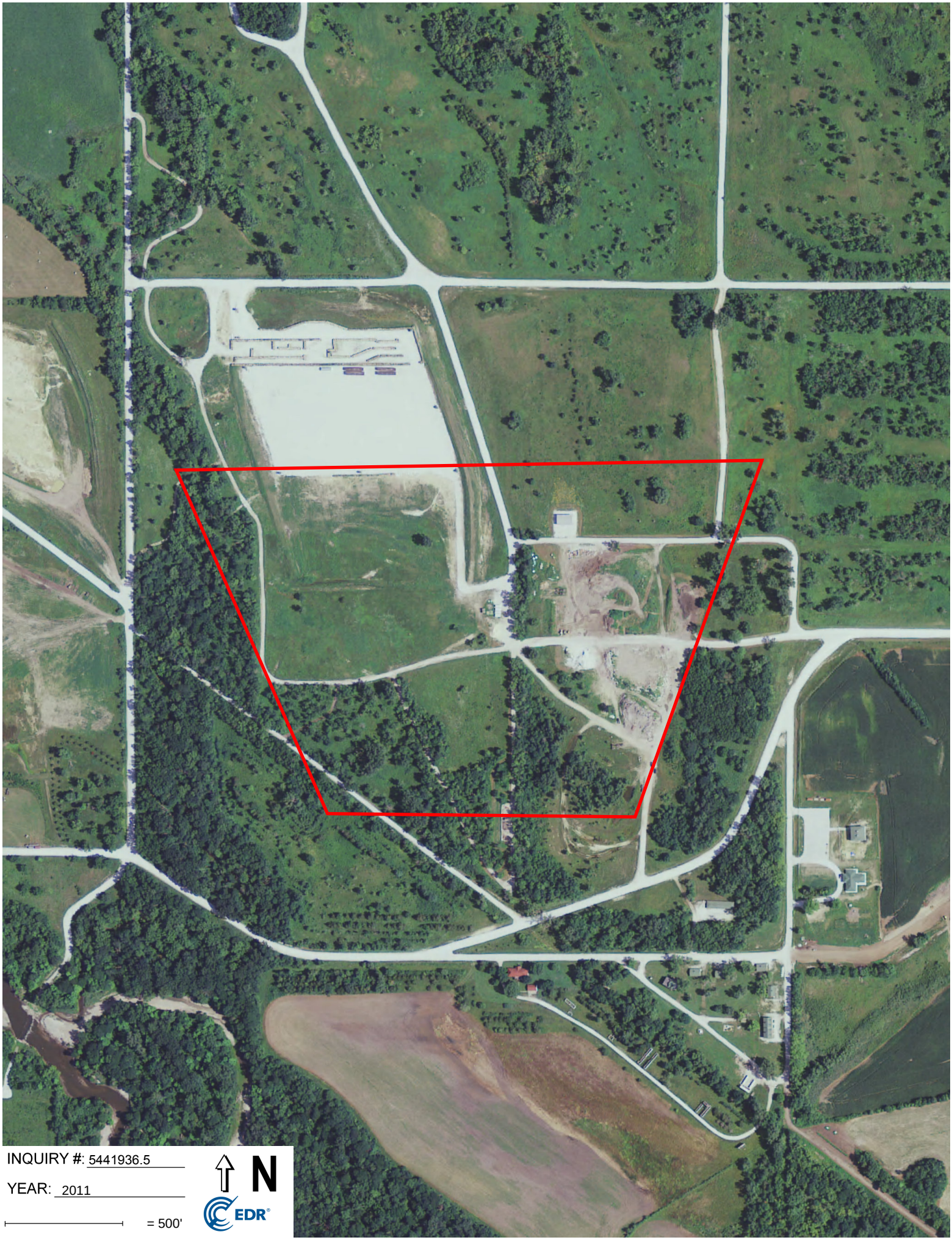
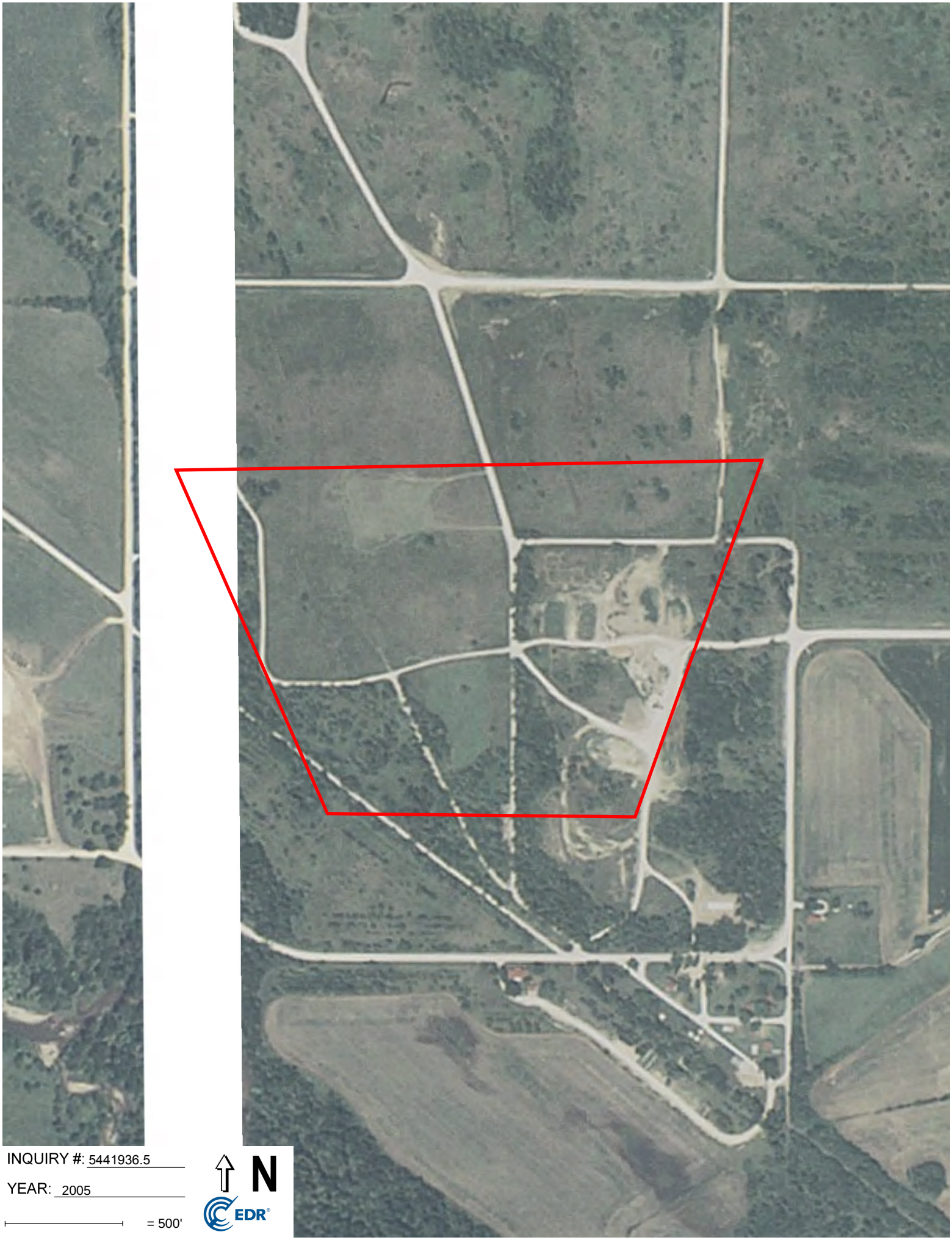
INQUIRY #: 5441936.5
YEAR: 2017
= 500'
N
EDR


INQUIRY #: 5441936.5
YEAR: 2014
= 500'
N
EDR


INQUIRY #: 5441936.5
YEAR: 2011
= 500'
N
EDR

INQUIRY #: 5441936.5
YEAR: 2008
= 500'
N
EDR



INQUIRY #: 5441936.5

YEAR: 2005

= 500'

N

EDR

INQUIRY #: 5441936.5

YEAR: 2000

= 500'

N

EDR

INQUIRY #: 5441936.5

YEAR: 1990

= 500'

N

EDR

Subject boundary not shown because it exceeds image extent or image is not georeferenced.

INQUIRY #: 5441936.5

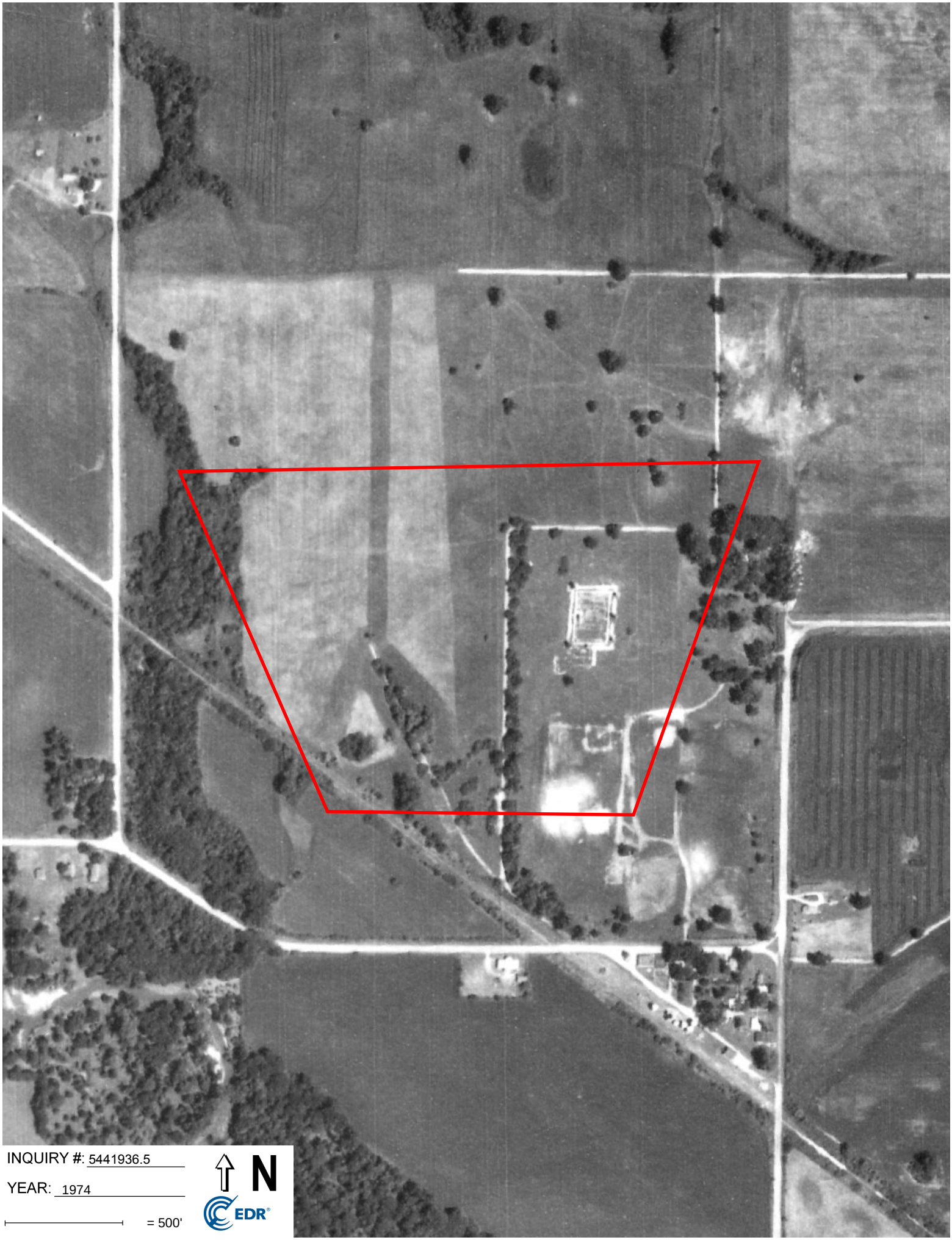
YEAR: 1983

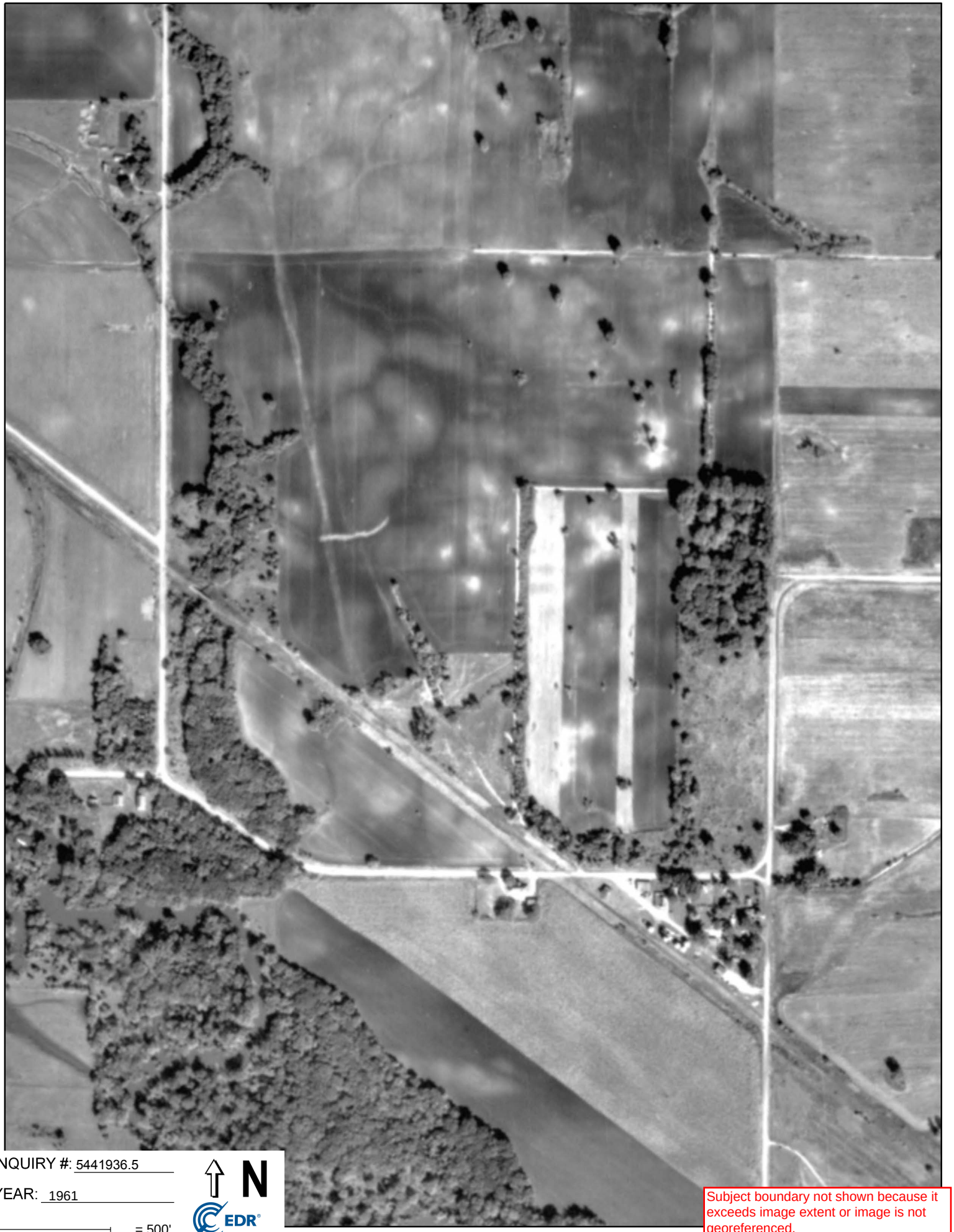
= 500'

N

EDR

Subject boundary not shown because it exceeds image extent or image is not georeferenced.


INQUIRY #: 5441936.5
YEAR: 1974
= 500'
N
EDR



INQUIRY #: 5441936.5

YEAR: 1961

= 500'

N

EDR

Subject boundary not shown because it exceeds image extent or image is not georeferenced.

INQUIRY #: 5441936.5
YEAR: 1955
= 500'
N
EDR

INQUIRY #: 5441936.5
YEAR: 1950
= 500'
N
EDR

INQUIRY #: 5441936.5

YEAR: 1938

= 500'

N

Subject boundary not shown because it exceeds image extent or image is not georeferenced.

Camp Dodge
7105 Northwest 70th Avenue
Johnston, IA 50131

Inquiry Number: 5441936.2s
October 03, 2018

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
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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

7105 NORTHWEST 70TH AVENUE
JOHNSTON, IA 50131

COORDINATES

Latitude (North):	41.7242090 - 41˚ 43' 27.15''
Longitude (West):	93.7411000 - 93˚ 44' 27.96''
Universal Tranverse Mercator:	Zone 15
UTM X (Meters):	438357.7
UTM Y (Meters):	4619208.5
Elevation:	861 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	5942453 DES MOINES NW, IA
Version Date:	2013
Southwest Map:	5942459 GRIMES, IA
Version Date:	2013

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20150824
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
7105 NORTHWEST 70TH AVENUE
JOHNSTON, IA 50131

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
A1	IOWA LAW ENFORCEMENT	7105 NW 70TH AVE	US AIRS, FINDS, ECHO		TP
A2	IOWA ARMY NATIONAL G	7105 NW 70TH AVE	CORRACTS, RCRA-TSDF, RCRA-LQG, RAATS, WI MANIFEST		TP
A3	CAMP DODGE	7105 NW 70TH AVE	ICIS, US AIRS		TP
A4	NDNODS LE MARS SA RA	7105 NW 70TH AVENUE	UXO		TP
A5	CAMP DODGE SANITARY	7105 NW 70TH AVE.	IA NPDES		TP
A6	NDNODS CENTERVILLE 1	7105 NW 70TH AVENUE	UXO		TP
A7	NDNODS DAVENPORT SA	7105 NW 70TH AVENUE	UXO		TP
A8	NDNODS SIOUX CITY HI	7105 NW 70TH AVENUE	UXO		TP
A9	NDNODS MOUNT PLEASAN	7105 NW 70TH AVENUE	UXO		TP
A10	NDNODS OSKALOOSA SA	7105 NW 70TH AVENUE	UXO		TP
A11	NDNODS SHELDON 1,000	7105 NW 70TH AVENUE	UXO		TP
A12	U.S. ARMY IOWA ARMY	7105 NW 70TH AVE	TRIS		TP
A13	NDNODS MARSHALLTOWN	7105 NW 70TH AVENUE	UXO		TP
A14	NDNODS RED OAK 25-ME	7105 NW 70TH AVENUE	UXO		TP
A15	ARMED FORCES READINE	7105 NW 70TH AVENUE	IA NPDES		TP
A16	IOWA ARMY NATIONAL G	7105 NW 70TH AVE, BL	IA AST		TP
A17	CAMP DODGE	7105 NW 70TH AVENUE	IA TIER 2		TP
A18	CAMP DODGE	7105 NW 70TH AVE STR	IA TIER 2		TP
A19	CAMP DODGE	7105 NW 70TH AVE	IA SPILLS, IA AIRS, IA NPDES		TP
A20	IOWA ARMY NATIONAL G	7105 NW 70TH AVE.	IA NPDES		TP
A21	CAMP DODGE TRAINING	7105 NW 70TH AVE BLD	IA UST, IA Financial Assurance		TP
A22	CAMP DODGE	7105 NW 70TH ANENUE	IA TIER 2		TP
Reg	CAMP DODGE MILITARY		DOD	Same	1 ft.
23	POLK COUNTY PROPERTY	8500 NW 86TH ST	IA UST	Lower	1094, 0.207, SE

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
IOWA LAW ENFORCEMENT 7105 NW 70TH AVE JOHNSTON, IA 50131	US AIRS Database: US AIRS (AFS), Date of Government Version: 10/12/2016 EPA plant ID:: 110037595064	N/A
	FINDS Registry ID:: 110037595064 Registry ID:: 110036386470	
	ECHO Registry ID: 110036386470 Registry ID: 110037595064	
IOWA ARMY NATIONAL G 7105 NW 70TH AVE JOHNSTON, IA 50131	CORRACTS EPA ID:: IAD981504285	IAD981504285
	RCRA-TSDF EPA ID:: IAD981504285	
	RCRA-LQG EPA ID:: IAD981504285	
	RAATS Status: 01 Facility ID: IAD981504285	
	WI MANIFEST ACT Status: A FID: 0 EPA ID: IAD981504285	
CAMP DODGE 7105 NW 70TH AVE JOHNSTON, IA 50131	ICIS FRS ID:: 110036386470	N/A
	US AIRS Database: US AIRS (AFS), Date of Government Version: 10/12/2016 EPA plant ID:: 110036386470	
NDNODS LE MARS SA RA 7105 NW 70TH AVENUE JOHNSTON, IA	UXO	N/A
CAMP DODGE SANITARY 7105 NW 70TH AVE. JOHNSTON, IA 50131	IA NPDES	N/A
NDNODS CENTERVILLE 1 7105 NW 70TH AVENUE JOHNSTON, IA	UXO	N/A
NDNODS DAVENPORT SA 7105 NW 70TH AVENUE JOHNSTON, IA	UXO	N/A

EXECUTIVE SUMMARY

NDNODS SIOUX CITY HI 7105 NW 70TH AVENUE JOHNSTON, IA	UXO	N/A
NDNODS MOUNT PLEASAN 7105 NW 70TH AVENUE JOHNSTON, IA	UXO	N/A
NDNODS OSKALOOSA SA 7105 NW 70TH AVENUE JOHNSTON, IA	UXO	N/A
NDNODS SHELDON 1,000 7105 NW 70TH AVENUE JOHNSTON, IA	UXO	N/A
U.S. ARMY IOWA ARMY 7105 NW 70TH AVE JOHNSTON, IA 50131	TRIS TRIS ID: 50131SRMYW715NW	50131SRMYW715NW
NDNODS MARSHALLTOWN 7105 NW 70TH AVENUE JOHNSTON, IA	UXO	N/A
NDNODS RED OAK 25-ME 7105 NW 70TH AVENUE JOHNSTON, IA	UXO	N/A
ARMED FORCES READINE 7105 NW 70TH AVENUE JOHNSTON, IA 50131	IA NPDES	N/A
IOWA ARMY NATIONAL G 7105 NW 70TH AVE, BL JOHNSTON, IA	IA AST Registration Number: 18253 Registration Number: 18254 Registration Number: 18255	N/A
CAMP DODGE 7105 NW 70TH AVENUE JOHNSTON, IA 50131	IA TIER 2 Facility Id: 863	N/A
CAMP DODGE 7105 NW 70TH AVE STR JOHNSTON, IA 50131	IA TIER 2 Facility Id: FAIDSIT2A00000863	N/A

EXECUTIVE SUMMARY

	State Id: IA	
CAMP DODGE 7105 NW 70TH AVE JOHNSTON, IA 50131	IA SPILLS Facility Id: 051214-TWA-1410 Facility Id: 022015-BJB-0900 IA AIRS Status: MINOR EI Facility Id: 77-09-004 IA NPDES Permit Number: 7700901	N/A
IOWA ARMY NATIONAL G 7105 NW 70TH AVE. JOHNSTON, IA 50131	IA NPDES	N/A
CAMP DODGE TRAINING 7105 NW 70TH AVE BLD JOHNSTON, IA 50131	IA UST Facility Id: 6224 Registration: 198605890 IA Financial Assurance Database: Financial Assurance 1, Date of Government Version: 08/30/2018 Facility Id: 198605890	N/A
CAMP DODGE 7105 NW 70TH ANENUE JOHNSTON, IA 50131	IA TIER 2 Facility Id: FAIDSIT2A00000863	N/A

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

EXECUTIVE SUMMARY

Federal CERCLIS list

FEDERAL FACILITY..... Federal Facility Site Information listing
SEMS..... Superfund Enterprise Management System

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE..... Superfund Enterprise Management System Archive

Federal RCRA generators list

RCRA-SQG..... RCRA - Small Quantity Generators
RCRA-CESQG..... RCRA - Conditionally Exempt Small Quantity Generator

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

Federal ERNS list

ERNS..... Emergency Response Notification System

State- and tribal - equivalent CERCLIS

IA SHWS..... Registry of Hazardous Waste or Hazardous Substance Disposal Sites

State and tribal landfill and/or solid waste disposal site lists

IA SWF/LF..... Permitted Solid Waste Management Facilities

State and tribal leaking storage tank lists

IA LUST..... Leaking Underground Storage Tank Data
IA LAST..... Leaking Aboveground Storage Tank Sites
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 institutional control / engineering control registries

IA INST CONTROL..... Sites with Institutional Controls

State and tribal voluntary cleanup sites

IA VCP..... Land Recycling Program Sites
INDIAN VCP..... Voluntary Cleanup Priority Listing

State and tribal Brownfields sites

IA BROWNFIELDS..... Brownfields Site Listing

EXECUTIVE SUMMARY

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

INDIAN ODI..... Report on the Status of Open Dumps on Indian Lands
DEBRIS REGION 9..... Torres Martinez Reservation Illegal Dump Site Locations
ODI..... Open Dump Inventory
IHS OPEN DUMPS..... Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL..... Delisted National Clandestine Laboratory Register
IA ALLSITES..... Contaminated Sites Tracking Database
IA DEL SHWS..... Delisted Contaminated Sites Listing
US CDL..... National Clandestine Laboratory Register

Local Land Records

IA LIENS..... Liens Filed Listing
LIENS 2..... CERCLA Lien Information

Records of Emergency Release Reports

HMIRS..... Hazardous Materials Information Reporting System
IA SPILLS 90..... SPILLS 90 data from FirstSearch

Other Ascertainable Records

RCRA NonGen / NLR..... RCRA - Non Generators / No Longer Regulated
FUDS..... Formerly Used 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
PRP..... Potentially Responsible Parties
PADS..... PCB Activity Database 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

EXECUTIVE SUMMARY

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 MINES..... Mines Master Index File
ABANDONED MINES..... Abandoned Mines
DOCKET HWC..... Hazardous Waste Compliance Docket Listing
FUELS PROGRAM..... EPA Fuels Program Registered Listing
IA COAL ASH..... Coal Ash Disposal Site Listing
IA DRYCLEANERS..... Iowa Drycleaner List

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

IA RGA HWS..... Recovered Government Archive State Hazardous Waste Facilities List
IA RGA LUST..... Recovered Government Archive Leaking Underground Storage Tank

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

State and tribal registered storage tank lists

IA 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 Natural Resources' Underground Storage Tank Data list.

A review of the IA UST list, as provided by EDR, and dated 08/30/2018 has revealed that there is 1 IA UST site within approximately 0.25 miles of the target property.

EXECUTIVE SUMMARY

Lower Elevation	Address	Direction / Distance	Map ID	Page
POLK COUNTY PROPERTY Facility Id: 5617 Registration: 198605262	8500 NW 86TH ST	SE 1/8 - 1/4 (0.207 mi.)	23	103

ADDITIONAL ENVIRONMENTAL RECORDS

Other Ascertainable Records

DOD: 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.

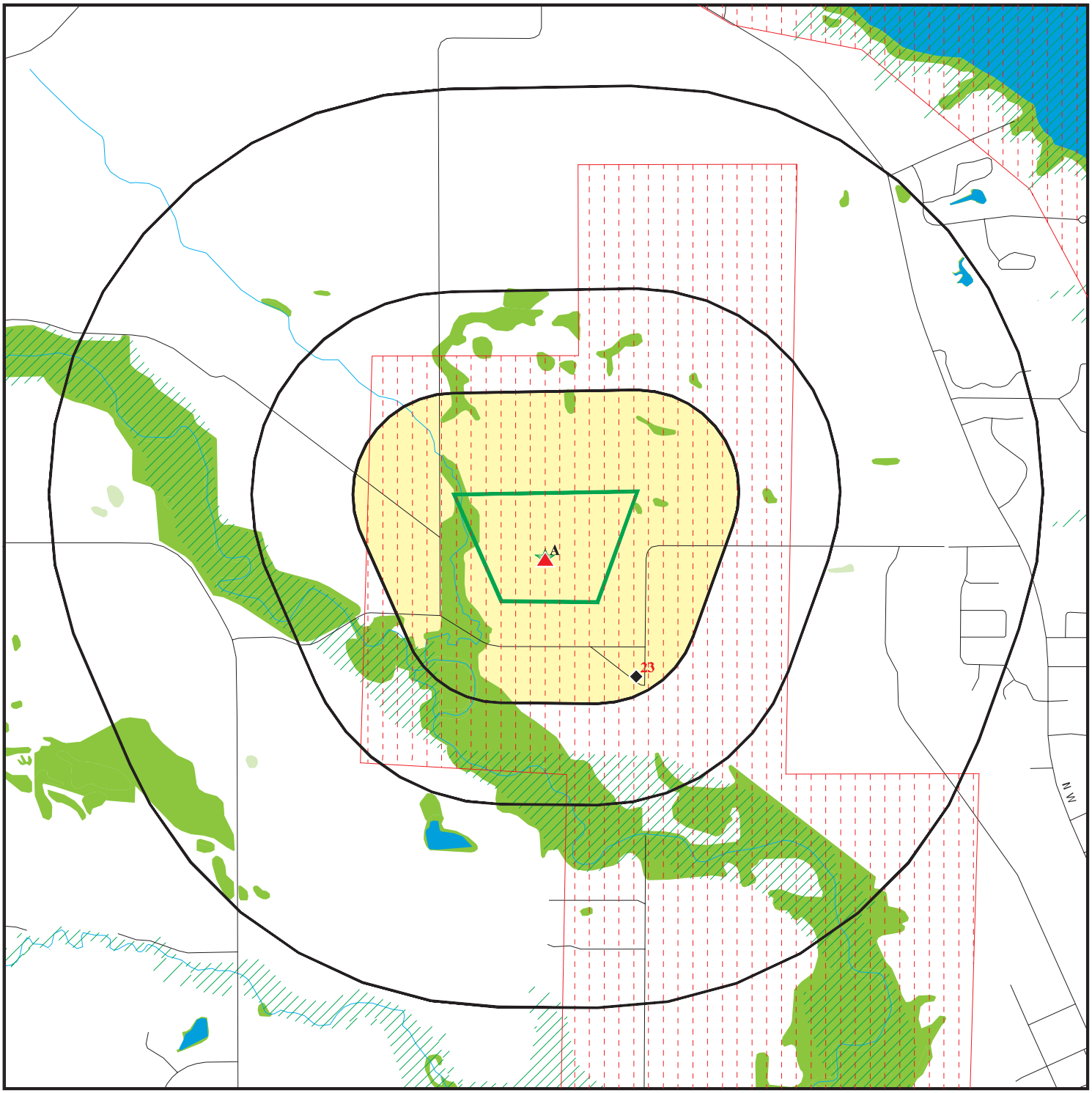
A review of the DOD list, as provided by EDR, and dated 12/31/2005 has revealed that there is 1 DOD site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
CAMP DODGE MILITARY		0 - 1/8 (0.000 mi.)	0	103

EXECUTIVE SUMMARY

There were no unmapped sites in this report.

OVERVIEW MAP - 5441936.2S



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

0 1/4 1/2 1 Miles

Indian Reservations BIA

100-year flood zone

500-year flood zone

National Wetland Inventory

State Wetlands

Upgradient Area

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: Camp Dodge ADDRESS: 7105 Northwest 70th Avenue Johnston IA 50131 LAT/LONG: 41.724209 / 93.7411	CLIENT: AECOM CONTACT: Brittany Bailey INQUIRY #: 5441936.2s DATE: October 03, 2018 8:25 am

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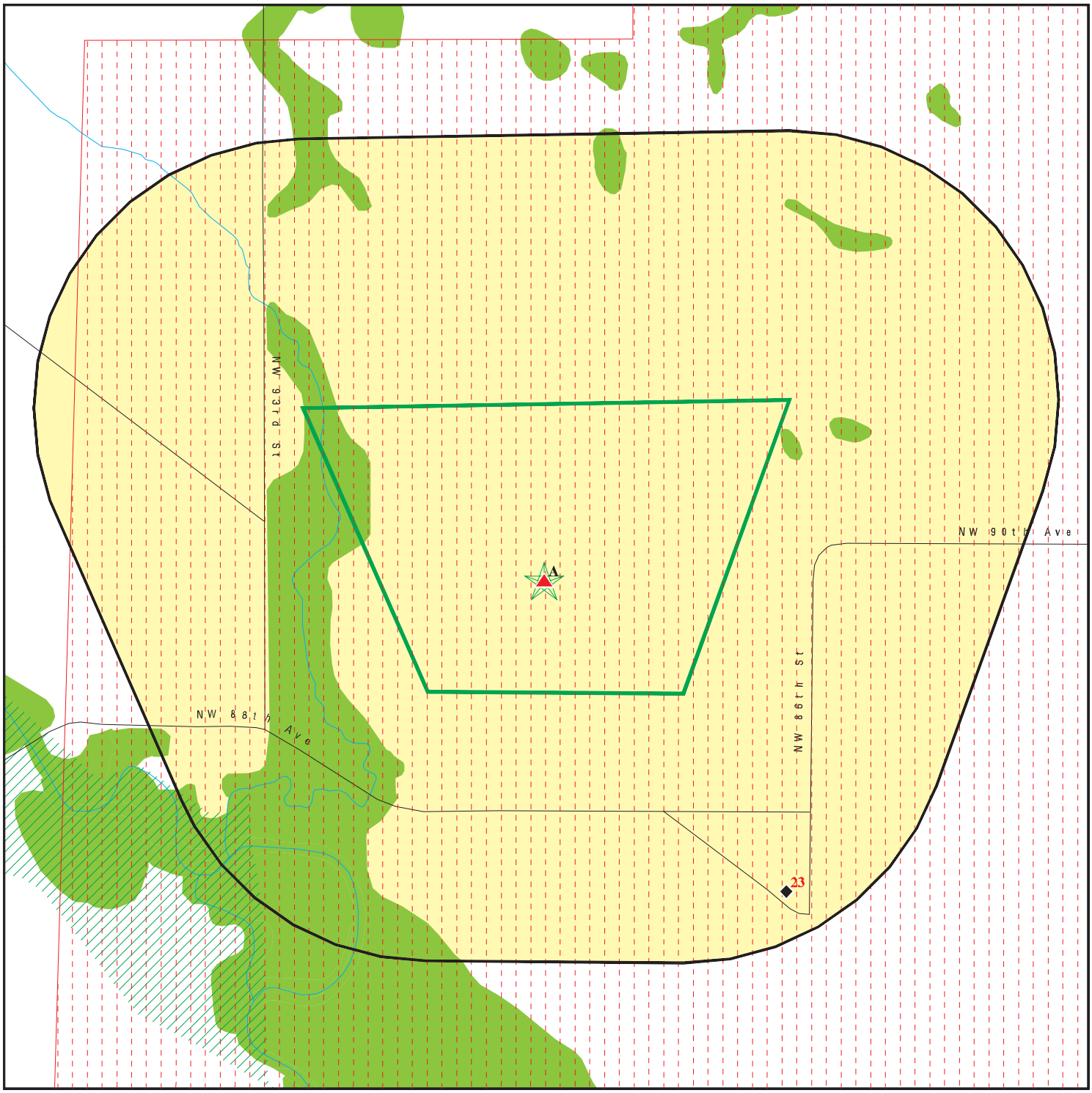
DETAIL MAP - 5441936.2S



0 1/8 1/4 1/2 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

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: Camp Dodge ADDRESS: 7105 Northwest 70th Avenue Johnston IA 50131 LAT/LONG: 41.724209 / 93.7411	CLIENT: AECOM CONTACT: Brittany Bailey INQUIRY #: 5441936.2s DATE: October 03, 2018 8:26 am

Copyright © 2018 EDR, Inc. © 2015 TomTom Rel. 2015.

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	TP		NR	NR	NR	NR	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		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site list								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000	1	0	0	0	0	NR	1
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500	1	0	0	0	NR	NR	1
Federal RCRA generators list								
RCRA-LQG	0.250	1	0	0	NR	NR	NR	1
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-CESQG	0.250		0	0	NR	NR	NR	0
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		NR	NR	NR	NR	NR	0
State- and tribal - equivalent CERCLIS								
IA SHWS	1.000		0	0	0	0	NR	0
State and tribal landfill and/or solid waste disposal site lists								
IA SWF/LF	0.500		0	0	0	NR	NR	0
State and tribal leaking storage tank lists								
IA LUST	0.500		0	0	0	NR	NR	0
IA LAST	0.500		0	0	0	NR	NR	0
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
IA UST	0.250	1	0	1	NR	NR	NR	2
IA AST	0.250	1	0	0	NR	NR	NR	1
INDIAN UST	0.250		0	0	NR	NR	NR	0
State and tribal institutional control / engineering control registries								
IA INST CONTROL	0.500		0	0	0	NR	NR	0
State and tribal voluntary cleanup sites								
IA VCP	0.500		0	0	0	NR	NR	0
INDIAN VCP	0.500		0	0	0	NR	NR	0
State and tribal Brownfields sites								
IA BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
INDIAN ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	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								
US HIST CDL	TP		NR	NR	NR	NR	NR	0
IA ALLSITES	0.500		0	0	0	NR	NR	0
IA DEL SHWS	1.000		0	0	0	0	NR	0
US CDL	TP		NR	NR	NR	NR	NR	0
Local Land Records								
IA LIENS	TP		NR	NR	NR	NR	NR	0
LIENS 2	TP		NR	NR	NR	NR	NR	0
Records of Emergency Release Reports								
HMIRS	TP		NR	NR	NR	NR	NR	0
IA SPILLS	TP	1	NR	NR	NR	NR	NR	1
IA SPILLS 90	TP		NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		1	0	0	0	NR	1
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

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
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	1	NR	NR	NR	NR	NR	1
PRP	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
ICIS	TP	1	NR	NR	NR	NR	NR	1
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	2	NR	NR	NR	NR	NR	2
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.250		0	0	NR	NR	NR	0
FINDS	TP	1	NR	NR	NR	NR	NR	1
ECHO	TP	1	NR	NR	NR	NR	NR	1
UXO	1.000	9	0	0	0	0	NR	9
DOCKET HWC	TP		NR	NR	NR	NR	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
IA AIRS	TP	1	NR	NR	NR	NR	NR	1
IA COAL ASH	0.500		0	0	0	NR	NR	0
IA DRYCLEANERS	0.250		0	0	NR	NR	NR	0
IA Financial Assurance	TP	1	NR	NR	NR	NR	NR	1
WI MANIFEST	0.250	1	0	0	NR	NR	NR	1
IA NPDES	TP	4	NR	NR	NR	NR	NR	4
IA TIER 2	TP	3	NR	NR	NR	NR	NR	3
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
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								
IA RGA HWS	TP		NR	NR	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
IA RGA LUST	TP		NR	NR	NR	NR	NR	0
- Totals --		32	1	1	0	0	0	34

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

A1 Target Property | **IOWA LAW ENFORCEMENT ACADEMY**
7105 NW 70TH AVE
JOHNSTON, IA 50131 | **US AIRS FINDS ECHO** | **1016062062 N/A**

Site 1 of 22 in cluster A

Actual: 861 ft.

US AIRS (AFS):

Envid:	1016062062
Region Code:	07
County Code:	IA153
Programmatic ID:	AIR IAPLK0001915302144
Facility Registry ID:	110037595064
D and B Number:	Not reported
Facility Site Name:	IOWA LAW ENFORCEMENT ACADEMY
Primary SIC Code:	8221
NAICS Code:	611310
Default Air Classification Code:	SMI
Facility Type of Ownership Code:	STF
Air CMS Category Code:	Not reported
HPV Status:	Not reported

US AIRS (AFS):

Region Code:	07
Programmatic ID:	AIR IAPLK0001915302144
Facility Registry ID:	110037595064
Air Operating Status Code:	OPR
Default Air Classification Code:	SMI
Air Program:	MACT Standards (40 CFR Part 63)
Activity Date:	2015-09-23 00:00:00
Activity Status Date:	2015-10-05 11:51:55
Activity Group:	Compliance Monitoring
Activity Type:	Inspection/Evaluation
Activity Status:	Active

Region Code:	07
Programmatic ID:	AIR IAPLK0001915302144
Facility Registry ID:	110037595064
Air Operating Status Code:	OPR
Default Air Classification Code:	SMI
Air Program:	State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date:	2008-09-24 00:00:00
Activity Status Date:	Not reported
Activity Group:	Compliance Monitoring
Activity Type:	Inspection/Evaluation
Activity Status:	Not reported

Region Code:	07
Programmatic ID:	AIR IAPLK0001915302144
Facility Registry ID:	110037595064
Air Operating Status Code:	OPR
Default Air Classification Code:	SMI
Air Program:	State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date:	2009-08-12 00:00:00
Activity Status Date:	Not reported
Activity Group:	Compliance Monitoring
Activity Type:	Inspection/Evaluation
Activity Status:	Not reported

Region Code:	07
Programmatic ID:	AIR IAPLK0001915302144

IOWA LAW ENFORCEMENT ACADEMY (Continued) **1016062062**

Facility Registry ID: 110037595064
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2010-09-16 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 07
Programmatic ID: AIR IAPLK0001915302144
Facility Registry ID: 110037595064
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2012-03-20 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

FINDS:

Registry ID: 110037595064

Environmental Interest/Information System
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 SYNTHETIC MINOR

Registry ID: 110036386470

Environmental Interest/Information System
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.

IOWA LAW ENFORCEMENT ACADEMY (Continued) **1016062062**

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.

AIR SYNTHETIC MINOR

COMMUNITY WATER SYSTEM

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.

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.

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

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.

IDNR-EFD (Iowa Department Of Natural Resources - Emission Factor Documentation) provides information about existing emission factors

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1016062062

IOWA LAW ENFORCEMENT ACADEMY (Continued) **1016062062**

Registry ID: 110036386470
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110036386470

Envid: 1016062062
Registry ID: 110037595064
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110037595064

A2 Target Property | **IOWA ARMY NATIONAL GUARD** | **CORRACTS** | **1000142942**
7105 NW 70TH AVE | **RCRA-TSDF** | **IAD981504285**
JOHNSTON, IA 50131 | **RCRA-LQG**
RAATS
Site 2 of 22 in cluster A | **WI MANIFEST**

Actual: 861 ft.

CORRACTS:

EPA ID: IAD981504285
EPA Region: 7
Area Name: ENTIRE FACILITY
Actual Date: 20120523
Action: CA550NR
NAICS Code(s): 928110
National Security
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: IAD981504285
EPA Region: 7
Area Name: ENTIRE FACILITY
Actual Date: 20120523
Action: CA999NF - Corrective Action Process Terminated, No Further Action
NAICS Code(s): 928110
National Security
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: IAD981504285
EPA Region: 7
Area Name: ENTIRE FACILITY
Actual Date: 19960905
Action: CA225NR - Stabilization Measures Evaluation, This facility is, not amenable to stabilization activity at the, present time for reasons other than (1) it appears to be technically, infeasible or inappropriate (NF) or (2) there is a lack of technical, information (IN). Reasons for this conclusion may be the status of, closure at the facility, the degree of risk, timing considerations, the status of corrective action work at the facility, or other, administrative considerations
NAICS Code(s): 928110
National Security
Original schedule date: 19960930
Schedule end date: Not reported

EPA ID: IAD981504285
EPA Region: 7
Area Name: ENTIRE FACILITY
Actual Date: 19950323
Action: CA225IN - Stabilization Measures Evaluation, This facility is not, amenable to stabilization activity because of, a lack of technical data. An evaluation has been completed, but further data is necessary

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

to determine stabilization measures, feasibility or appropriateness. This status should be changed when data becomes available
NAICS Code(s): 928110
National Security
Original schedule date: 19950930
Schedule end date: Not reported

EPA ID: IAD981504285
EPA Region: 7
Area Name: ENTIRE FACILITY
Actual Date: 19930113
Action: CA075ME - CA Prioritization, Facility or area was assigned a medium corrective action priority
NAICS Code(s): 928110
National Security
Original schedule date: Not reported
Schedule end date: Not reported

EPA ID: IAD981504285
EPA Region: 7
Area Name: ENTIRE FACILITY
Actual Date: 19920128
Action: CA075LO - CA Prioritization, Facility or area was assigned a low corrective action priority
NAICS Code(s): 928110
National Security
Original schedule date: Not reported
Schedule end date: Not reported

RCRA-TSDF:
Date form received by agency: 09/11/2017
Facility name: IOWA ARMY NATIONAL GUARD
Facility address: 7105 NW 70TH AVE
JOHNSTON, IA 50131
EPA ID: IAD981504285
Mailing address: NW 70TH AVE
JOHNSTON, IA 50131
Contact: LENA R DOUGLAS
Contact address: NW 70TH AVE
JOHNSTON, IA 50131
Contact country: US
Contact telephone: 515-252-4486
Contact email: LENA.R.DOUGLAS.NFG@MAIL.MIL
EPA Region: 07
Land type: State
Classification: TSDF
Description: Handler is engaged in the treatment, storage or disposal of hazardous waste
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

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

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:	IOWA STATE OF
Owner/operator address:	NW 70TH AVE JOHNSTON, IA 50131
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:	State
Owner/Operator Type:	Operator
Owner/Op start date:	04/12/1909
Owner/Op end date:	Not reported

Owner/operator name:	IOWA STATE OF
Owner/operator address:	NW 70TH AVE JOHNSTON, IA 50131
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:	State
Owner/Operator Type:	Owner
Owner/Op start date:	04/12/1909
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

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

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: 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: D027
. Waste name: 1,4-DICHLOROBENZENE

. 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.

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

. Waste code: U080
. Waste name: METHANE, DICHLORO-

. Waste code: U226
. Waste name: ETHANE, 1,1,1-TRICHLORO-

Historical Generators:
Date form received by agency: 09/06/2017
Site name: IOWA ARMY NATIONAL GUARD
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: 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: D027
. Waste name: 1,4-DICHLOROBENZENE

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

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: U226
. Waste name: ETHANE, 1,1,1-TRICHLORO-

Date form received by agency: 05/11/2016
Site name: IOWA NATIONAL GUARD
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: 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: D006
. Waste name: CADMIUM

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D008
. Waste name: LEAD

. Waste code: D009
. Waste name: MERCURY

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

. Waste code: D010
. Waste name: SELENIUM

. Waste code: D018
. Waste name: BENZENE

. Waste code: D027
. Waste name: 1,4-DICHLOROBENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: D040
. Waste name: TRICHLOROETHYLENE

. 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: 06/20/2014
Site name: IOWA ARMY NATIONAL GUARD
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: 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

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

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: D018
. Waste name: BENZENE

. Waste code: D027
. Waste name: 1,4-DICHLOROBENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D037
. Waste name: PENTRACHLOROPHENOL

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: D040
. Waste name: TRICHLOROETHYLENE

. 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

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

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: UOIL
. Waste name: UOIL

Date form received by agency: 02/18/2014
Site name: IOWA NATIONAL GUARD
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: 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

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

. Waste name: BENZENE

. Waste code: D027
. Waste name: 1,4-DICHLOROBENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: D040
. Waste name: TRICHLOROETHYLENE

. 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: U226
. Waste name: ETHANE, 1,1,1-TRICHLORO-

Date form received by agency: 02/02/2012
Site name: IOWA ARMY NATIONAL GUARD
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

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

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: D018
. Waste name: BENZENE

. Waste code: D027
. Waste name: 1,4-DICHLOROBENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D037
. Waste name: PENTRACHLOROPHENOL

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: D040
. Waste name: TRICHLOROETHYLENE

. 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.

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

. 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: 05/22/2008
Site name: IOWA ARMY NATIONAL GUARD
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: 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: D006
. Waste name: CADMIUM

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D008
. Waste name: LEAD

. Waste code: D013
. Waste name: LINDANE

. Waste code: D018
. Waste name: BENZENE

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

. Waste code: D027
. Waste name: 1,4-DICHLOROBENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D036
. Waste name: NITROBENZENE

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: D040
. Waste name: TRICHLOROETHYLENE

. 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: U112
. Waste name: ACETIC ACID ETHYL ESTER (I)

. Waste code: U129
. Waste name: CYCLOHEXANE, 1,2,3,4,5,6-HEXACHLORO-, (1ALPHA,2ALPHA,3BETA,4ALPHA,5ALPHA,6BETA)-

. Waste code: U154
. Waste name: METHANOL (I)

Date form received by agency: 01/24/2008
Site name: IOWA ARMY NATIONAL GUARD
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

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

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: D006
. Waste name: CADMIUM

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D008
. Waste name: LEAD

. Waste code: D013
. Waste name: LINDANE

. Waste code: D018
. Waste name: BENZENE

. Waste code: D027
. Waste name: 1,4-DICHLOROBENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D036
. Waste name: NITROBENZENE

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: D040
. Waste name: TRICHLOROETHYLENE

. 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

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

. 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: U112
. Waste name: ACETIC ACID ETHYL ESTER (I)

. Waste code: U129
. Waste name: CYCLOHEXANE, 1,2,3,4,5,6-HEXACHLORO-, (1ALPHA,2ALPHA,3BETA,4ALPHA,5ALPHA,6BETA)-

. Waste code: U154
. Waste name: METHANOL (I)

Date form received by agency: 01/24/2008
Site name: IOWA ARMY NATIONAL GUARD
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: D006
. Waste name: CADMIUM

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D008
. Waste name: LEAD

. Waste code: D013
. Waste name: LINDANE

. Waste code: D018
. Waste name: BENZENE

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

. Waste code: D027
. Waste name: 1,4-DICHLOROBENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D036
. Waste name: NITROBENZENE

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: D040
. Waste name: TRICHLOROETHYLENE

. 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: U112
. Waste name: ACETIC ACID ETHYL ESTER (I)

. Waste code: U129
. Waste name: CYCLOHEXANE, 1,2,3,4,5,6-HEXACHLORO-, (1ALPHA,2ALPHA,3BETA,4ALPHA,5ALPHA,6BETA)-

. Waste code: U154
. Waste name: METHANOL (I)

Date form received by agency: 09/28/2007
Site name: IOWA ARMY NATIONAL GUARD
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

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

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: D013
. Waste name: LINDANE

. Waste code: D018
. Waste name: BENZENE

. Waste code: D026
. Waste name: CRESOL

. Waste code: D027
. Waste name: 1,4-DICHLOROBENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D038
. Waste name: PYRIDINE

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

. Waste code: D040
. Waste name: TRICHLOROETHYLENE

. 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: F004
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: CRESOLS AND CRESYLIC ACID, AND NITROBENZENE; 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, 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: U129
. Waste name: CYCLOHEXANE, 1,2,3,4,5,6-HEXACHLORO-, (1ALPHA,2ALPHA,3BETA,4ALPHA,5ALPHA,6BETA)-

Date form received by agency: 01/30/2006
Site name: IOWA ARMY NATIONAL GUARD
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

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

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: D018
. Waste name: BENZENE

. Waste code: D026
. Waste name: CRESOL

. Waste code: D027
. Waste name: 1,4-DICHLOROBENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D038
. Waste name: PYRIDINE

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: D040
. Waste name: TRICHLOROETHYLENE

. Waste code: F002
. Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS: TETRACHLOROETHYLENE,

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

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: F004
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: CRESOLS AND CRESYLIC ACID, AND NITROBENZENE; 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, 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: 01/30/2006
Site name: IOWA ARMY NATIONAL GUARD
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

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

THESE CAUSTIC OR ACID SOLUTIONS BECOME CONTAMINATED AND MUST BE DISPOSED, THE WASTE WOULD BE A CORROSIVE HAZARDOUS WASTE.

. 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: D026
. Waste name: CRESOL

. Waste code: D027
. Waste name: 1,4-DICHLOROBENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D038
. Waste name: PYRIDINE

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: D040
. Waste name: TRICHLOROETHYLENE

. 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

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

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: F004
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: CRESOLS AND CRESYLIC ACID, AND NITROBENZENE; 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, 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: U129
. Waste name: CYCLOHEXANE, 1,2,3,4,5,6-HEXACHLORO-, (1ALPHA,2ALPHA,3BETA,4ALPHA,5ALPHA,6BETA)-

Date form received by agency: 02/03/2004
Site name: IOWA ARMY NATIONAL GUARD
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: D006
. Waste name: CADMIUM

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D008
. Waste name: LEAD

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

. Waste code: D009
. Waste name: MERCURY

. Waste code: D013
. Waste name: LINDANE

. Waste code: D018
. Waste name: BENZENE

. Waste code: D027
. Waste name: 1,4-DICHLOROBENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D038
. Waste name: PYRIDINE

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: D040
. Waste name: TRICHLOROETHYLENE

. 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: U129
. Waste name: CYCLOHEXANE, 1,2,3,4,5,6-HEXACHLORO-, (1ALPHA,2ALPHA,3BETA,4ALPHA,5ALPHA,6BETA)-

Date form received by agency: 10/16/2003
Site name: IOWA ARMY NATIONAL GUARD
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

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

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: D011
. Waste name: SILVER

. Waste code: D013
. Waste name: LINDANE

. Waste code: D018
. Waste name: BENZENE

. Waste code: D020
. Waste name: CHLORDANE

. Waste code: D021
. Waste name: CHLOROBENZENE

. Waste code: D027
. Waste name: 1,4-DICHLOROBENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: D040
. Waste name: TRICHLOROETHYLENE

. 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: 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: F004
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: CRESOLS AND CRESYLIC ACID, AND NITROBENZENE; 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, 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: U159

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

. Waste name: 2-BUTANONE (I,T)

. Waste code: U210
. Waste name: ETHENE, TETRACHLORO-

. Waste code: U220
. Waste name: BENZENE, METHYL-

. 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, WHEN PRESENT AT CONCENTRATIONS OF 0.3% OR LESS

Date form received by agency: 04/30/2003
Site name: IOWA ARMY NATIONAL GUARD
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

. Waste code: D006
. Waste name: CADMIUM

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D008
. Waste name: LEAD

. Waste code: D009

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

. Waste name: MERCURY

. Waste code: D011
. Waste name: SILVER

. Waste code: D013
. Waste name: LINDANE

. Waste code: D018
. Waste name: BENZENE

. Waste code: D020
. Waste name: CHLORDANE

. Waste code: D021
. Waste name: CHLOROBENZENE

. Waste code: D027
. Waste name: 1,4-DICHLOROBENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: D040
. Waste name: TRICHLOROETHYLENE

. 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: 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

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

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: F004
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: CRESOLS AND CRESYLIC ACID, AND NITROBENZENE; 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, 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: U159
. Waste name: 2-BUTANONE (I,T)

. Waste code: U210
. Waste name: ETHENE, TETRACHLORO-

. Waste code: U220
. Waste name: BENZENE, METHYL-

. 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, WHEN PRESENT AT CONCENTRATIONS OF 0.3% OR LESS

Date form received by agency: 04/21/2003
Site name: IOWA ARMY NATIONAL GUARD
Classification: Large Quantity Generator

. Waste code: D000
. Waste name: Not Defined

. 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

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

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: 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: D021
. Waste name: CHLOROBENZENE

. Waste code: D027
. Waste name: 1,4-DICHLOROBENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: D040
. Waste name: TRICHLOROETHYLENE

. 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: 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,

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

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: F004
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: CRESOLS AND CRESYLIC ACID, AND NITROBENZENE; 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, 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: U159
. Waste name: 2-BUTANONE (I,T)

. Waste code: U210
. Waste name: ETHENE, TETRACHLORO-

. Waste code: U220
. Waste name: BENZENE, METHYL-

. Waste code: U226
. Waste name: ETHANE, 1,1,1-TRICHLORO-

. Waste code: U239
. Waste name: BENZENE, DIMETHYL- (I,T)

Date form received by agency: 04/17/2002
Site name: IOWA ARMY NATIONAL GUARD
Classification: Large Quantity Generator

. Waste code: D001
. Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

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: D018
. Waste name: BENZENE

. Waste code: D021
. Waste name: CHLOROBENZENE

. Waste code: D022
. Waste name: CHLOROFORM

. Waste code: D027
. Waste name: 1,4-DICHLOROBENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: D040

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

. Waste name: TRICHLOROETHYLENE

. 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: 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: F004
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: CRESOLS AND CRESYLIC ACID, AND NITROBENZENE; 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, 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: P042
. Waste name: 1,2-BENZENEDIOL, 4-[1-HYDROXY-2-(METHYLAMINO)ETHYL]-, (R)-

. Waste code: U088
. Waste name: 1,2-BENZENEDICARBOXYLIC ACID, DIETHYL ESTER

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

. Waste code: U145
. Waste name: LEAD PHOSPHATE

. Waste code: U159
. Waste name: 2-BUTANONE (I,T)

. Waste code: U210
. Waste name: ETHENE, TETRACHLORO-

. Waste code: U220
. Waste name: BENZENE, METHYL-

. Waste code: U226
. Waste name: ETHANE, 1,1,1-TRICHLORO-

. Waste code: U239
. Waste name: BENZENE, DIMETHYL- (I,T)

Date form received by agency: 01/30/2002
Site name: IOWA ARMY NATIONAL GUARD CAMP DODGE
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: 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: D013
. Waste name: LINDANE

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

. Waste code: D018
. Waste name: BENZENE

. Waste code: D027
. Waste name: 1,4-DICHLOROBENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: D040
. Waste name: TRICHLOROETHYLENE

. Waste code: D043
. Waste name: VINYL CHLORIDE

. 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: U248
. Waste name: 2H-1-BENZOPYRAN-2-ONE, 4-HYDROXY-3-(3-OXO-1-PHENYL-BUTYL)-, & SALTS, WHEN PRESENT AT CONCENTRATIONS OF 0.3% OR LESS

Date form received by agency: 01/02/2002
Site name: IOWA ARMY NATIONAL GUARD
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

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

. 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: 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: D021
. Waste name: CHLOROBENZENE

. Waste code: D027
. Waste name: 1,4-DICHLOROBENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: D040
. Waste name: TRICHLOROETHYLENE

. 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

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

. 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: F004
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: CRESOLS AND CRESYLIC ACID, AND NITROBENZENE; 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, 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: U159
. Waste name: 2-BUTANONE (I,T)

. Waste code: U210
. Waste name: ETHENE, TETRACHLORO-

. Waste code: U220
. Waste name: BENZENE, METHYL-

. Waste code: U226
. Waste name: ETHANE, 1,1,1-TRICHLORO-

. Waste code: U239
. Waste name: BENZENE, DIMETHYL- (I,T)

Date form received by agency: 10/11/2001
Site name: IOWA NATIONAL GUARD
Classification: Not a generator, verified

Date form received by agency: 01/24/2000
Site name: IOWA ARMY NATIONAL GUARD
Classification: Large Quantity Generator

. Waste code: D000
. Waste name: Not Defined

. 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

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

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: 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: D021
. Waste name: CHLOROBENZENE

. Waste code: D022
. Waste name: CHLOROFORM

. Waste code: D027
. Waste name: 1,4-DICHLOROBENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: D040
. Waste name: TRICHLOROETHYLENE

. Waste code: F001
. Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS USED IN DEGREASING:

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

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: F004
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: CRESOLS AND CRESYLIC ACID, AND NITROBENZENE; 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, 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: P042
. Waste name: 1,2-BENZENEDIOL, 4-[1-HYDROXY-2-(METHYLAMINO)ETHYL]-, (R)-

. Waste code: U088
. Waste name: 1,2-BENZENEDICARBOXYLIC ACID, DIETHYL ESTER

. Waste code: U145
. Waste name: LEAD PHOSPHATE

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

. Waste code: U159
. Waste name: 2-BUTANONE (I,T)

. Waste code: U210
. Waste name: ETHENE, TETRACHLORO-

. Waste code: U220
. Waste name: BENZENE, METHYL-

. Waste code: U226
. Waste name: ETHANE, 1,1,1-TRICHLORO-

. Waste code: U239
. Waste name: BENZENE, DIMETHYL- (I,T)

Date form received by agency: 01/24/2000
Site name: IOWA ARMY NATIONAL GUARD
Classification: Large Quantity Generator

Date form received by agency: 07/10/1998
Site name: IOWA ARMY NATIONAL GUARD
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: D006
. Waste name: CADMIUM

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D008
. Waste name: LEAD

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

. Waste code: D009
. Waste name: MERCURY

. Waste code: D018
. Waste name: BENZENE

. Waste code: D021
. Waste name: CHLOROBENZENE

. Waste code: D022
. Waste name: CHLOROFORM

. Waste code: D027
. Waste name: 1,4-DICHLOROBENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: D040
. Waste name: TRICHLOROETHYLENE

. 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: 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.

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

. Waste code: F004
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: CRESOLS AND CRESYLIC ACID, AND NITROBENZENE; 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, 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: P042
. Waste name: 1,2-BENZENEDIOL, 4-[1-HYDROXY-2-(METHYLAMINO)ETHYL]-, (R)-

. Waste code: U088
. Waste name: 1,2-BENZENEDICARBOXYLIC ACID, DIETHYL ESTER

. Waste code: U145
. Waste name: LEAD PHOSPHATE

. Waste code: U159
. Waste name: 2-BUTANONE (I,T)

. Waste code: U210
. Waste name: ETHENE, TETRACHLORO-

. Waste code: U220
. Waste name: BENZENE, METHYL-

. Waste code: U226
. Waste name: ETHANE, 1,1,1-TRICHLORO-

. Waste code: U239
. Waste name: BENZENE, DIMETHYL- (I,T)

Date form received by agency: 02/17/1998
Site name: IOWA NATIONAL GUARD - CAMP DOD
Classification: Large Quantity Generator

Date form received by agency: 02/16/1996
Site name: IOWA NATIONAL GUARD-CAMP DODGE
Classification: Large Quantity Generator

Date form received by agency: 02/18/1994
Site name: IOWA NATIONAL GUARD - CAMP DODGE
Classification: Large Quantity Generator

Date form received by agency: 02/11/1994
Site name: STATE OF IOWA MAINTENANCE SHOP
Classification: Not a generator, verified

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

. Waste code: D000
. Waste name: Not Defined

Date form received by agency: 02/11/1994
Site name: ORGANIZATIONAL MAINT SHOP 1
Classification: Not a generator, verified

. Waste code: D000
. Waste name: Not Defined

Date form received by agency: 02/11/1994
Site name: IOWA NATIONAL GUARD - CAMP DODGE
Classification: Not a generator, verified

. Waste code: NONE
. Waste name: None

Date form received by agency: 02/08/1994
Site name: IOWA ARMY NATIONAL GUARD
Classification: Large Quantity Generator

Date form received by agency: 02/07/1994
Site name: IOWA NATIONAL GUARD-DUPLICATE ID#
Classification: Not a generator, verified

. Waste code: NONE
. Waste name: None

Date form received by agency: 01/24/1994
Site name: IOWA NATIONAL GUARD - CAMP DODGE
Classification: Not a generator, verified

. Waste code: NONE
. Waste name: None

Date form received by agency: 02/27/1992
Site name: IOWA ARMY NATIONAL GUARD
Classification: Large Quantity Generator

Date form received by agency: 07/11/1991
Site name: IOWA NATIONAL GUARD
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

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

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: 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: D021
. Waste name: CHLOROBENZENE

. Waste code: D027
. Waste name: 1,4-DICHLOROBENZENE

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: D040
. Waste name: TRICHLOROETHYLENE

. 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: 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

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

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: F004
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: CRESOLS AND CRESYLIC ACID, AND NITROBENZENE; 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, 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: U088
. Waste name: 1,2-BENZENEDICARBOXYLIC ACID, DIETHYL ESTER

. Waste code: U145
. Waste name: LEAD PHOSPHATE

. Waste code: U159
. Waste name: 2-BUTANONE (I,T)

. Waste code: U210
. Waste name: ETHENE, TETRACHLORO-

. Waste code: U220
. Waste name: BENZENE, METHYL-

. Waste code: U226
. Waste name: ETHANE, 1,1,1-TRICHLORO-

. Waste code: U239
. Waste name: BENZENE, DIMETHYL- (I,T)

Date form received by agency: 02/26/1990
Site name: IOWA ARMY NATIONAL GROUP
Classification: Large Quantity Generator

Date form received by agency: 04/07/1987

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

Site name: STATE OF IOWA MAINTENANCE SHOP
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.

Date form received by agency: 06/04/1986
Site name: COMBINED SUPPORT MAINT SHOP - CAMP DODGE
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: 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: 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: 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,

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

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: F004
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: CRESOLS AND CRESYLIC ACID, AND NITROBENZENE; 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, 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: P066
. Waste name: ETHANIMIDOTHIOIC ACID, N-[[(METHYLAMINO)CARBONYL]OXY]-, METHYL ESTER

. Waste code: U103
. Waste name: DIMETHYL SULFATE

. Waste code: U159
. Waste name: 2-BUTANONE (I,T)

. Waste code: U165
. Waste name: NAPHTHALENE

. Waste code: U220
. Waste name: BENZENE, METHYL-

. Waste code: U226
. Waste name: ETHANE, 1,1,1-TRICHLORO-

Date form received by agency: 06/04/1986
Site name: OUSPFO FOR IOWA WAREHOUSE 12 - CAMP DODGE
Classification: Small Quantity Generator

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

. 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: 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: 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: F004
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: CRESOLS AND CRESYLIC ACID, AND NITROBENZENE; 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, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

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: P066
. Waste name: ETHANIMIDOTHIOIC ACID, N-[[(METHYLAMINO)CARBONYL]OXY]-, METHYL ESTER

. Waste code: U103
. Waste name: DIMETHYL SULFATE

. Waste code: U159
. Waste name: 2-BUTANONE (I,T)

. Waste code: U165
. Waste name: NAPHTHALENE

. Waste code: U220
. Waste name: BENZENE, METHYL-

. Waste code: U226
. Waste name: ETHANE, 1,1,1-TRICHLORO-

Date form received by agency: 06/04/1986
Site name: ORGANIZATIONAL MAINT SHOP 1
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: 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

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

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: F004
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: CRESOLS AND CRESYLIC ACID, AND NITROBENZENE; 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, 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: P066
. Waste name: ETHANIMIDOTHIOIC ACID, N-[[(METHYLAMINO)CARBONYL]OXY]-, METHYL ESTER

. Waste code: U165
. Waste name: NAPHTHALENE

Date form received by agency: 01/01/1979
Site name: IOWA ARMY NATIONAL GUARD
Classification: Not a generator, verified

Biennial Reports:

Last Biennial Reporting Year: 2017

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

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): 2629

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): 162

Waste code: D005
Waste name: BARIUM
Amount (Lbs): 97

Waste code: D006
Waste name: CADMIUM
Amount (Lbs): 785

Waste code: D007
Waste name: CHROMIUM
Amount (Lbs): 412

Waste code: D008
Waste name: LEAD
Amount (Lbs): 16515

Waste code: D009
Waste name: MERCURY
Amount (Lbs): 17

Waste code: D010
Waste name: SELENIUM
Amount (Lbs): 45

Waste code: D018
Waste name: BENZENE
Amount (Lbs): 252

Waste code: D035
Waste name: METHYL ETHYL KETONE
Amount (Lbs): 2309

Waste code: D038
Waste name: PYRIDINE
Amount (Lbs): 109

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

Waste code: D039
Waste name: TETRACHLOROETHYLENE
Amount (Lbs): 738

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): 652

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): 652

Corrective Action Summary:
Event date: 01/28/1992
Event: CA PRIORITIZATION-LOW CA PRIORITY

Event date: 01/13/1993
Event: CA PRIORITIZATION-MEDIUM CA PRIORITY

Event date: 03/23/1995
Event: STABILIZATION MEASURES EVALUATION-FURTHER INVESTIGATION NECESSARY

Event date: 09/05/1996
Event: STABILIZATION MEASURES EVALUATION-FACILITY NOT AMENABLE TO STABILIZATION

Event date: 05/23/2012
Event: REMEDY CONSTRUCTION-NO REMEDY CONSTRUCTED

Event date: 05/23/2012
Event: CA PROCESS IS TERMINATED-NO FURTHER ACTION

Facility Has Received Notices of Violations:
Regulation violated: Not reported
Area of violation: Generators - Pre-transport
Date violation determined: 06/05/2014
Date achieved compliance: 06/16/2014
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 08/18/2014

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

Enf. disposition status: Action Satisfied (Case Closed)
Enf. disp. status date: 08/18/2014
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 268.7
Area of violation: LDR - General
Date violation determined: 04/09/2003
Date achieved compliance: 04/17/2003
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 06/16/2003
Enf. disposition status: Action Satisfied (Case Closed)
Enf. disp. status date: 06/16/2003
Enforcement lead agency: EPA
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: 12/19/2001
Date achieved compliance: 12/21/2001
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 12/19/2001
Enf. disposition status: Action Satisfied (Case Closed)
Enf. disp. status date: 04/19/2002
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD IS-Contingency Plan and Emergency Procedures
Date violation determined: 12/18/2001
Date achieved compliance: 03/21/2002
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 12/19/2001
Enf. disposition status: Action Satisfied (Case Closed)
Enf. disp. status date: 04/19/2002
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 40CFR 265.52(D)
Area of violation: TSD - Contingency Plan and Emergency Procedures
Date violation determined: 12/18/2001
Date achieved compliance: 03/27/2002
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 12/18/2001
Enf. disposition status: Not reported

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 40CFR 265.53(B)
Area of violation: TSD - Contingency Plan and Emergency Procedures
Date violation determined: 12/18/2001
Date achieved compliance: 03/27/2002
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 12/18/2001
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 40CFR 268.7
Area of violation: LDR - General
Date violation determined: 12/18/2001
Date achieved compliance: 03/27/2002
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 12/18/2001
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 40CFR 265.52(E)
Area of violation: TSD - Contingency Plan and Emergency Procedures
Date violation determined: 12/18/2001
Date achieved compliance: 03/27/2002
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 12/18/2001
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
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: 12/18/2001
Date achieved compliance: 12/21/2001
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 12/19/2001
Enf. disposition status: Action Satisfied (Case Closed)
Enf. disp. status date: 04/19/2002

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: FR - 40CFR 262.20(A)
Area of violation: Generators - Manifest
Date violation determined: 12/18/2001
Date achieved compliance: 03/27/2002
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 12/18/2001
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
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: 12/28/1993
Date achieved compliance: 01/20/1994
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 12/28/1993
Enf. disposition status: Action Satisfied (Case Closed)
Enf. disp. status date: 01/20/1994
Enforcement lead agency: EPA
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: 11/14/1990
Date achieved compliance: 11/29/1990
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 11/04/1992
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD IS-Container Use and Management
Date violation determined: 11/14/1990
Date achieved compliance: 11/29/1990
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 11/04/1992
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

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: 11/14/1990
Date achieved compliance: 11/29/1990
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 11/04/1992
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD IS-Preparedness and Prevention
Date violation determined: 11/14/1990
Date achieved compliance: 11/29/1990
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 11/04/1992
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD - General
Date violation determined: 11/14/1990
Date achieved compliance: 11/29/1990
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 11/04/1992
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD IS-General Facility Standards
Date violation determined: 11/14/1990
Date achieved compliance: 11/04/1992
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 11/04/1992
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - General
Date violation determined: 11/14/1990
Date achieved compliance: 11/29/1990
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 11/04/1992
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD - General
Date violation determined: 10/25/1989
Date achieved compliance: 04/25/1990
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 10/25/1989
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
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: 10/25/1989
Date achieved compliance: 11/19/1990
Violation lead agency: EPA
Enforcement action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement action date: 10/17/1994
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: 35000
Paid penalty amount: 35000

Regulation violated: Not reported
Area of violation: Generators - General
Date violation determined: 10/25/1989
Date achieved compliance: 11/19/1990
Violation lead agency: EPA
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 04/06/1990
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: 31300
Final penalty amount: Not reported

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD - Manifest/Records/Reporting
Date violation determined: 10/25/1989
Date achieved compliance: 04/25/1990
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 10/25/1989
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD - General
Date violation determined: 10/25/1989
Date achieved compliance: 04/25/1990
Violation lead agency: EPA
Enforcement action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement action date: 10/17/1994
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: 35000
Paid penalty amount: 35000

Regulation violated: Not reported
Area of violation: TSD - General
Date violation determined: 10/25/1989
Date achieved compliance: 04/25/1990
Violation lead agency: EPA
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 04/06/1990
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: 31300
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD - General
Date violation determined: 10/25/1989
Date achieved compliance: 04/06/1990
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 10/25/1989
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

Regulation violated: Not reported
Area of violation: TSD - Manifest/Records/Reporting
Date violation determined: 10/25/1989
Date achieved compliance: 04/25/1990
Violation lead agency: EPA
Enforcement action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement action date: 10/17/1994
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: 35000
Paid penalty amount: 35000

Regulation violated: Not reported
Area of violation: TSD - Manifest/Records/Reporting
Date violation determined: 10/25/1989
Date achieved compliance: 04/25/1990
Violation lead agency: EPA
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 04/06/1990
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: 31300
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - General
Date violation determined: 10/25/1989
Date achieved compliance: 11/19/1990
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 10/25/1989
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Evaluation Action Summary:
Evaluation date: 06/04/2014
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Pre-transport
Date achieved compliance: 06/16/2014
Evaluation lead agency: EPA Contractor/Grantee

Evaluation date: 05/22/2008
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA Contractor/Grantee

Evaluation date: 10/16/2003
Evaluation: COMPLIANCE ASSISTANCE VISIT

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA Contractor/Grantee

Evaluation date: 04/09/2003
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: LDR - General
Date achieved compliance: 04/17/2003
Evaluation lead agency: EPA Contractor/Grantee

Evaluation date: 12/18/2001
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - Contingency Plan and Emergency Procedures
Date achieved compliance: 03/27/2002
Evaluation lead agency: EPA

Evaluation date: 12/18/2001
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Manifest
Date achieved compliance: 03/27/2002
Evaluation lead agency: EPA

Evaluation date: 12/18/2001
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: LDR - General
Date achieved compliance: 12/21/2001
Evaluation lead agency: EPA

Evaluation date: 12/18/2001
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Manifest
Date achieved compliance: 12/21/2001
Evaluation lead agency: EPA

Evaluation date: 12/18/2001
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD IS-Contingency Plan and Emergency Procedures
Date achieved compliance: 03/21/2002
Evaluation lead agency: EPA

Evaluation date: 12/18/2001
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: LDR - General
Date achieved compliance: 03/27/2002
Evaluation lead agency: EPA

Evaluation date: 09/14/1994
Evaluation: FOCUSED COMPLIANCE INSPECTION
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA Contractor/Grantee

Evaluation date: 02/08/1994
Evaluation: FOCUSED COMPLIANCE INSPECTION
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA Contractor/Grantee

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

Evaluation date: 02/07/1994
Evaluation: FOCUSED COMPLIANCE INSPECTION
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA Contractor/Grantee

Evaluation date: 01/24/1994
Evaluation: FOCUSED COMPLIANCE INSPECTION
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA Contractor/Grantee

Evaluation date: 01/22/1994
Evaluation: FOCUSED COMPLIANCE INSPECTION
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA Contractor/Grantee

Evaluation date: 12/28/1993
Evaluation: NON-FINANCIAL RECORD REVIEW
Area of violation: Generators - Pre-transport
Date achieved compliance: 01/20/1994
Evaluation lead agency: EPA

Evaluation date: 09/10/1992
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA

Evaluation date: 08/12/1992
Evaluation: FOLLOW-UP INSPECTION
Area of violation: TSD IS-General Facility Standards
Date achieved compliance: 11/04/1992
Evaluation lead agency: EPA

Evaluation date: 11/14/1990
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General
Date achieved compliance: 11/29/1990
Evaluation lead agency: EPA Contractor/Grantee

Evaluation date: 11/14/1990
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 11/29/1990
Evaluation lead agency: EPA Contractor/Grantee

Evaluation date: 11/14/1990
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Records/Reporting
Date achieved compliance: 11/29/1990
Evaluation lead agency: EPA Contractor/Grantee

Evaluation date: 11/14/1990
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Pre-transport

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

Date achieved compliance: 11/29/1990
Evaluation lead agency: EPA Contractor/Grantee

Evaluation date: 11/14/1990
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD IS-Container Use and Management
Date achieved compliance: 11/29/1990
Evaluation lead agency: EPA Contractor/Grantee

Evaluation date: 11/14/1990
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD IS-Preparedness and Prevention
Date achieved compliance: 11/29/1990
Evaluation lead agency: EPA Contractor/Grantee

Evaluation date: 11/14/1990
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD IS-General Facility Standards
Date achieved compliance: 11/04/1992
Evaluation lead agency: EPA Contractor/Grantee

Evaluation date: 10/25/1989
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General
Date achieved compliance: 04/25/1990
Evaluation lead agency: EPA

Evaluation date: 10/25/1989
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General
Date achieved compliance: 04/06/1990
Evaluation lead agency: EPA

Evaluation date: 10/25/1989
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - Manifest/Records/Reporting
Date achieved compliance: 04/25/1990
Evaluation lead agency: EPA

Evaluation date: 10/25/1989
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 11/19/1990
Evaluation lead agency: EPA

WI MANIFEST:
Year: 2015
EPA ID: IAD981504285
FID: Not reported
ACT Code: 201
ACT Status: A
ACT Code 1: 201
ACT Name: HW Generator - Large
Contact Title: Not reported
Contact Name: Not reported
Contact Address: Not reported
Contact City/State/Zip: Not reported
Contact Telephone: Not reported

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

Contact EMail Address: Not reported

Shipped:
Year: 2015
Manifest Doc Id: 002160389GBF
Copy Type: TSDCOPY
Gen EPA ID: IAD981504285
Gen Date: 06/17/2015
GEN Copy Revd Date: Not reported
TSD Date: 06/25/2015
TSD EPA ID: WID988580056
TSD Copy Revd Date: 07/10/2015

Year: 2011
EPA ID: IAD981504285
FID: Not reported
ACT Code: 201
ACT Status: A
ACT Code 1: 201
ACT Name: HW Generator - Large
Contact Title: Not reported
Contact Name: Not reported
Contact Address: Not reported
Contact City/State/Zip: Not reported
Contact Telephone: Not reported
Contact EMail Address: Not reported

Shipped:
Year: 2011
Manifest Doc Id: 001125163GBF
Copy Type: TSDCOPY
Gen EPA ID: IAD981504285
Gen Date: 05/18/2011
GEN Copy Revd Date: Not reported
TSD Date: 05/20/2011
TSD EPA ID: WID988580056
TSD Copy Revd Date: 06/09/2011

Year: 2011
Manifest Doc Id: 001125288GBF
Copy Type: TSDCOPY
Gen EPA ID: IAD981504285
Gen Date: 05/18/2011
GEN Copy Revd Date: Not reported
TSD Date: 05/20/2011
TSD EPA ID: WID988580056
TSD Copy Revd Date: 06/09/2011

Year: 2011
Manifest Doc Id: 001125291GBF
Copy Type: TSDCOPY
Gen EPA ID: IAD981504285
Gen Date: 05/18/2011
GEN Copy Revd Date: Not reported
TSD Date: 05/20/2011

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

TSD EPA ID:	WID988580056
TSD Copy Revd Date:	06/09/2011

Year:	2009
EPA ID:	IAD981504285
FID:	Not reported
ACT Code:	201
ACT Status:	A
ACT Code 1:	201
ACT Name:	HW Generator - Large
Contact Title:	Not reported
Contact Name:	Not reported
Contact Address:	Not reported
Contact City/State/Zip:	Not reported
Contact Telephone:	Not reported
Contact EMail Address:	Not reported

Shipped:

Year:	2009
Manifest Doc Id:	005177593JJK
Copy Type:	TSDCOPY
Gen EPA ID:	IAD981504285
Gen Date:	05/07/2009
GEN Copy Revd Date:	Not reported
TSD Date:	05/13/2009
TSD EPA ID:	WID988580056
TSD Copy Revd Date:	07/02/2009

Year:	2005
EPA ID:	IAD981504285
FID:	0
ACT Code:	201
ACT Status:	A
ACT Code 1:	201
ACT Name:	HW Generator - Large
Contact Title:	Not reported
Contact Name:	Not reported
Contact Address:	Not reported
Contact City/State/Zip:	0
Contact Telephone:	0
Contact EMail Address:	Not reported

Year:	2004
EPA ID:	IAD981504285
FID:	0
ACT Code:	201
ACT Status:	A
ACT Code 1:	201
ACT Name:	HW Generator - Large
Contact Title:	Not reported
Contact Name:	Not reported
Contact Address:	Not reported
Contact City/State/Zip:	Not reported
Contact Telephone:	Not reported

IOWA ARMY NATIONAL GUARD (Continued) **1000142942**

Contact EMail Address: Not reported

A3 Target Property **CAMP DODGE**
7105 NW 70TH AVE
JOHNSTON, IA 50131

ICIS **1011295875**
US AIRS **N/A**

Site 3 of 22 in cluster A

Actual: 861 ft.

ICIS:

Enforcement Action ID:	IAPLKA0000191530213700026
FRS ID:	110036386470
Action Name:	IOWA ARMY NATIONAL GUARD 191530213700026
Facility Name:	IOWA ARMY NATIONAL GUARD
Facility Address:	7105 NW 70TH AVENUE JOHNSTON, IA 50131
Enforcement Action Type:	Notice of Violation
Facility County:	POLK
Program System Acronym:	AIR
Enforcement Action Forum Desc:	Administrative - Informal
EA Type Code:	NOV
Facility SIC Code:	9711
Federal Facility ID:	Not reported
Latitude in Decimal Degrees:	41.68848
Longitude in Decimal Degrees:	-93.71204
Permit Type Desc:	Not reported
Program System Acronym:	IAPLK0001915302137
Facility NAICS Code:	928110
Tribal Land Code:	Not reported

Enforcement Action ID:	IA-N00004066
FRS ID:	110036386470
Action Name:	CAMP DODGE (Permit IA0063215) Notice Of Violation (Nov) To State
Facility Name:	CAMP DODGE
Facility Address:	7105 NW 70TH AVE JOHNSTON, IA 50131
Enforcement Action Type:	Letter of Violation/ Warning Letter
Facility County:	POLK
Program System Acronym:	NPDES
Enforcement Action Forum Desc:	Administrative - Informal
EA Type Code:	LOVWL
Facility SIC Code:	9711
Federal Facility ID:	Not reported
Latitude in Decimal Degrees:	41.68887
Longitude in Decimal Degrees:	-93.71212
Permit Type Desc:	NPDES Individual Permit
Program System Acronym:	IA0063215
Facility NAICS Code:	928110
Tribal Land Code:	Not reported

Enforcement Action ID:	IA-N00002983
FRS ID:	110036386470
Action Name:	CAMP DODGE (Permit IA0063215) Notice Of Violation (Nov) To State
Facility Name:	CAMP DODGE
Facility Address:	7105 NW 70TH AVE JOHNSTON, IA 50131
Enforcement Action Type:	Letter of Violation/ Warning Letter
Facility County:	POLK

CAMP DODGE (Continued) **1011295875**

Program System Acronym:	NPDES
Enforcement Action Forum Desc:	Administrative - Informal
EA Type Code:	LOVWL
Facility SIC Code:	9711
Federal Facility ID:	Not reported
Latitude in Decimal Degrees:	41.68887
Longitude in Decimal Degrees:	-93.71212
Permit Type Desc:	NPDES Individual Permit
Program System Acronym:	IA0063215
Facility NAICS Code:	928110
Tribal Land Code:	Not reported

US AIRS (AFS):

Envid:	1011295875
Region Code:	07
County Code:	IA153
Programmatic ID:	AIR IAPLK0001915302137
Facility Registry ID:	110036386470
D and B Number:	Not reported
Facility Site Name:	IOWA ARMY NATIONAL GUARD
Primary SIC Code:	9711
NAICS Code:	928110
Default Air Classification Code:	SMI
Facility Type of Ownership Code:	STF
Air CMS Category Code:	SMI
HPV Status:	Not reported

US AIRS (AFS):

Region Code:	07
Programmatic ID:	AIR IAPLK0001915302137
Facility Registry ID:	110036386470
Air Operating Status Code:	OPR
Default Air Classification Code:	SMI
Air Program:	MACT Standards (40 CFR Part 63)
Activity Date:	2014-09-02 00:00:00
Activity Status Date:	2015-02-09 14:19:45
Activity Group:	Compliance Monitoring
Activity Type:	Inspection/Evaluation
Activity Status:	Active

Region Code:	07
Programmatic ID:	AIR IAPLK0001915302137
Facility Registry ID:	110036386470
Air Operating Status Code:	OPR
Default Air Classification Code:	SMI
Air Program:	MACT Standards (40 CFR Part 63)
Activity Date:	2014-09-24 00:00:00
Activity Status Date:	2015-02-11 10:40:50
Activity Group:	Compliance Monitoring
Activity Type:	Inspection/Evaluation
Activity Status:	Active

Region Code:	07
Programmatic ID:	AIR IAPLK0001915302137
Facility Registry ID:	110036386470
Air Operating Status Code:	OPR

CAMP DODGE (Continued) **1011295875**

Default Air Classification Code: SMI
Air Program: MACT Standards (40 CFR Part 63)
Activity Date: 2014-09-25 00:00:00
Activity Status Date: 2015-02-09 14:39:11
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Active

Region Code: 07
Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: MACT Standards (40 CFR Part 63)
Activity Date: 2015-01-28 00:00:00
Activity Status Date: 2015-02-23 11:57:24
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Active

Region Code: 07
Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: MACT Standards (40 CFR Part 63)
Activity Date: 2015-12-14 00:00:00
Activity Status Date: 2016-01-06 16:42:55
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Active

Region Code: 07
Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: MACT Standards (40 CFR Part 63)
Activity Date: 2014-09-02 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 07
Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: New Source Performance Standards (Non-Major)
Activity Date: 2014-10-01 00:00:00
Activity Status Date: 2015-02-11 12:03:30
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Active

Region Code: 07

CAMP DODGE (Continued) **1011295875**

Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2014-09-12 00:00:00
Activity Status Date: 2015-02-09 14:28:56
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Active

Region Code: 07
Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2014-09-12 00:00:00
Activity Status Date: 2015-02-09 14:30:09
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Active

Region Code: 07
Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2014-09-12 00:00:00
Activity Status Date: 2015-02-09 14:31:35
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Active

Region Code: 07
Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2014-09-12 00:00:00
Activity Status Date: 2015-02-09 14:32:54
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Active

Region Code: 07
Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2014-09-12 00:00:00
Activity Status Date: 2015-02-09 14:34:29
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation

CAMP DODGE (Continued) **1011295875**

Activity Status: Active

Region Code: 07
Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2014-09-29 00:00:00
Activity Status Date: 2015-02-09 14:40:28
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Active

Region Code: 07
Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2014-09-29 00:00:00
Activity Status Date: 2015-02-09 14:41:42
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Active

Region Code: 07
Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1991-09-06 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 07
Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1992-08-06 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 07
Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1993-08-17 00:00:00

CAMP DODGE (Continued) **1011295875**

Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 07
Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1994-08-11 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 07
Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1995-07-19 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 07
Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1996-09-11 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 07
Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1997-09-09 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 07
Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR

CAMP DODGE (Continued) **1011295875**

Default Air Classification Code:	SMI
Air Program:	State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date:	1998-10-19 00:00:00
Activity Status Date:	Not reported
Activity Group:	Compliance Monitoring
Activity Type:	Inspection/Evaluation
Activity Status:	Not reported

Region Code:	07
Programmatic ID:	AIR IAPLK0001915302137
Facility Registry ID:	110036386470
Air Operating Status Code:	OPR
Default Air Classification Code:	SMI
Air Program:	State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date:	1999-03-25 00:00:00
Activity Status Date:	Not reported
Activity Group:	Compliance Monitoring
Activity Type:	Inspection/Evaluation
Activity Status:	Not reported

Region Code:	07
Programmatic ID:	AIR IAPLK0001915302137
Facility Registry ID:	110036386470
Air Operating Status Code:	OPR
Default Air Classification Code:	SMI
Air Program:	State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date:	1999-12-10 00:00:00
Activity Status Date:	Not reported
Activity Group:	Compliance Monitoring
Activity Type:	Inspection/Evaluation
Activity Status:	Not reported

Region Code:	07
Programmatic ID:	AIR IAPLK0001915302137
Facility Registry ID:	110036386470
Air Operating Status Code:	OPR
Default Air Classification Code:	SMI
Air Program:	State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date:	2000-10-23 00:00:00
Activity Status Date:	Not reported
Activity Group:	Compliance Monitoring
Activity Type:	Inspection/Evaluation
Activity Status:	Not reported

Region Code:	07
Programmatic ID:	AIR IAPLK0001915302137
Facility Registry ID:	110036386470
Air Operating Status Code:	OPR
Default Air Classification Code:	SMI
Air Program:	State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date:	2001-11-27 00:00:00
Activity Status Date:	Not reported
Activity Group:	Compliance Monitoring
Activity Type:	Inspection/Evaluation
Activity Status:	Not reported

Region Code:	07

CAMP DODGE (Continued) **1011295875**

Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2003-01-17 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 07
Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2005-09-21 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 07
Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2006-12-12 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 07
Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2008-09-03 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 07
Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2010-03-29 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation

CAMP DODGE (Continued) **1011295875**

Activity Status: Not reported

Region Code: 07
Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2012-09-24 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 07
Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2012-10-11 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 07
Programmatic ID: AIR IAPLK0001915302137
Facility Registry ID: 110036386470
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2005-09-01 00:00:00
Activity Status Date: 2005-09-01 00:00:00
Activity Group: Enforcement Action
Activity Type: Administrative - Informal
Activity Status: Achieved

A4 **NDNODS LE MARS SA RANGE** **UXO** **1018152519**
Target **7105 NW 70TH AVENUE** **N/A**
Property **JOHNSTON, IA**

Site 4 of 22 in cluster A

Actual:
861 ft.

UXO:
DoD Component: Army
Installation Name: JFHQ IA ARNG
Facility Address 2: Not reported
Site ID: IAHQ-004-R-01
Site Type: Small Arms Range
Latitude: Not reported
Longitude: Not reported

A5 Target Property | **CAMP DODGE SANITARY SEWER LATERAL REPAIR - CONSTRU** | **IA NPDES** | **S122553943** | **N/A**
7105 NW 70TH AVE.
JOHNSTON, IA 50131

Site 5 of 22 in cluster A

Actual: 861 ft.

NPDES:

Permit Number:	Not reported
Epa Npdes Id Number:	Not reported
Permit Expiration Date:	05/23/2018
Facility Name:	CAMP DODGE SANITARY SEWER LATERAL REPAIR - CONSTRUCTION
Facility Address1:	7105 NW 70TH AVE.
Facility City:	JOHNSTON
Facility Phone Number:	Not reported
Facility Type:	Not reported
Facility Class:	Not reported
Standard Industrial Classification Code:	Not reported
Owner Name:	IOWA ARMY NATIONAL GUARD CONSTRUCTION OFFICE
Owner Add1:	Not reported
Owner Add2:	Not reported
Owner City:	Not reported
Owner State:	Not reported
Owner Zip:	Not reported
Owner Phone:	Not reported
Indr Regional/Field Office Number:	Not reported
Section:	Not reported
Township:	Not reported
Range:	Not reported
Latitude Degree:	Not reported
Longitude Degree:	Not reported
River Basin:	Not reported
Type Of Treatment:	Not reported
Design Number:	Not reported
Design Population Equivalent:	Not reported
Design Biochemical Oxygen Demand:	Not reported
Design Avg Dry Weather Flow (Mll Glns Per Dy):	Not reported
Design Avg Wet Weather Flow (Mll Glns Per Dy):	Not reported
Operator Certification Facility Type:	Not reported
File No:	28969
Authorization No:	28706
Authorization Date:	05/23/2016
Permit Status:	Discontinued
Permit Type:	GP #2 - Construction Activity
Legal Status:	Public

A6 Target Property | **NDNODS CENTERVILLE 1,000-YARD RANGE** | **UXO** | **1018152517** | **N/A**
7105 NW 70TH AVENUE
JOHNSTON, IA

Site 6 of 22 in cluster A

Actual: 861 ft.

UXO:

DoD Component:	Army
Installation Name:	JFHQ IA ARNG
Facility Address 2:	Not reported
Site ID:	IAHQ-002-R-01
Site Type:	Small Arms Range
Latitude:	Not reported
Longitude:	Not reported

A7 Target Property | **NDNODS DAVENPORT SA RANGE** | **UXO** | **1018152518**
7105 NW 70TH AVENUE | **N/A**
JOHNSTON, IA

Site 7 of 22 in cluster A

Actual: 861 ft.

UXO:

DoD Component:	Army
Installation Name:	JFHQ IA ARNG
Facility Address 2:	Not reported
Site ID:	IAHQ-003-R-01
Site Type:	Small Arms Range
Latitude:	Not reported
Longitude:	Not reported

A8 Target Property | **NDNODS SIOUX CITY HILL FARM RANGE** | **UXO** | **1018152526**
7105 NW 70TH AVENUE | **N/A**
JOHNSTON, IA

Site 8 of 22 in cluster A

Actual: 861 ft.

UXO:

DoD Component:	Army
Installation Name:	JFHQ IA ARNG
Facility Address 2:	Not reported
Site ID:	IAHQ-011-R-01
Site Type:	Small Arms Range
Latitude:	Not reported
Longitude:	Not reported

A9 Target Property | **NDNODS MOUNT PLEASANT SA RANGE NTA** | **UXO** | **1018152521**
7105 NW 70TH AVENUE | **N/A**
JOHNSTON, IA

Site 9 of 22 in cluster A

Actual: 861 ft.

UXO:

DoD Component:	Army
Installation Name:	JFHQ IA ARNG
Facility Address 2:	Not reported
Site ID:	IAHQ-006-R-02
Site Type:	Small Arms Range
Latitude:	Not reported
Longitude:	Not reported

A10 Target Property | **NDNODS OSKALOOSA SA RANGE** | **UXO** | **1018152522**
7105 NW 70TH AVENUE | **N/A**
JOHNSTON, IA

Site 10 of 22 in cluster A

Actual: 861 ft.

UXO:

DoD Component:	Army
Installation Name:	JFHQ IA ARNG
Facility Address 2:	Not reported
Site ID:	IAHQ-007-R-01
Site Type:	Small Arms Range

NDNODS OSKALOOSA SA RANGE (Continued) **1018152522**

Latitude: Not reported
Longitude: Not reported

A11 Target Property **NDNODS SHELDON 1,000-YARD RANGE** **UXO** **1018152525**
7105 NW 70TH AVENUE **N/A**
JOHNSTON, IA

Site 11 of 22 in cluster A

Actual: 861 ft.

UXO:
DoD Component: Army
Installation Name: JFHQ IA ARNG
Facility Address 2: Not reported
Site ID: IAHQ-010-R-01
Site Type: Small Arms Range
Latitude: Not reported
Longitude: Not reported

A12 Target Property **U.S. ARMY IOWA ARMY NATIONAL GUARD CAMP DODGE INST** **TRIS** **1012009617**
7105 NW 70TH AVE **50131SRMYW715NW**
JOHNSTON, IA 50131

Site 12 of 22 in cluster A

Actual: 861 ft.

TRIS:

Click this hyperlink while viewing on your computer to access
3 additional US_TRIS: record(s) in the EDR Site Report.

A13 Target Property **NDNODS MARSHALLTOWN SA RANGE** **UXO** **1018152520**
7105 NW 70TH AVENUE **N/A**
JOHNSTON, IA

Site 13 of 22 in cluster A

Actual: 861 ft.

UXO:
DoD Component: Army
Installation Name: JFHQ IA ARNG
Facility Address 2: Not reported
Site ID: IAHQ-005-R-01
Site Type: Small Arms Range
Latitude: Not reported
Longitude: Not reported

A14 Target Property **NDNODS RED OAK 25-METER RANGE** **UXO** **1018152524**
7105 NW 70TH AVENUE **N/A**
JOHNSTON, IA

Site 14 of 22 in cluster A

Actual: 861 ft.

UXO:
DoD Component: Army
Installation Name: JFHQ IA ARNG
Facility Address 2: Not reported

NDNODS RED OAK 25-METER RANGE (Continued) **1018152524**

Site ID:	IAHQ-009-R-01
Site Type:	Small Arms Range
Latitude:	Not reported
Longitude:	Not reported

A15 Target Property **ARMED FORCES READINESS CENTER** **IA NPDES** **S122535900**
7105 NW 70TH AVENUE **N/A**
JOHNSTON, IA 50131

Site 15 of 22 in cluster A

Actual: 861 ft.

NPDES:

Permit Number:	Not reported
Epa Npdes Id Number:	Not reported
Permit Expiration Date:	10/01/2008
Facility Name:	ARMED FORCES READINESS CENTER
Facility Address1:	7105 NW 70TH AVENUE
Facility City:	JOHNSTON
Facility Phone Number:	Not reported
Facility Type:	Not reported
Facility Class:	Not reported
Standard Industrial Classification Code:	Not reported
Owner Name:	IOWA NATIONAL GUARD - ATTN: CURTIS MADSON
Owner Add1:	Not reported
Owner Add2:	Not reported
Owner City:	Not reported
Owner State:	Not reported
Owner Zip:	Not reported
Owner Phone:	Not reported
Indr Regional/Field Office Number:	Not reported
Section:	Not reported
Township:	Not reported
Range:	Not reported
Latitude Degree:	Not reported
Longitude Degree:	Not reported
River Basin:	Not reported
Type Of Treatment:	Not reported
Design Number:	Not reported
Design Population Equivalent:	Not reported
Design Biochemical Oxygen Demand:	Not reported
Design Avg Dry Weather Flow (Mll Glns Per Dy):	Not reported
Design Avg Wet Weather Flow (Mll Glns Per Dy):	Not reported
Operator Certification Facility Type:	Not reported
File No:	12703
Authorization No:	12495
Authorization Date:	11/01/2006
Permit Status:	Discontinued
Permit Type:	GP #2 - Construction Activity
Legal Status:	Federal

A16 Target Property | **IOWA ARMY NATIONAL GUARD**
7105 NW 70TH AVE, BLDG S42
JOHNSTON, IA | **IA AST** | **A100413834**
N/A

Site 16 of 22 in cluster A

Actual: 861 ft.

AST:

Key:	Not reported
Owners Name:	HOWARD R CLEGG -ENV PROTECTION SPECIALIST
Owners Address:	7105 NW 70TH AVE BLDG 3535
Owners City,St,Zip:	Johnston, IA 50131
Tank Key Num:	Not reported
Registration Number:	18254
Year Of Manufacture (age):	Not reported
Size:	10000
Type:	Not reported
Contents:	jet fuel
Plan Date:	Not reported
Registration Date:	Not reported
Plan Number:	Not reported
Out of Service Date:	Not reported
Amount Received:	20.00
Date Received:	12/24/2014
Tank Key Num:	Not reported
Registration Number:	18255
Year Of Manufacture (age):	Not reported
Size:	5000
Type:	Not reported
Contents:	E85
Plan Date:	Not reported
Registration Date:	Not reported
Plan Number:	Not reported
Out of Service Date:	Not reported
Amount Received:	20.00
Date Received:	12/24/2014
Tank Key Num:	Not reported
Registration Number:	18253
Year Of Manufacture (age):	Not reported
Size:	10000
Type:	Not reported
Contents:	jet fuel
Plan Date:	Not reported
Registration Date:	Not reported
Plan Number:	Not reported
Out of Service Date:	Not reported
Amount Received:	20.00
Date Received:	12/24/2014

A17 Target Property | **CAMP DODGE**
7105 NW 70TH AVENUE
JOHNSTON, IA 50131 | **IA TIER 2** | **S116492798**
N/A

Site 17 of 22 in cluster A

Actual: 861 ft.

TIER 2:

Report Year:	2017
Facility Id:	863
Id:	9711
Description:	NATIONAL SECURITY SIC
Last Modified:	Not reported
Id:	928110
Description:	National Security NAICS
Last Modified:	Not reported
State Id:	Not reported
Fire District:	Johnston Fire Department
Site Map:	Not reported
Site Coord Abbreviation:	Not reported
Date Signed:	01/14/2008
Date Modified:	01/02/2018
Dike Or Other Safeguard:	Not reported
Mailing Address:	NGIA-DIM-E, Bldg. B-61, Camp Dodge, 7105 NW 70th Ave.
Mail City:	Johnston
Mail State:	IA
Mail Zip:	501311824
Latitude:	41.68835
Longitude:	-93.72903
Notes:	Not reported

Contact:

Report Year:	2017
Contact Id:	199181
Date Modified:	Not reported
First Name:	Harlan
Last Name:	Ratcliff
Title:	Not reported
Email:	harlan.r.ratcliff.nfg@mail.mil
Address:	7105 NW 70th Avenue
City:	Johnston
Country:	US
State:	IA
Zip Code:	50131
Type1:	Owner / Operator
Last Modified:	Not reported
Telephone:	515-252-4396
Telephone Type:	Work

Chemical:

Report Year:	2017
Chem Inv Record Id:	5024
CICAS:	7782-50-5
EHS Chemical:	True
Chemical Name:	CHLORINE GAS
Acute:	Not reported
Ave Amount:	375
Ave Amount Code:	02
Max Amount:	600

CAMP DODGE (Continued) **S116492798**

Max Amount Code:	03
Chronic:	Not reported
Last Modified:	Not reported
Days On Site:	365
Fire:	Not reported
Gas:	True
Liquid:	Not reported
Mixture:	Not reported
Pressure:	Not reported
Pure:	True
Reactive:	Not reported
Solid:	Not reported
Trade Secret:	Not reported

Report Year:	2017
Chem Inv Record Id:	5025
CICAS:	68476-34-6
EHS Chemical:	Not reported
Chemical Name:	DIESEL FUEL OIL
Acute:	Not reported
Ave Amount:	60000
Ave Amount Code:	08
Max Amount:	90564
Max Amount Code:	09
Chronic:	Not reported
Last Modified:	Not reported
Days On Site:	365
Fire:	Not reported
Gas:	Not reported
Liquid:	True
Mixture:	True
Pressure:	Not reported
Pure:	Not reported
Reactive:	Not reported
Solid:	Not reported
Trade Secret:	Not reported

Report Year:	2017
Chem Inv Record Id:	5027
CICAS:	8006-61-9
EHS Chemical:	Not reported
Chemical Name:	GASOLINE
Acute:	Not reported
Ave Amount:	12000
Ave Amount Code:	06
Max Amount:	17500
Max Amount Code:	06
Chronic:	Not reported
Last Modified:	Not reported
Days On Site:	365
Fire:	Not reported
Gas:	Not reported
Liquid:	True
Mixture:	True
Pressure:	Not reported
Pure:	Not reported
Reactive:	Not reported

CAMP DODGE (Continued) **S116492798**

Solid:	Not reported
Trade Secret:	Not reported

Report Year:	2017
Chem Inv Record Id:	5028
CICAS:	64-17-5
EHS Chemical:	Not reported
Chemical Name:	E-85 GASOLINE
Acute:	Not reported
Ave Amount:	20000
Ave Amount Code:	06
Max Amount:	35000
Max Amount Code:	07
Chronic:	Not reported
Last Modified:	Not reported
Days On Site:	365
Fire:	Not reported
Gas:	Not reported
Liquid:	True
Mixture:	True
Pressure:	Not reported
Pure:	Not reported
Reactive:	Not reported
Solid:	Not reported
Trade Secret:	Not reported

Chemical Mix:

Report Year:	2017
Record Key:	63908
Chemical Inv Recid:	5028
Mx Chemical:	Gasoline
Mx Cas:	8006-61-9
Percentage:	15.00
Wt Vol:	Not reported
Mx Ehs:	Not reported
Last Modified:	Not reported

Report Year:	2017
Record Key:	63907
Chemical Inv Recid:	5028
Mx Chemical:	Ethyl alcohol
Mx Cas:	64-17-5
Percentage:	85.00
Wt Vol:	Not reported
Mx Ehs:	Not reported
Last Modified:	Not reported

Report Year:	2017
Chem Inv Record Id:	5029
CICAS:	8008-20-6
EHS Chemical:	Not reported
Chemical Name:	Jet Fuel Kerosene (F24)
Acute:	Not reported
Ave Amount:	203000
Ave Amount Code:	10
Max Amount:	350000
Max Amount Code:	10

CAMP DODGE (Continued) **S116492798**

Chronic: Not reported
Last Modified: Not reported
Days On Site: 365
Fire: Not reported
Gas: Not reported
Liquid: True
Mixture: True
Pressure: Not reported
Pure: Not reported
Reactive: Not reported
Solid: Not reported
Trade Secret: Not reported

Report Year: 2017
Chem Inv Record Id: 5030
CICAS: N/A
EHS Chemical: Not reported
Chemical Name: BALL POWDER PROPELLANT
Acute: Not reported
Ave Amount: 14067
Ave Amount Code: 06
Max Amount: 26134
Max Amount Code: 07
Chronic: Not reported
Last Modified: Not reported
Days On Site: 365
Fire: True
Gas: Not reported
Liquid: Not reported
Mixture: True
Pressure: True
Pure: Not reported
Reactive: Not reported
Solid: True
Trade Secret: Not reported

Chemical Mix:
Report Year: 2017
Record Key: 51847
Chemical Inv Recid: 5030
Mx Chemical: ETHYL CENTRALITE
Mx Cas: 85983
Percentage: 7.00
Wt Vol: Not reported
Mx Ehs: Not reported
Last Modified: Not reported

Report Year: 2017
Record Key: 51846
Chemical Inv Recid: 5030
Mx Chemical: NITROGLYCERIN
Mx Cas: 55630
Percentage: 50.00
Wt Vol: Not reported
Mx Ehs: Not reported
Last Modified: Not reported

Report Year: 2017

CAMP DODGE (Continued) **S116492798**

Record Key:	51848
Chemical Inv Recid:	5030
Mx Chemical:	NITROCELLULOSE
Mx Cas:	9004700
Percentage:	40.00
Wt Vol:	Not reported
Mx Ehs:	Not reported
Last Modified:	Not reported

Report Year:	2017
Record Key:	51853
Chemical Inv Recid:	5030
Mx Chemical:	POTASSIUM NITRATE
Mx Cas:	7757791
Percentage:	0.50
Wt Vol:	Not reported
Mx Ehs:	Not reported
Last Modified:	Not reported

Report Year:	2017
Record Key:	51850
Chemical Inv Recid:	5030
Mx Chemical:	ROSIN
Mx Cas:	8050097
Percentage:	1.00
Wt Vol:	Not reported
Mx Ehs:	Not reported
Last Modified:	Not reported

Report Year:	2017
Record Key:	51851
Chemical Inv Recid:	5030
Mx Chemical:	DIPHENYLAMINE
Mx Cas:	122394
Percentage:	0.50
Wt Vol:	Not reported
Mx Ehs:	Not reported
Last Modified:	Not reported

Report Year:	2017
Record Key:	51852
Chemical Inv Recid:	5030
Mx Chemical:	N-NITROSODIPHENYL
Mx Cas:	86306
Percentage:	0.10
Wt Vol:	Not reported
Mx Ehs:	Not reported
Last Modified:	Not reported

Report Year:	2017
Record Key:	51849
Chemical Inv Recid:	5030
Mx Chemical:	DIBUTYL PHTHALATE
Mx Cas:	84742
Percentage:	1.00
Wt Vol:	Not reported
Mx Ehs:	Not reported

CAMP DODGE (Continued) **S116492798**

Last Modified:	Not reported

Report Year:	2017
Chem Inv Record Id:	5051
CICAS:	64742-54-7
EHS Chemical:	Not reported
Chemical Name:	MOTOR OIL
Acute:	Not reported
Ave Amount:	30000
Ave Amount Code:	07
Max Amount:	39600
Max Amount Code:	07
Chronic:	Not reported
Last Modified:	Not reported
Days On Site:	365
Fire:	Not reported
Gas:	Not reported
Liquid:	True
Mixture:	True
Pressure:	Not reported
Pure:	Not reported
Reactive:	Not reported
Solid:	Not reported
Trade Secret:	Not reported

Report Year:	2017
Chem Inv Record Id:	79033
CICAS:	8002-05-09
EHS Chemical:	Not reported
Chemical Name:	Used Motor Oi1
Acute:	Not reported
Ave Amount:	17000
Ave Amount Code:	06
Max Amount:	34300
Max Amount Code:	07
Chronic:	Not reported
Last Modified:	Not reported
Days On Site:	365
Fire:	Not reported
Gas:	Not reported
Liquid:	True
Mixture:	Not reported
Pressure:	Not reported
Pure:	Not reported
Reactive:	Not reported
Solid:	Not reported
Trade Secret:	Not reported

Report Year:	2017
Chem Inv Record Id:	79165
CICAS:	7440-20-5
EHS Chemical:	Not reported
Chemical Name:	Road Salt
Acute:	Not reported
Ave Amount:	7500000
Ave Amount Code:	12

CAMP DODGE (Continued) **S116492798**

Max Amount:	30000000
Max Amount Code:	13
Chronic:	Not reported
Last Modified:	Not reported
Days On Site:	100
Fire:	Not reported
Gas:	Not reported
Liquid:	Not reported
Mixture:	True
Pressure:	Not reported
Pure:	Not reported
Reactive:	Not reported
Solid:	True
Trade Secret:	Not reported

Report Year:	2017
Chem Inv Record Id:	90629
CICAS:	7664-93-9
EHS Chemical:	True
Chemical Name:	Sulfuric acid
Acute:	Not reported
Ave Amount:	3800
Ave Amount Code:	04
Max Amount:	3800
Max Amount Code:	04
Chronic:	Not reported
Last Modified:	Not reported
Days On Site:	365
Fire:	Not reported
Gas:	Not reported
Liquid:	True
Mixture:	True
Pressure:	Not reported
Pure:	Not reported
Reactive:	Not reported
Solid:	Not reported
Trade Secret:	Not reported

Report Year:	2016
Facility Id:	863
State Id:	Not reported
Fire District:	Johnston Fire Department
Site Map:	Not reported
Site Coord Abbreviation:	Not reported
Date Signed:	01/14/2008
Date Modified:	01/12/2017
Dike Or Other Safeguard:	Not reported
Mailing Address:	NGIA-DIM-E, Bldg. B-61, Camp Dodge, 7105 NW 70th Ave.
Mail City:	Johnston
Mail State:	IA
Mail Zip:	501311824
Latitude:	41.68835
Longitude:	-93.72903
Notes:	Not reported

Report Year:	2015

CAMP DODGE (Continued) **S116492798**

Facility Id:	863
State Id:	Not reported
Fire District:	Johnston Fire Department
Site Map:	Not reported
Site Coord Abbreviation:	Not reported
Date Signed:	01/14/2008
Date Modified:	01/14/2016
Dike Or Other Safeguard:	Not reported
Mailing Address:	NGIA-DIM-E, Bldg. B-61, Camp Dodge, 7105 NW 70th Ave.
Mail City:	Johnston
Mail State:	IA
Mail Zip:	501311824
Latitude:	41.68835
Longitude:	-93.72903
Notes:	Not reported

Report Year:	2014
Facility Id:	863
State Id:	Not reported
Fire District:	Johnston Fire Department
Site Map:	Not reported
Site Coord Abbreviation:	Not reported
Date Signed:	01/14/2008
Date Modified:	01/16/2015
Dike Or Other Safeguard:	Not reported
Mailing Address:	NGIA-DIM-E, Bldg. B-61, Camp Dodge, 7105 NW 70th Ave.
Mail City:	Johnston
Mail State:	IA
Mail Zip:	501311824
Latitude:	41.68835
Longitude:	-93.72903
Notes:	Not reported

Report Year:	2013
Facility Id:	863
State Id:	Not reported
Fire District:	Johnston Fire Department
Site Map:	Not reported
Site Coord Abbreviation:	Not reported
Date Signed:	01/14/2008
Date Modified:	02/26/2014
Dike Or Other Safeguard:	Not reported
Mailing Address:	NGIA-DIM-E, Bldg. B-61, Camp Dodge, 7105 NW 70th Ave.
Mail City:	Johnston
Mail State:	IA
Mail Zip:	501311824
Latitude:	41.68835
Longitude:	-93.72903
Notes:	Not reported

A18 Target Property | **CAMP DODGE**
7105 NW 70TH AVE STREET
JOHNSTON, IA 50131 | **IA TIER 2** | **S109946752**
N/A

Site 18 of 22 in cluster A

Actual: 861 ft.

TIER 2:

Report Year:	2012
Facility Id:	FAIDSIT2A00000863
State Id:	Not reported
Fire District:	Johnston Fire Department
Site Map:	False
Site Coord Abbreviation:	False
Date Signed:	02/12/2007
Date Modified:	02/27/2012
Dike Or Other Safeguard:	False
Mailing Address:	JFHQ-IA-DIM-E, Bldg. B-61, Camp Dodge, 7105 NW 70th Ave.
Mail City:	Johnston
Mail State:	IA
Mail Zip:	50131
Latitude:	41.68835
Longitude:	-93.72903
Notes:	FROM 2006 DATA: Please attempt to contact emergency contacts through work then home phones first. The cell phone should be used if neither person can be contacted.

Report Year:	2010
Facility Id:	FAIDSIT2A00000863
State Id:	Not reported
Fire District:	Johnston Fire Department
Site Map:	False
Site Coord Abbreviation:	False
Date Signed:	2011-01-27T14:17:30
Date Modified:	3/30/2011
Dike Or Other Safeguard:	False
Mailing Address:	JFHQ-IA-DIM-E, Bldg. B-61, Camp Dodge, 7105 NW 70th Ave.
Mail City:	Johnston
Mail State:	IA
Mail Zip:	50131
Latitude:	41.688352000000002
Longitude:	-93.729037000000005
Notes:	FROM 2006 DATA: Please attempt to contact emergency contacts through work then home phones first. The cell phone should be used if neither person can be contacted.

Report Year:	2009
Facility Id:	FAIDSIT2A00000863
State Id:	IA
Fire District:	Johnston Fire Department
Site Map:	False
Site Coord Abbreviation:	False
Date Signed:	2010-02-22T15:42:52
Date Modified:	2010-02-22T15:38:40
Dike Or Other Safeguard:	False
Mailing Address:	JFHQ-IA-DIM-E, Bldg. B-61, Camp Dodge, 7105 NW 70th Ave.
Mail City:	Johnston
Mail State:	IA
Mail Zip:	50131
Latitude:	41.688352000000002

CAMP DODGE (Continued) **S109946752**

Longitude: -93.729037000000005
Notes: FROM 2006 DATA: Please attempt to contact emergency contacts through work then home phones first. The cell phone should be used if neither person can be contacted.

A19 Target Property | **CAMP DODGE**
7105 NW 70TH AVE
JOHNSTON, IA 50131

IA SPILLS **S108268561**
IA AIRS **N/A**
IA NPDES

Site 19 of 22 in cluster A

Actual: 861 ft.

SPILL:

Facility ID:	051214-TWA-1410
Reported Date:	05/12/2014
Reported Time:	14:10:00
Taken By:	Not reported
Spill Date:	Not reported
Spill Time:	Not reported
6 hr Letter:	Not reported
Continuous Release:	Not reported
Incident Location:	Not reported
Incident Mode:	Not reported
Incident Type:	Not reported
Incident Medium Land:	Not reported
Incident Medium Water:	Not reported
Incident Medium Air:	Not reported
Field Office:	5
Company Name:	Proctor Mechanical
Company Address1:	100 Hoak Drive
Company Address2:	Not reported
Company City/State/Zip:	West Des Moines, IA 50265
Company Phone:	(515)2882251
Company Fax No:	()
Company Start Date:	05/15/2014
Company End Date:	Not reported
Company Contact Name:	Michael Proctor
Contact Address1:	100 Hoak Drive
Company Contact Address2:	Not reported
Company Contact City/State/Zip:	West Des Moines, IA 50265
Company Contact Phone:	(515)2882251
Company Contact Fax No:	()
Company Contact Start Date:	05/15/2014
Company Contact End Date:	Not reported
Initial Instructions:	Not reported
Events:	Not reported

Facility ID:	022015-BJB-0900
Reported Date:	02/20/2015
Reported Time:	09:00:00
Taken By:	Not reported
Spill Date:	Not reported
Spill Time:	Not reported
6 hr Letter:	Not reported
Continuous Release:	Not reported
Incident Location:	Not reported
Incident Mode:	Not reported
Incident Type:	Not reported
Incident Medium Land:	Not reported

CAMP DODGE (Continued) **S108268561**

Incident Medium Water:	Not reported
Incident Medium Air:	Not reported
Field Office:	5
Company Name:	Iowa National Guard
Company Address1:	7105 Northwest 70th Avenue
Company Address2:	Not reported
Company City/State/Zip:	Johnston, IA 50131
Company Phone:	(515)2524582
Company Fax No:	()
Company Start Date:	07/24/2009
Company End Date:	Not reported
Company Contact Name:	Howard Clegg
Contact Address1:	1501 West Stone Avenue
Company Contact Address2:	Not reported
Company Contact City/State/Zip:	Fairfield, IA 50131
Company Contact Phone:	(515)2524537
Company Contact Fax No:	()
Company Contact Start Date:	07/24/2009
Company Contact End Date:	Not reported
Initial Instructions:	Not reported
Events:	Not reported

AIRS:

Facility Number:	77-09-004
Status:	MINOR EI
Closed?:	Not reported
Region:	CENTRAL
Site ID:	100000024172
Contact Phone:	515-252-4396
Facility Contact Phone:	Not reported
Mailing Address:	7105 NW 70TH AVE
Mailing Address 2:	Not reported
SIC Primary:	Not reported
NAICS Primary:	Not reported

AIRS:

Facility ID:	77-09-004
NAICS Code:	928110
Year:	2013
PM25:	Not reported
PM10:	0.02954
SO2:	0.0144
NOX:	0.2176
VOC:	0.2728
CO:	0.0469
Lead:	0
Ozone:	Not reported
Ammonia:	0
HAP:	0.0674
Antimony:	Not reported
Arsenic:	Not reported
Beryllium:	Not reported
Cadmium:	Not reported
Chromium:	Not reported
Cobalt:	Not reported
Cokeoven:	Not reported
Cyanide:	Not reported

CAMP DODGE (Continued) **S108268561**

Finemat:	Not reported
Glycol:	Not reported
H2SO4:	Not reported
Manganese:	Not reported
Mercury:	Not reported
Nickel:	Not reported
Pom:	Not reported
Radionclide:	Not reported
Selenium:	Not reported

Facility ID:	77-09-004
NAICS Code:	928110
Year:	2016
PM25:	0.0205
PM10:	0.0205
SO2:	0.0191
NOX:	0.2883
VOC:	0.1947
CO:	0.0621
Lead:	Not reported
Ozone:	Not reported
Ammonia:	Not reported
HAP:	0.0528
Antimony:	Not reported
Arsenic:	Not reported
Beryllium:	Not reported
Cadmium:	Not reported
Chromium:	Not reported
Cobalt:	Not reported
Cokeoven:	Not reported
Cyanide:	Not reported
Finemat:	Not reported
Glycol:	Not reported
H2SO4:	Not reported
Manganese:	Not reported
Mercury:	Not reported
Nickel:	Not reported
Pom:	Not reported
Radionclide:	Not reported
Selenium:	Not reported

NPDES:

Permit Number:	7700901
Epa Npdes Id Number:	0063215
Permit Expiration Date:	09/03/2006
Facility Name:	CAMP DODGE
Facility Address1:	7105 NW 70TH AVE
Facility City:	JOHNSTON
Facility Phone Number:	(515)252-4557
Facility Type:	SEMI-PUBLIC
Facility Class:	MINOR
Standard Industrial Classification Code:	9711
Owner Name:	IOWA ARMY NATIONAL GUARD
Owner Add1:	BLDG. #B61-CAMP DODGE
Owner Add2:	7105 NW 70TH AVENUE
Owner City:	JOHNSTON

CAMP DODGE (Continued) **S108268561**

Owner State:	IA
Owner Zip:	50131-1824
Owner Phone:	(515)242-4557
Indr Regional/Field Office Number:	5
Section:	35
Township:	80
Range:	25
Latitude Degree:	41.68887
Longitude Degree:	-93.71212
River Basin:	DES MOINES R. BELOW THE EAST FORK DES MOINES
Type Of Treatment:	AERATED LAGOON
Design Number:	1
Design Population Equivalent:	2216
Design Biochemical Oxygen Demand:	370
Design Avg Dry Weather Flow (Mll Glns Per Dy):	0.218
Design Avg Wet Weather Flow (Mll Glns Per Dy):	0.396
Operator Certification Facility Type:	Not reported
File No:	Not reported
Authorization No:	Not reported
Authorization Date:	Not reported
Permit Status:	Not reported
Permit Type:	Not reported
Legal Status:	Not reported

A20 Target Property **IOWA ARMY NATIONAL GUARD - TRAINING SITE** **IA NPDES** **S122561846**
7105 NW 70TH AVE. **N/A**
JOHNSTON, IA 50131

Site 20 of 22 in cluster A

Actual: 861 ft.

NPDES:

Permit Number:	Not reported
Epa Npdes Id Number:	Not reported
Permit Expiration Date:	02/27/2023
Facility Name:	IOWA ARMY NATIONAL GUARD - TRAINING SITE
Facility Address1:	7105 NW 70TH AVE.
Facility City:	JOHNSTON
Facility Phone Number:	Not reported
Facility Type:	Not reported
Facility Class:	Not reported
Standard Industrial Classification Code:	Not reported
Owner Name:	IOWA ARMY NATIONAL GUARD
Owner Add1:	Not reported
Owner Add2:	Not reported
Owner City:	Not reported
Owner State:	Not reported
Owner Zip:	Not reported
Owner Phone:	Not reported
Indr Regional/Field Office Number:	Not reported
Section:	Not reported
Township:	Not reported
Range:	Not reported
Latitude Degree:	Not reported
Longitude Degree:	Not reported
River Basin:	Not reported
Type Of Treatment:	Not reported
Design Number:	Not reported
Design Population Equivalent:	Not reported

IOWA ARMY NATIONAL GUARD - TRAINING SITE (Continued) **S122561846**

Design Biochemical Oxygen Demand:	Not reported
Design Avg Dry Weather Flow (Mll Glns Per Dy):	Not reported
Design Avg Wet Weather Flow (Mll Glns Per Dy):	Not reported
Operator Certification Facility Type:	Not reported
File No:	5748
Authorization No:	5567
Authorization Date:	02/27/2003
Permit Status:	Current
Permit Type:	GP #2 - Construction Activity
Legal Status:	State

A21
Target
Property

CAMP DODGE TRAINING SITE
7105 NW 70TH AVE BLDG W46
JOHNSTON, IA 50131

IA UST **U003634981**
IA Financial Assurance **N/A**

Site 21 of 22 in cluster A

Actual:
861 ft.

UST:

Facility Id:	6224
Loc Id:	6224
Registration:	198605890
Owner Type:	Federal
Financial Code:	13
Insurer's Name:	FED GOV
Policy Number:	Not reported
Policy Start Date:	01/01/1990
Policy End Date:	01/01/2099
Registration Sign Date:	11/20/1990
Created By:	migration
Created Date:	01/08/2007
Changed By:	Nelson.Paul
Last Changed:	10/20/2015
Latitude:	41.69224
Longitude:	-93.71413
Otype ID Decode:	Federal

Tank Info:

Tank Num:	17167
In Use:	False
Tank Type:	4
Tank Brand Id:	Not reported
Inert Material Id:	Not reported
Filled In Place:	Not reported
Material Construction:	Double Wall Steel
Emergency Power Gen:	Not reported

Tank Num:	17168
In Use:	False
Tank Type:	4
Tank Brand Id:	Not reported
Inert Material Id:	Not reported
Filled In Place:	Not reported
Material Construction:	Double Wall Steel
Emergency Power Gen:	Not reported

Tank Num:	17169
In Use:	False
Tank Type:	4

CAMP DODGE TRAINING SITE (Continued) **U003634981**

Tank Brand Id:	Not reported
Inert Material Id:	Not reported
Filled In Place:	Not reported
Material Construction:	Double Wall Steel
Emergency Power Gen:	Not reported

Tank Num:	17170
In Use:	False
Tank Type:	4
Tank Brand Id:	Not reported
Inert Material Id:	Not reported
Filled In Place:	Not reported
Material Construction:	Double Wall Steel
Emergency Power Gen:	Not reported

Tank Num:	17171
In Use:	True
Tank Type:	4
Tank Brand Id:	Not reported
Inert Material Id:	Not reported
Filled In Place:	Not reported
Material Construction:	Steel Int. Lined with Fiberglass
Emergency Power Gen:	Not reported

Tank Num:	17172
In Use:	True
Tank Type:	4
Tank Brand Id:	Not reported
Inert Material Id:	Not reported
Filled In Place:	Not reported
Material Construction:	Steel Int. Lined with Fiberglass
Emergency Power Gen:	Not reported

IA Financial Assurance 1:

Facility ID:	198605890
Insurers Name:	FED GOV
Policy End Date:	01/01/2099
Site Status:	Not reported
Financial Code:	13
Policy Number:	Not reported
Policy Start Date:	01/01/1990

A22 **CAMP DODGE** **IA TIER 2** **S116492814**
Target **7105 NW 70TH ANENUE** **N/A**
Property **JOHNSTON, IA 50131**

Site 22 of 22 in cluster A

Actual:
861 ft.

TIER 2:

Report Year:	2012
Facility Id:	FAIDSIT2A00000863
State Id:	Not reported
Fire District:	Johnston Fire Department
Site Map:	False
Site Coord Abbreviation:	False
Date Signed:	02/20/2013

CAMP DODGE (Continued) **S116492814**

Date Modified:	02/20/2013
Dike Or Other Safeguard:	False
Mailing Address:	NGIA-DIM-E, Bldg. B-61, Camp Dodge, 7105 NW 70th Ave.
Mail City:	Johnston
Mail State:	IA
Mail Zip:	50131
Latitude:	41.68835
Longitude:	-93.72903
Notes:	Not reported

DOD **CAMP DODGE MILITARY RESERVATION** **DOD** **CUSA115384**
Region **N/A**

CAMP DODGE MILITARY RESER (County), IA

< 1/8
1 ft.

DOD:

Feature 1:	Army DOD
Feature 2:	Not reported
Feature 3:	Not reported
URL:	Not reported
Name 1:	Camp Dodge Military Reservation
Name 2:	Not reported
Name 3:	Not reported
State:	IA
DOD Site:	Yes
Tile name:	IAPOLK

---

23 **POLK COUNTY PROPERTY** **IA UST** **U003935079**
SE **8500 NW 86TH ST** **N/A**
1/8-1/4 **DES MOINES, IA 50131**
0.207 mi.
1094 ft.

Relative:
Lower

Actual:
846 ft.

UST:

Facility Id:	5617
Loc Id:	5617
Registration:	198605262
Owner Type:	County
Financial Code:	Not reported
Insurer's Name:	Not reported
Policy Number:	Not reported
Policy Start Date:	Not reported
Policy End Date:	Not reported
Registration Sign Date:	01/01/1900
Created By:	migration
Created Date:	01/08/2007
Changed By:	migration
Last Changed:	01/08/2007
Latitude:	41.72002
Longitude:	-93.73675
Otype ID Decode:	County

Tank Info:

Tank Num:	15180
In Use:	False
Tank Type:	4

POLK COUNTY PROPERTY (Continued) **U003935079**

Tank Brand Id:	Not reported
Inert Material Id:	Not reported
Filled In Place:	Not reported
Material Construction:	Double Wall Steel
Emergency Power Gen:	Not reported

Count: 0 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
		NO SITES FOUND			

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: 07/17/2018
Date Data Arrived at EDR: 08/09/2018
Date Made Active in Reports: 09/07/2018
Number of Days to Update: 29

Source: EPA
Telephone: N/A
Last EDR Contact: 08/09/2018
Next Scheduled EDR Contact: 10/15/2018
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 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

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: 07/17/2018
Date Data Arrived at EDR: 08/09/2018
Date Made Active in Reports: 09/07/2018
Number of Days to Update: 29

Source: EPA
Telephone: N/A
Last EDR Contact: 08/09/2018
Next Scheduled EDR Contact: 10/15/2018
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: 07/17/2018
Date Data Arrived at EDR: 08/09/2018
Date Made Active in Reports: 09/07/2018
Number of Days to Update: 29

Source: EPA
Telephone: N/A
Last EDR Contact: 08/09/2018
Next Scheduled EDR Contact: 10/15/2018
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: 07/06/2018
Next Scheduled EDR Contact: 10/15/2018
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: 07/17/2018
Date Data Arrived at EDR: 08/09/2018
Date Made Active in Reports: 09/07/2018
Number of Days to Update: 29

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 08/09/2018
Next Scheduled EDR Contact: 10/29/2018
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: 07/17/2018
Date Data Arrived at EDR: 08/09/2018
Date Made Active in Reports: 09/07/2018
Number of Days to Update: 29

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 08/09/2018
Next Scheduled EDR Contact: 10/29/2018
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: 09/19/2018
Next Scheduled EDR Contact: 01/07/2019
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: 913-551-7003
Last EDR Contact: 09/19/2018
Next Scheduled EDR Contact: 01/07/2019
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: 913-551-7003
Last EDR Contact: 09/19/2018
Next Scheduled EDR Contact: 01/07/2019
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: 913-551-7003
Last EDR Contact: 09/19/2018
Next Scheduled EDR Contact: 01/07/2019
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: 913-551-7003
Last EDR Contact: 09/19/2018
Next Scheduled EDR Contact: 01/07/2019
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: 05/14/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 07/16/2018
Next Scheduled EDR Contact: 11/26/2018
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: 07/31/2018
Date Data Arrived at EDR: 08/28/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 17

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 08/28/2018
Next Scheduled EDR Contact: 12/10/2018
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: 07/31/2018
Date Data Arrived at EDR: 08/28/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 17

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 08/28/2018
Next Scheduled EDR Contact: 12/10/2018
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: 06/18/2018
Date Data Arrived at EDR: 06/27/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 79

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 09/25/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

SHWS: Registry of Hazardous Waste or Hazardous Substance Disposal Sites

State Hazardous Waste Sites. State hazardous waste site records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. Available information varies by state.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 01/24/2018
Date Made Active in Reports: 02/23/2018
Number of Days to Update: 30

Source: Department of Natural Resources
Telephone: 515-281-8801
Last EDR Contact: 07/16/2018
Next Scheduled EDR Contact: 10/29/2018
Data Release Frequency: Annually

State and tribal landfill and/or solid waste disposal site lists

SWF/LF: Permitted Solid Waste Management Facilities

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: 09/04/2018
Date Data Arrived at EDR: 09/05/2018
Date Made Active in Reports: 10/02/2018
Number of Days to Update: 27

Source: Department of Natural Resources
Telephone: 515-281-8801
Last EDR Contact: 09/05/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

LAST: Leaking Aboveground Storage Tank Sites

A listing of leaking aboveground storage tank sites.

Date of Government Version: 07/16/2018
Date Data Arrived at EDR: 07/18/2018
Date Made Active in Reports: 08/24/2018
Number of Days to Update: 37

Source: Department of Natural Resources
Telephone: 515-281-6001
Last EDR Contact: 07/18/2018
Next Scheduled EDR Contact: 10/29/2018
Data Release Frequency: Quarterly

LUST: Leaking Underground Storage Tank Data

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: 08/30/2018
Date Data Arrived at EDR: 09/07/2018
Date Made Active in Reports: 10/02/2018
Number of Days to Update: 25

Source: Department of Natural Resources
Telephone: 515-281-6001
Last EDR Contact: 08/29/2018
Next Scheduled EDR Contact: 12/17/2018
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: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
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: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
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: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
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: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
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: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
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: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
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: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
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: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
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: 07/11/2018
Next Scheduled EDR Contact: 10/22/2018
Data Release Frequency: Varies

UST: Underground Storage Tank Data
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: 08/30/2018
Date Data Arrived at EDR: 09/07/2018
Date Made Active in Reports: 10/02/2018
Number of Days to Update: 25

Source: Department of Natural Resources
Telephone: 515-281-6001
Last EDR Contact: 08/29/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: Quarterly

AST: Aboveground Storage Tank Sites
Bulk fuel facilities, commercial fuel operations, private farm sites, and any other storage facility that meets the Department of Public Safety?s registration criteria. They register any class I, II or III petroleum product (gas, diesel and oil) above 1,100 gallons.

Date of Government Version: 07/31/2018
Date Data Arrived at EDR: 08/02/2018
Date Made Active in Reports: 08/24/2018
Number of Days to Update: 22

Source: Department of Public Safety
Telephone: 515-281-5821
Last EDR Contact: 09/28/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Varies

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: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
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: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
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: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
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: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
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: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
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: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
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: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
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: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies

State and tribal institutional control / engineering control registries

INST CONTROL: Sites with Institutional Controls
Sites currently enrolled in the Land Recycling Program that have Institutional Controls.

Date of Government Version: 07/16/2018
Date Data Arrived at EDR: 07/18/2018
Date Made Active in Reports: 08/24/2018
Number of Days to Update: 37

Source: Department of Natural Resources
Telephone: 515-242-5818
Last EDR Contact: 07/18/2018
Next Scheduled EDR Contact: 10/29/2018
Data Release Frequency: Varies

State and tribal voluntary cleanup sites

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

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: 09/24/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Varies

VCP: Land Recycling Program Sites
Sites currently enrolled in the Land Recycling Program.

Date of Government Version: 07/16/2018
Date Data Arrived at EDR: 07/18/2018
Date Made Active in Reports: 08/23/2018
Number of Days to Update: 36

Source: Department of Natural Resources
Telephone: 515-242-5818
Last EDR Contact: 07/18/2018
Next Scheduled EDR Contact: 10/29/2018
Data Release Frequency: Varies

State and tribal Brownfields sites

BROWNFIELDS: Brownfields Site Listing
Brownfields are abandoned, idled, or under-used industrial and commercial facilities where expansion or redevelopment is complicated by real or perceived environmental contamination.

Date of Government Version: 07/16/2018
Date Data Arrived at EDR: 07/18/2018
Date Made Active in Reports: 08/23/2018
Number of Days to Update: 36

Source: Department of Natural Resources
Telephone: 515-281-8489
Last EDR Contact: 07/18/2018
Next Scheduled EDR Contact: 10/29/2018
Data Release Frequency: Quarterly

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: 06/18/2018
Date Data Arrived at EDR: 06/20/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 09/18/2018
Next Scheduled EDR Contact: 12/31/2018
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

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: 07/30/2018
Next Scheduled EDR Contact: 11/12/2018
Data Release Frequency: Varies

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

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: 07/17/2018
Next Scheduled EDR Contact: 11/05/2018
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: 08/03/2018
Next Scheduled EDR Contact: 11/12/2018
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

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: 05/18/2018
Date Data Arrived at EDR: 06/20/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 86

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 08/28/2018
Next Scheduled EDR Contact: 12/10/2018
Data Release Frequency: No Update Planned

ALLSITES: Contaminated Sites Tracking Database
All the sites included in the Contaminated Sites Tracking Database. The database includes several regulatory complinace programs and actions.

Date of Government Version: 07/16/2018
Date Data Arrived at EDR: 07/18/2018
Date Made Active in Reports: 08/23/2018
Number of Days to Update: 36

Source: Department of Natural Resources
Telephone: 515-281-4171
Last EDR Contact: 07/18/2018
Next Scheduled EDR Contact: 10/29/2018
Data Release Frequency: Quarterly

DEL SHWS: Delisted Contaminated Sites Listing
A listing of sites delisted from the Contaminated Sites Listing.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 01/24/2018
Date Made Active in Reports: 02/23/2018
Number of Days to Update: 30

Source: Department of Natural Resources
Telephone: 515-281-8801
Last EDR Contact: 07/16/2018
Next Scheduled EDR Contact: 10/29/2018
Data Release Frequency: Annually

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: 05/18/2018
Date Data Arrived at EDR: 06/20/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 86

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 08/28/2018
Next Scheduled EDR Contact: 12/10/2018
Data Release Frequency: Quarterly

Local Land Records

LIENS: Liens Filed Listing
A listing of liens filed with the Iowa Comprehensive Petroleum Underground Storage Tank Fund.

Date of Government Version: 07/05/2018
Date Data Arrived at EDR: 07/24/2018
Date Made Active in Reports: 08/24/2018
Number of Days to Update: 31

Source: Department of Natural Resources
Telephone: 515-281-5523
Last EDR Contact: 07/17/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies

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: 05/13/2018
Date Data Arrived at EDR: 05/30/2018
Date Made Active in Reports: 06/29/2018
Number of Days to Update: 30

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 08/09/2018
Next Scheduled EDR Contact: 11/05/2018
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: 03/26/2018
Date Data Arrived at EDR: 03/27/2018
Date Made Active in Reports: 06/08/2018
Number of Days to Update: 73

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 09/25/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Quarterly

SPILLS: Spills Database
Spill reporting data that is collected during the initial report of an incident.

Date of Government Version: 09/04/2018
Date Data Arrived at EDR: 09/06/2018
Date Made Active in Reports: 10/02/2018
Number of Days to Update: 26

Source: Department of Natural Resources
Telephone: 515-281-4367
Last EDR Contact: 09/06/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: 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: 10/17/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 03/05/2013
Number of Days to Update: 61

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: 913-551-7003
Last EDR Contact: 09/19/2018
Next Scheduled EDR Contact: 01/07/2019
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: 08/24/2018
Next Scheduled EDR Contact: 12/03/2018
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: 07/11/2018
Next Scheduled EDR Contact: 10/22/2018
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: 07/13/2018
Next Scheduled EDR Contact: 10/22/2018
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: 08/17/2018
Next Scheduled EDR Contact: 11/26/2018
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: 03/01/2018
Date Data Arrived at EDR: 03/27/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 87

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 09/25/2018
Next Scheduled EDR Contact: 01/07/2019
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: 08/03/2018
Next Scheduled EDR Contact: 11/19/2018
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: 08/10/2018
Next Scheduled EDR Contact: 11/19/2018
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: 09/21/2018
Next Scheduled EDR Contact: 12/31/2018
Data Release Frequency: Every 4 Years

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: 08/24/2018
Next Scheduled EDR Contact: 12/03/2018
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: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
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: 05/13/2018
Date Data Arrived at EDR: 05/30/2018
Date Made Active in Reports: 06/29/2018
Number of Days to Update: 30

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 09/07/2018
Next Scheduled EDR Contact: 12/17/2018
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: 05/01/2018
Date Data Arrived at EDR: 05/17/2018
Date Made Active in Reports: 09/07/2018
Number of Days to Update: 113

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 07/20/2018
Next Scheduled EDR Contact: 11/05/2018
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

PRP: Potentially Responsible Parties
A listing of verified Potentially Responsible Parties

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 10/17/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 3

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 08/09/2018
Next Scheduled EDR Contact: 11/19/2018
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: 06/01/2017
Date Data Arrived at EDR: 06/09/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 126

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 07/13/2018
Next Scheduled EDR Contact: 10/22/2018
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: 07/09/2018
Next Scheduled EDR Contact: 10/22/2018
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: 09/28/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Quarterly

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: 09/07/2018
Next Scheduled EDR Contact: 12/17/2018
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: 09/04/2018
Next Scheduled EDR Contact: 12/17/2018
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: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
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: 04/03/2018
Date Data Arrived at EDR: 04/05/2018
Date Made Active in Reports: 06/29/2018
Number of Days to Update: 85

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 07/05/2018
Next Scheduled EDR Contact: 10/15/2018
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: 07/31/2012
Date Data Arrived at EDR: 08/07/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 42

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 08/09/2018
Next Scheduled EDR Contact: 11/12/2018
Data Release Frequency: Varies

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: 03/31/2018
Date Data Arrived at EDR: 04/16/2018
Date Made Active in Reports: 06/29/2018
Number of Days to Update: 74

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 10/01/2018
Next Scheduled EDR Contact: 12/31/2018
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: 08/24/2018
Next Scheduled EDR Contact: 12/03/2018
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: 07/11/2018
Next Scheduled EDR Contact: 10/22/2018
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: 09/11/2018
Next Scheduled EDR Contact: 11/19/2018
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: 08/20/2018
Next Scheduled EDR Contact: 12/03/2018
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites
A listing of former lead smelter site locations.

Date of Government Version: 05/13/2018
Date Data Arrived at EDR: 05/30/2018
Date Made Active in Reports: 06/29/2018
Number of Days to Update: 30

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 08/09/2018
Next Scheduled EDR Contact: 10/15/2018
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: 05/03/2018
Date Data Arrived at EDR: 05/31/2018
Date Made Active in Reports: 06/29/2018
Number of Days to Update: 29

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 08/29/2018
Next Scheduled EDR Contact: 12/10/2018
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: 08/31/2018
Next Scheduled EDR Contact: 12/10/2018
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: 08/31/2018
Next Scheduled EDR Contact: 12/10/2018
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: 09/10/2018
Next Scheduled EDR Contact: 12/24/2018
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: 02/21/2018
Date Data Arrived at EDR: 02/23/2018
Date Made Active in Reports: 03/23/2018
Number of Days to Update: 28

Source: EPA
Telephone: (913) 551-7003
Last EDR Contact: 09/18/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: Quarterly

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 09/02/2018
Date Data Arrived at EDR: 09/05/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 9

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 09/05/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: Quarterly

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 06/19/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 87

Source: Department of Defense
Telephone: 703-704-1564
Last EDR Contact: 07/13/2018
Next Scheduled EDR Contact: 10/29/2018
Data Release Frequency: Varies

DOCKET HWC: Hazardous Waste Compliance Docket Listing
A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 01/04/2018
Date Data Arrived at EDR: 01/19/2018
Date Made Active in Reports: 04/13/2018
Number of Days to Update: 84

Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 08/31/2018
Next Scheduled EDR Contact: 12/10/2018
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: 05/21/2018
Date Data Arrived at EDR: 05/23/2018
Date Made Active in Reports: 09/07/2018
Number of Days to Update: 107

Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 08/22/2018
Next Scheduled EDR Contact: 12/03/2018
Data Release Frequency: Quarterly

AIRS: Minor and Title V Sources Listing
A listing of Minor and Title V sources.

Date of Government Version: 06/26/2018
Date Data Arrived at EDR: 07/31/2018
Date Made Active in Reports: 08/24/2018
Number of Days to Update: 24

Source: Department of Natural Resources
Telephone: 515-281-8468
Last EDR Contact: 09/24/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Varies

COAL ASH: Coal Ash Disposal Site Listing
A listing of coal combustion residue landfill locations.

Date of Government Version: 09/04/2018
Date Data Arrived at EDR: 09/05/2018
Date Made Active in Reports: 10/02/2018
Number of Days to Update: 27

Source: Department of Natural Resources
Telephone: 515-281-8308
Last EDR Contact: 09/05/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: Quarterly

DRYCLEANERS: Iowa Drycleaner List
A listing of drycleaners in Iowa.

Date of Government Version: 07/06/2018
Date Data Arrived at EDR: 07/27/2018
Date Made Active in Reports: 08/24/2018
Number of Days to Update: 28

Source: Department of Natural Resources
Telephone: 515-242-5100
Last EDR Contact: 07/24/2018
Next Scheduled EDR Contact: 10/29/2018
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing
A listing of financial assurance information for underground storage tank 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: 08/30/2018
Date Data Arrived at EDR: 09/07/2018
Date Made Active in Reports: 10/02/2018
Number of Days to Update: 25

Source: Department of Natural Resources
Telephone: 515-242-5086
Last EDR Contact: 08/29/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: Quarterly

Financial Assurance 2: Financial Assurance Information Listing
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: 08/29/2018
Date Data Arrived at EDR: 08/30/2018
Date Made Active in Reports: 10/02/2018
Number of Days to Update: 33

Source: Department of Natural Resources
Telephone: 515-242-5818
Last EDR Contact: 08/29/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: Varies

NPDES: List of NPDES Permittees

The files listed below contain information on facilities that hold NPDES permits, or those that are authorized to discharge wastewater to surface waters in Iowa.

Date of Government Version: 08/08/2018
Date Data Arrived at EDR: 08/10/2018
Date Made Active in Reports: 08/24/2018
Number of Days to Update: 14

Source: Department of Natural Resources
Telephone: 515-281-4736
Last EDR Contact: 08/09/2018
Next Scheduled EDR Contact: 11/26/2018
Data Release Frequency: Varies

TIER 2: Tier 2 Information Listing

A listing of facilities which store or manufacture hazardous materials and submit a chemical inventory report.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 09/18/2018
Date Made Active in Reports: 10/02/2018
Number of Days to Update: 14

Source: Department of Natural Resources
Telephone: 515-725-0302
Last EDR Contact: 09/17/2018
Next Scheduled EDR Contact: 12/31/2018
Data Release Frequency: Annually

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 Natural Resources in Iowa.

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 Natural Resources
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 Natural Resources in Iowa.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/26/2013
Number of Days to Update: 178

Source: Department of Natural Resources
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.

CT MANIFEST: Hazardous Waste Manifest Data

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: 08/10/2018
Date Data Arrived at EDR: 08/10/2018
Date Made Active in Reports: 09/10/2018
Number of Days to Update: 31

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 08/09/2018
Next Scheduled EDR Contact: 11/26/2018
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 07/13/2018
Date Made Active in Reports: 08/01/2018
Number of Days to Update: 19

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 07/13/2018
Next Scheduled EDR Contact: 10/22/2018
Data Release Frequency: Annually

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: 07/01/2018
Date Data Arrived at EDR: 08/01/2018
Date Made Active in Reports: 08/31/2018
Number of Days to Update: 30

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 08/01/2018
Next Scheduled EDR Contact: 11/12/2018
Data Release Frequency: Quarterly

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 02/23/2018
Date Made Active in Reports: 04/09/2018
Number of Days to Update: 45

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 08/21/2018
Next Scheduled EDR Contact: 12/03/2018
Data Release Frequency: Annually

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: 09/06/2018
Next Scheduled EDR Contact: 12/24/2018
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
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.

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 Facilities
Source: Department of Human Services
Telephone: 515-281-4357

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: National Wetland Inventory of Iowa
Source: Department of Natural Resources
Telephone: 319-335-1575

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

CAMP DODGE
7105 NORTHWEST 70TH AVENUE
JOHNSTON, IA 50131

TARGET PROPERTY COORDINATES

Latitude (North):	41.724209 - 41˚ 43’ 27.15’’
Longitude (West):	93.7411 - 93˚ 44’ 27.96’’
Universal Tranverse Mercator:	Zone 15
UTM X (Meters):	438357.7
UTM Y (Meters):	4619208.5
Elevation:	861 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	5942453 DES MOINES NW, IA
Version Date:	2013
Southwest Map:	5942459 GRIMES, IA
Version Date:	2013

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).

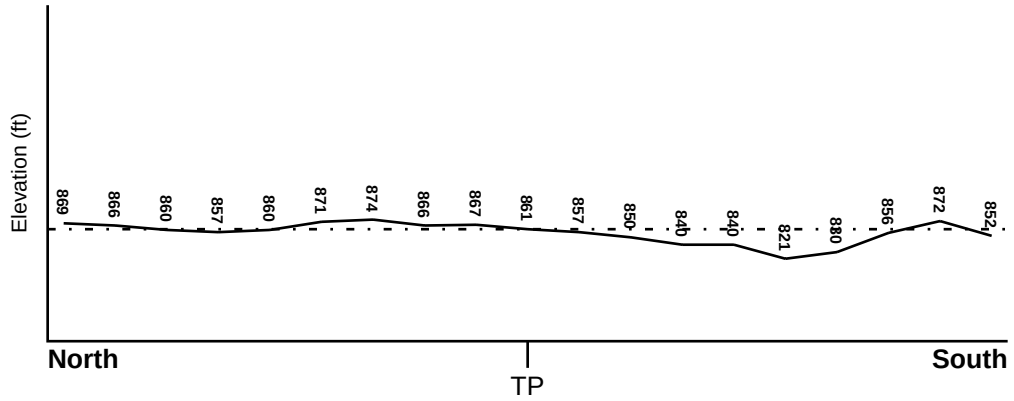
TOPOGRAPHIC INFORMATION

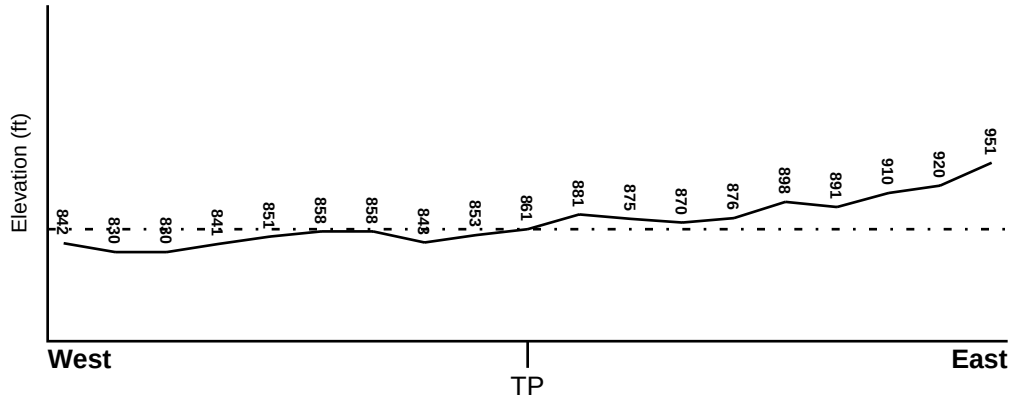
Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General SW

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES





Target Property Elevation: 861 ft.

0 1/2 1 Miles

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
1907450001C	FEMA Q3 Flood data

Additional Panels in search area:	FEMA Source Type
1909010085C	FEMA Q3 Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
DES MOINES NW	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

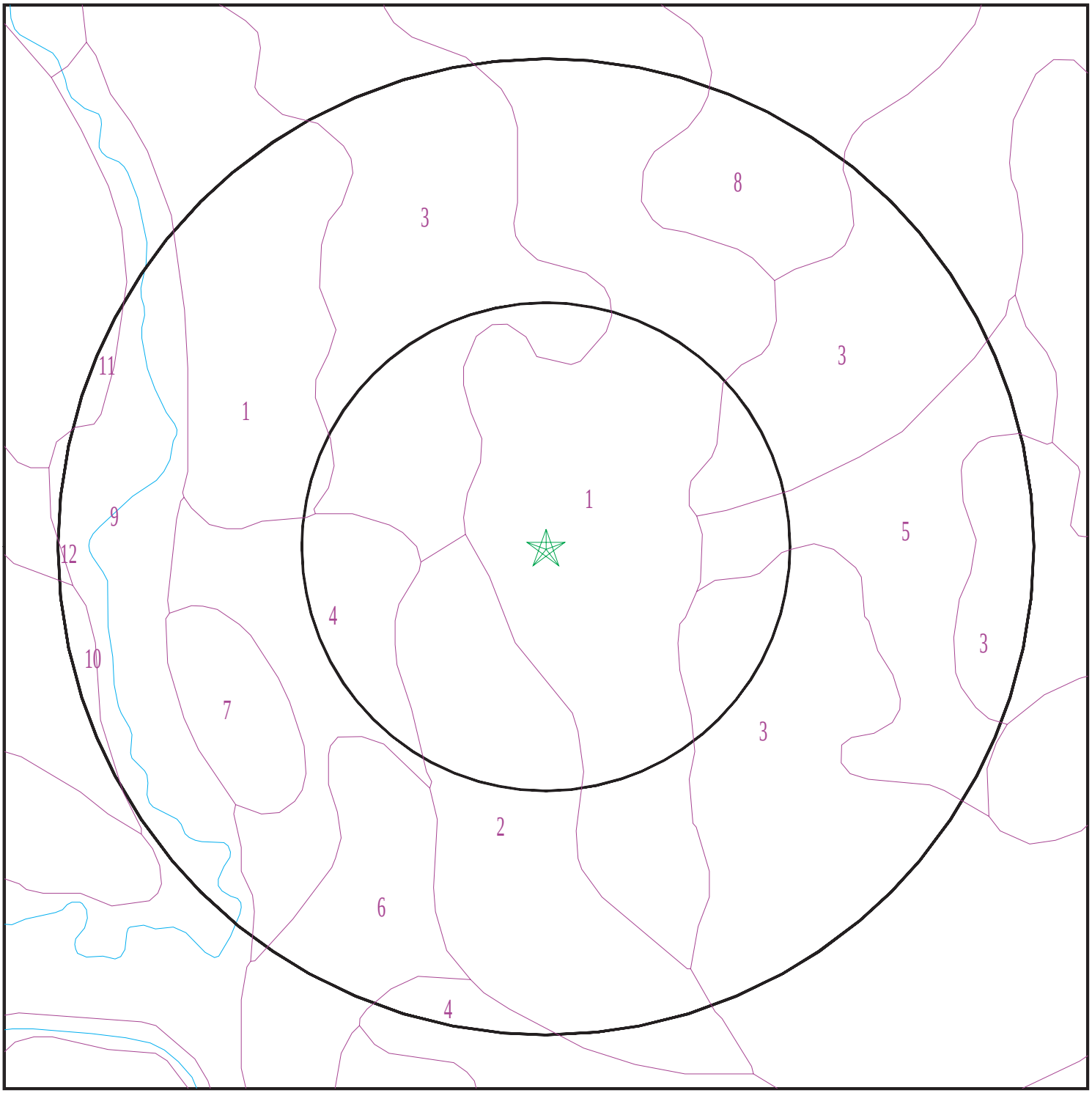
Era:	Paleozoic
System:	Pennsylvanian
Series:	Des Moinesian Series
Code:	PP2 *(decoded above as Era, System & Series)*

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 - 5441936.2s



Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

SITE NAME: Camp Dodge ADDRESS: 7105 Northwest 70th Avenue Johnston IA 50131 LAT/LONG: 41.724209 / 93.7411	CLIENT: AECOM CONTACT: Brittany Bailey INQUIRY #: 5441936.2s DATE: October 03, 2018 8:26 am

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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: Zenor

Soil Surface Texture: sandy 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: Somewhat excessively drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

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	7 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Clean Sands, Poorly graded sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 705 Min: 141	Max: 8.4 Min: 7.9
2	7 inches	24 inches	loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Clean Sands, Poorly graded sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 705 Min: 141	Max: 8.4 Min: 7.9

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
3	24 inches	59 inches	gravelly sand	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Clean Sands, Poorly graded sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 705 Min: 141	Max: 8.4 Min: 7.9

Soil Map ID: 2

Soil Component Name: Terril

Soil Surface Texture: 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: Moderately well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 122 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	24 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 7.8 Min: 6.1

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	24 inches	51 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 7.8 Min: 6.1
3	51 inches	59 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 7.8 Min: 6.1

Soil Map ID: 3

Soil Component Name: Clarion

Soil Surface Texture: 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: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

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	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 8.4 Min: 7.4

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	40 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 8.4 Min: 7.4
3	40 inches	59 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 8.4 Min: 7.4

Soil Map ID: 4

Soil Component Name: Biscay

Soil Surface Texture: loam

Hydrologic Group: Class B/D - Drained/undrained hydrology class of soils that can be drained and are classified.

Soil Drainage Class: Poorly drained

Hydric Status: All 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	20 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Clean Sands, Poorly graded sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 8.4 Min: 7.4

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	20 inches	35 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Clean Sands, Poorly graded sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 8.4 Min: 7.4
3	35 inches	59 inches	stratified very gravelly coarse sand to loamy sand	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Clean Sands, Poorly graded sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 8.4 Min: 7.4

Soil Map ID: 5

Soil Component Name: Nicollet

Soil Surface Texture: 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: Somewhat poorly drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 30 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	18 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 8.4 Min: 7.4
2	18 inches	40 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 8.4 Min: 7.4
3	40 inches	59 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 8.4 Min: 7.4

Soil Map ID: 6

Soil Component Name: Dickinson

Soil Surface Texture: fine sandy 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: Somewhat excessively drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

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	16 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.3 Min: 5.6
2	16 inches	40 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.3 Min: 5.6
3	40 inches	59 inches	loamy fine sand	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.3 Min: 5.6

Soil Map ID: 7

Soil Component Name: Cylinder

Soil Surface Texture: 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: Somewhat poorly drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 30 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	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 705 Min: 141	Max: 8.4 Min: 6.6
2	14 inches	33 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 705 Min: 141	Max: 8.4 Min: 6.6
3	33 inches	59 inches	gravelly coarse sand	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 705 Min: 141	Max: 8.4 Min: 6.6

Soil Map ID: 8

Soil Component Name: Clarion

Soil Surface Texture: 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: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

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	7 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 8.4 Min: 7.4
2	7 inches	31 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 8.4 Min: 7.4
3	31 inches	59 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 8.4 Min: 7.4

Soil Map ID: 9

Soil Component Name: Spillville

Soil Surface Texture: 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: Moderately well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

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	44 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 42 Min: 4	Max: 7.3 Min: 5.6
2	44 inches	59 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 42 Min: 4	Max: 7.3 Min: 5.6

Soil Map ID: 10

Soil Component Name: Farrar

Soil Surface Texture: fine sandy 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: Well 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	fine sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 8.4 Min: 6.1

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	22 inches	fine sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 8.4 Min: 6.1
3	22 inches	59 inches	loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 8.4 Min: 6.1

Soil Map ID: 11

Soil Component Name: Clarion

Soil Surface Texture: 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: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

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	7 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 8.4 Min: 7.4

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	7 inches	35 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 8.4 Min: 7.4
3	35 inches	59 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 8.4 Min: 7.4

Soil Map ID: 12

Soil Component Name: Webster

Soil Surface Texture: silty clay loam

Hydrologic Group: Class B/D - Drained/undrained hydrology class of soils that can be drained and are classified.

Soil Drainage Class: Poorly drained

Hydric Status: All hydric

Corrosion Potential - Uncoated Steel: High

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	16 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 8.4 Min: 7.4

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	16 inches	40 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 8.4 Min: 7.4
3	40 inches	59 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 8.4 Min: 7.4

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
No Wells Found		

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

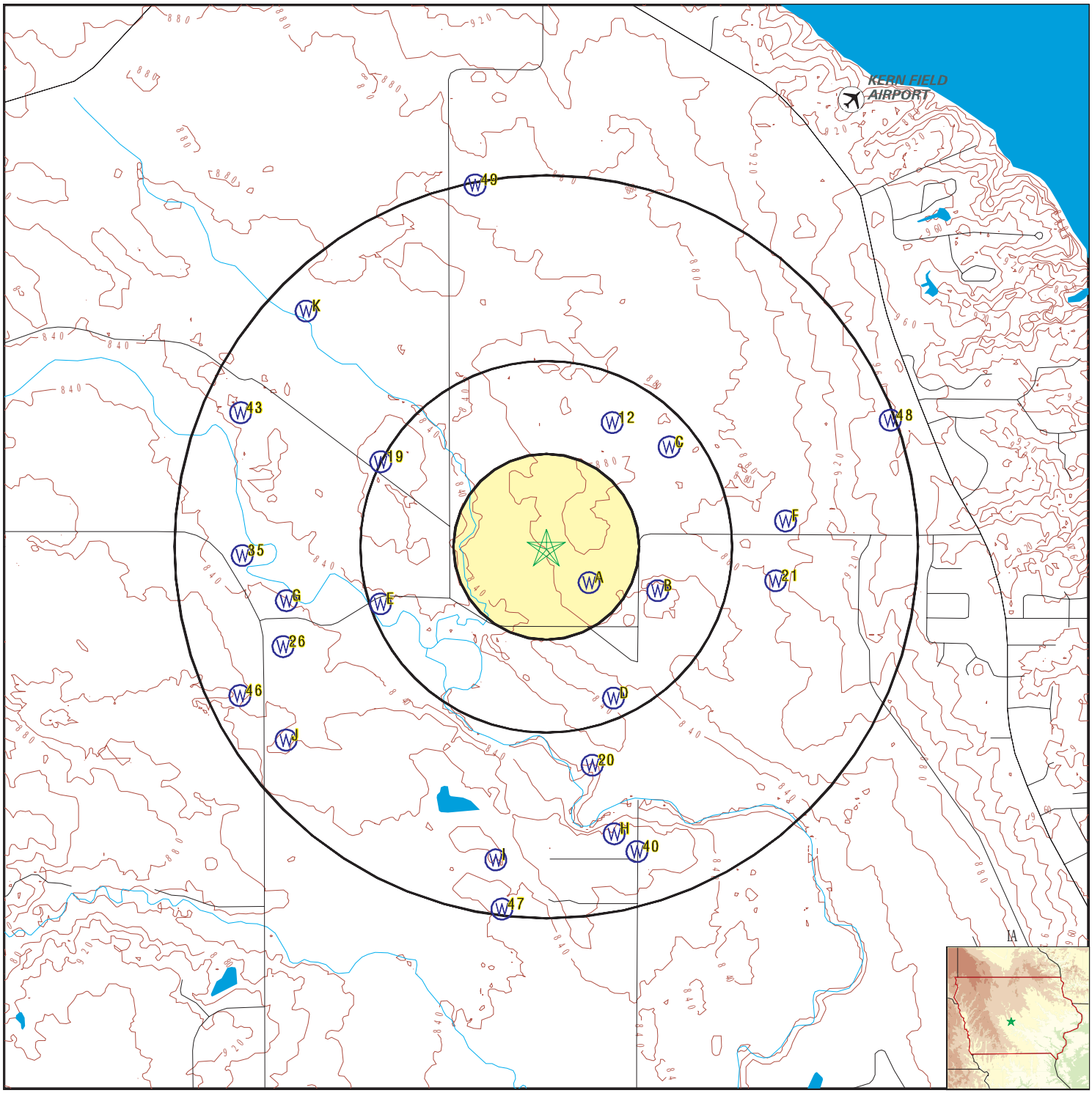
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A1	IAPU40000316038	1/8 - 1/4 Mile SE
A2	IAPU40000316039	1/8 - 1/4 Mile SE
A3	IAPU40000316040	1/8 - 1/4 Mile SE
A4	IAPU40000316042	1/8 - 1/4 Mile SE
A5	IAPU40000316043	1/8 - 1/4 Mile SE
A6	IAPU40000316044	1/8 - 1/4 Mile SE
A7	IAPU40000316045	1/8 - 1/4 Mile SE
A8	IAPU40000316046	1/8 - 1/4 Mile SE
A9	IAPU40000316047	1/8 - 1/4 Mile SE
B10	IAPU40000026465	1/4 - 1/2 Mile ESE
B11	IAPU40000346461	1/4 - 1/2 Mile ESE
12	IAPU40000316002	1/4 - 1/2 Mile NNE
C13	IAPW40000041882	1/4 - 1/2 Mile NE
C14	IAPU40000123448	1/4 - 1/2 Mile NE
D15	IAPU40000123631	1/4 - 1/2 Mile SSE
D16	IAPW40000009756	1/4 - 1/2 Mile SSE
E17	IAPU40000315951	1/4 - 1/2 Mile WSW
E18	IAPU40000315952	1/4 - 1/2 Mile WSW
19	IAPU40000315867	1/2 - 1 Mile WNW
20	IAPU40000199018	1/2 - 1 Mile SSE
21	IAPU40000316094	1/2 - 1 Mile East
F22	IAPW40000055299	1/2 - 1 Mile East
F23	IAPU40000123651	1/2 - 1 Mile East
G24	IAPU40000315873	1/2 - 1 Mile WSW
G25	IAPU40000315874	1/2 - 1 Mile WSW
26	IAPU40000315921	1/2 - 1 Mile WSW
H27	IAPU40000123785	1/2 - 1 Mile SSE
H28	IAPU40000123808	1/2 - 1 Mile SSE
H29	IAPU40000123807	1/2 - 1 Mile SSE
H30	IAPW40000073698	1/2 - 1 Mile SSE
H31	IAPW40000099838	1/2 - 1 Mile SSE
H32	IAPU40000026611	1/2 - 1 Mile SSE
H33	IAPU40000026615	1/2 - 1 Mile SSE
H34	IAPU40000026616	1/2 - 1 Mile SSE
35	IAPU40000123027	1/2 - 1 Mile West
H36	IAPU40000123836	1/2 - 1 Mile SSE
H37	IAPW40000037097	1/2 - 1 Mile SSE
I38	IAPR40000055105	1/2 - 1 Mile South
I39	IAPU40000246438	1/2 - 1 Mile South
40	IAPU40000026633	1/2 - 1 Mile SSE
J41	IAPU40000315967	1/2 - 1 Mile SW
J42	IAPU40000315964	1/2 - 1 Mile SW
43	IAPU40000315777	1/2 - 1 Mile WNW
K44	IAPU40000122923	1/2 - 1 Mile NW
K45	IAPW40000024372	1/2 - 1 Mile NW
46	IAPU40000315920	1/2 - 1 Mile WSW
47	IAUS30000003852	1/2 - 1 Mile South
48	IAPU40000026529	1/2 - 1 Mile ENE
49	IAPU40000315801	1/2 - 1 Mile North

PHYSICAL SETTING SOURCE MAP - 5441936.2s



County Boundary
Major Roads
Contour Lines
Airports
Earthquake epicenter, Richter 5 or greater
Water Wells
Public Water Supply Wells
Cluster of Multiple Icons

0 1/4 1/2 1 Miles

Groundwater Flow Direction
Indeterminate Groundwater Flow at Location
Groundwater Flow Varies at Location
Oil, gas or related wells

N

SITE NAME: Camp Dodge ADDRESS: 7105 Northwest 70th Avenue Johnston IA 50131 LAT/LONG: 41.724209 / 93.7411	CLIENT: AECOM CONTACT: Brittany Bailey INQUIRY #: 5441936.2s DATE: October 03, 2018 8:26 am

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Map ID Direction Distance Elevation	Database	EDR ID Number
A1 **SE** **1/8 - 1/4 Mile** **Higher**	**IA WELLS**	**IAPU40000316038**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	13369	Well Type:	Registered abandoned wells
Well Depth:	42	Construction/Permit Date:	n.a.
Notes:	Well plugged: 10/25/1993; Well type: < 18" dia.		

A2 **SE** **1/8 - 1/4 Mile** **Higher**	**IA WELLS**	**IAPU40000316039**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	13373	Well Type:	Registered abandoned wells
Well Depth:	40	Construction/Permit Date:	n.a.
Notes:	Well plugged: 10/25/1993; Well type: < 18" dia.		

A3 **SE** **1/8 - 1/4 Mile** **Higher**	**IA WELLS**	**IAPU40000316040**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	13370	Well Type:	Registered abandoned wells
Well Depth:	41	Construction/Permit Date:	n.a.
Notes:	Well plugged: 10/25/1993; Well type: < 18" dia.		

A4 **SE** **1/8 - 1/4 Mile** **Higher**	**IA WELLS**	**IAPU40000316042**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	13372	Well Type:	Registered abandoned wells
Well Depth:	60	Construction/Permit Date:	n.a.
Notes:	Well plugged: 10/25/1993; Well type: Sandpoint		

A5 **SE** **1/8 - 1/4 Mile** **Higher**	**IA WELLS**	**IAPU40000316043**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	13367	Well Type:	Registered abandoned wells
Well Depth:	40	Construction/Permit Date:	n.a.
Notes:	Well plugged: 10/25/1993; Well type: > 18" dia.		

Map ID Direction Distance Elevation	Database	EDR ID Number
A6 **SE** **1/8 - 1/4 Mile** **Higher**	**IA WELLS**	**IAPU40000316044**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	13371	Well Type:	Registered abandoned wells
Well Depth:	40	Construction/Permit Date:	n.a.
Notes:	Well plugged: 10/25/1993; Well type: < 18" dia.		

A7 **SE** **1/8 - 1/4 Mile** **Higher**	**IA WELLS**	**IAPU40000316045**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	13376	Well Type:	Registered abandoned wells
Well Depth:	37	Construction/Permit Date:	n.a.
Notes:	Well plugged: 10/25/1993; Well type: < 18" dia.		

A8 **SE** **1/8 - 1/4 Mile** **Higher**	**IA WELLS**	**IAPU40000316046**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	13374	Well Type:	Registered abandoned wells
Well Depth:	41	Construction/Permit Date:	n.a.
Notes:	Well plugged: 10/25/1993; Well type: < 18" dia.		

A9 **SE** **1/8 - 1/4 Mile** **Higher**	**IA WELLS**	**IAPU40000316047**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	13368	Well Type:	Registered abandoned wells
Well Depth:	40	Construction/Permit Date:	n.a.
Notes:	Well plugged: 10/25/1993; Well type: < 18" dia.		

B10 **ESE** **1/4 - 1/2 Mile** **Higher**	**IA WELLS**	**IAPU40000026465**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	74112	Well Type:	IGS well database
Well Depth:	84	Construction/Permit Date:	12/20/2010
Notes:	Bedrock depth: 80; Well type: Public Supply		

Map ID Direction Distance Elevation	Database	EDR ID Number
B11 **ESE** **1/4 - 1/2 Mile** **Higher**	**IA WELLS**	**IAPU40000346461**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	2588724	Well Type:	Public Water Supply well
Well Depth:	unkn	Construction/Permit Date:	11/30/2010
Notes:	PWSID: 7700901; Permit Status: Acitve		

---

12 **NNE** **1/4 - 1/2 Mile** **Higher**	**IA WELLS**	**IAPU40000316002**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	20818	Well Type:	Registered abandoned wells
Well Depth:	58	Construction/Permit Date:	n.a.
Notes:	Well plugged: 9/27/1995; Well type: > 18" dia.		

C13 **NE** **1/4 - 1/2 Mile** **Higher**	**IA WELLS**	**IAPW40000041882**

Database:	Private Well Tracking System Wells		
PWTS Well #:	2115581	Permit #:	21613
Tier #:	80	Range #:	25
Elevation:	0	Elevation Accuracy:	Not Reported
Total Well Depth:	0	Bedrock Depth:	0
Depth to Water:	0	Well Finished:	Not Reported
Driller:	Not Reported	Construction Method:	Not Reported
Remarks:	Not Reported	Well Use:	Heat pump
Well Status:	Retired	Heat Pump Wells:	5
Permitted Private Well:	X	Abandoned Well:	Not Reported
Renovated Well:	Not Reported	Registered for Tests:	Not Reported

---

C14 **NE** **1/4 - 1/2 Mile** **Higher**	**IA WELLS**	**IAPU40000123448**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	2115581	Well Type:	Private well tracking system
Well Depth:	unkn	Construction/Permit Date:	unkn
Notes:	Status: Retired		

Map ID Direction Distance Elevation	Database	EDR ID Number
D15 **SSE** **1/4 - 1/2 Mile** **Lower**	**IA WELLS**	**IAPU40000123631**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	2086193	Well Type:	Private well tracking system
Well Depth:	104	Construction/Permit Date:	1/1/1989
Notes:	Status: Active		

D16 **SSE** **1/4 - 1/2 Mile** **Lower**	**IA WELLS**	**IAPW40000009756**

Database:	Private Well Tracking System Wells		
PWTS Well #:	2086193	Permit #:	Not Reported
Tier #:	80	Range #:	25
Elevation:	0	Elevation Accuracy:	Not Reported
Total Well Depth:	104	Bedrock Depth:	0
Depth to Water:	0	Well Finished:	01-JAN-89
Driller:	* Unknown	Construction Method:	Unknown
Remarks:	Not Reported	Well Use:	Household
Well Status:	Active	Heat Pump Wells:	0
Permitted Private Well:	Not Reported	Abandoned Well:	Not Reported
Renovated Well:	Not Reported	Registered for Tests:	X

E17 **WSW** **1/4 - 1/2 Mile** **Lower**	**IA WELLS**	**IAPU40000315951**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	20808	Well Type:	Registered abandoned wells
Well Depth:	33	Construction/Permit Date:	n.a.
Notes:	Well plugged: 9/27/1995; Well type: > 18" dia.		

E18 **WSW** **1/4 - 1/2 Mile** **Lower**	**IA WELLS**	**IAPU40000315952**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	20810	Well Type:	Registered abandoned wells
Well Depth:	38	Construction/Permit Date:	n.a.
Notes:	Well plugged: 9/27/1995; Well type: < 18" dia.		

Map ID Direction Distance Elevation	Database	EDR ID Number
19 **WNW** **1/2 - 1 Mile** **Higher**	**IA WELLS**	**IAPU40000315867**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	26609	Well Type:	Registered abandoned wells
Well Depth:	22	Construction/Permit Date:	n.a.
Notes:	Well plugged: 10/17/1996; Well type: > 18" dia.		

---

20 **SSE** **1/2 - 1 Mile** **Lower**	**IA WELLS**	**IAPU40000199018**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	14576	Well Type:	Permitted private wells
Well Depth:	unkn	Construction/Permit Date:	unkn
Notes:	Primary use: Domestic/household		

---

21 **East** **1/2 - 1 Mile** **Higher**	**IA WELLS**	**IAPU40000316094**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	13375	Well Type:	Registered abandoned wells
Well Depth:	37	Construction/Permit Date:	n.a.
Notes:	Well plugged: 10/25/1993; Well type: > 18" dia.		

F22 **East** **1/2 - 1 Mile** **Higher**	**IA WELLS**	**IAPW40000055299**

Database:	Private Well Tracking System Wells		
PWTS Well #:	2137240	Permit #:	28894
Tier #:	80	Range #:	25
Elevation:	0	Elevation Accuracy:	Not Reported
Total Well Depth:	180	Bedrock Depth:	0
Depth to Water:	0	Well Finished:	04-SEP-08
Driller:	A-One Geothermal	Construction Method:	Not Reported
Remarks:	Not Reported	Well Use:	Heat pump
Well Status:	Active Log	Heat Pump Wells:	5
Permitted Private Well:	X	Abandoned Well:	Not Reported
Renovated Well:	Not Reported	Registered for Tests:	Not Reported

Map ID Direction Distance Elevation	Database	EDR ID Number
F23 **East** **1/2 - 1 Mile** **Higher**	**IA WELLS**	**IAPU40000123651**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	2137240	Well Type:	Private well tracking system
Well Depth:	180	Construction/Permit Date:	9/4/2008
Notes:	Status: Active Logged		

G24 **WSW** **1/2 - 1 Mile** **Lower**	**IA WELLS**	**IAPU40000315873**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	20811	Well Type:	Registered abandoned wells
Well Depth:	28	Construction/Permit Date:	n.a.
Notes:	Well plugged: 9/27/1995; Well type: > 18" dia.		

G25 **WSW** **1/2 - 1 Mile** **Lower**	**IA WELLS**	**IAPU40000315874**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	20812	Well Type:	Registered abandoned wells
Well Depth:	31	Construction/Permit Date:	n.a.
Notes:	Well plugged: 9/27/1995; Well type: > 18" dia.		

26 **WSW** **1/2 - 1 Mile** **Lower**	**IA WELLS**	**IAPU40000315921**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	20809	Well Type:	Registered abandoned wells
Well Depth:	25	Construction/Permit Date:	n.a.
Notes:	Well plugged: 9/27/1995; Well type: > 18" dia.		

H27 **SSE** **1/2 - 1 Mile** **Lower**	**IA WELLS**	**IAPU40000123785**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	2180244	Well Type:	Private well tracking system
Well Depth:	120	Construction/Permit Date:	3/1/2015
Notes:	Status: Active Logged		

Map ID Direction Distance Elevation	Database	EDR ID Number
H28 **SSE** **1/2 - 1 Mile** **Lower**	**IA WELLS**	**IAPU40000123808**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	2169210	Well Type:	Private well tracking system
Well Depth:	99	Construction/Permit Date:	7/31/2013
Notes:	Status: Active Logged		

H29 **SSE** **1/2 - 1 Mile** **Lower**	**IA WELLS**	**IAPU40000123807**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	2160641	Well Type:	Private well tracking system
Well Depth:	200	Construction/Permit Date:	8/29/2012
Notes:	Status: Active Logged		

H30 **SSE** **1/2 - 1 Mile** **Lower**	**IA WELLS**	**IAPW40000073698**

Database:	Private Well Tracking System Wells		
PWTS Well #:	2160641	Permit #:	36453
Tier #:	80	Range #:	25
Elevation:	0	Elevation Accuracy:	Not Reported
Total Well Depth:	200	Bedrock Depth:	0
Depth to Water:	0	Well Finished:	29-AUG-12
Driller:	Geothermal Systems, Llc	Construction Method:	Not Reported
Remarks:	Not Reported	Well Use:	Heat pump
Well Status:	Active Log	Heat Pump Wells:	7
Permitted Private Well:	X	Abandoned Well:	Not Reported
Renovated Well:	Not Reported	Registered for Tests:	Not Reported

---

H31 **SSE** **1/2 - 1 Mile** **Lower**	**IA WELLS**	**IAPW40000099838**

Database:	Private Well Tracking System Wells		
PWTS Well #:	2169210	Permit #:	39570
Tier #:	80	Range #:	25
Elevation:	0	Elevation Accuracy:	Not Reported
Total Well Depth:	99	Bedrock Depth:	0
Depth to Water:	0	Well Finished:	31-JUL-13
Driller:	Thorpe Water Development Company		
Construction Method:	Rotary Drill	Remarks:	Not Reported
Well Use:	Household	Well Status:	Active Log
Heat Pump Wells:	0	Permitted Private Well:	X
Abandoned Well:	Not Reported	Renovated Well:	Not Reported
Registered for Tests:	Not Reported		

Map ID Direction Distance Elevation	Database	EDR ID Number
H32 **SSE** **1/2 - 1 Mile** **Higher**	**IA WELLS**	**IAPU40000026611**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	75020	Well Type:	IGS well database
Well Depth:	200	Construction/Permit Date:	8/29/2012
Notes:	Bedrock depth: 116; Well type: Heat Pump		

H33 **SSE** **1/2 - 1 Mile** **Higher**	**IA WELLS**	**IAPU40000026615**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	42727	Well Type:	IGS well database
Well Depth:	72	Construction/Permit Date:	7/11/1985
Notes:	Bedrock depth: 0; Well type: Irrigation		

H34 **SSE** **1/2 - 1 Mile** **Higher**	**IA WELLS**	**IAPU40000026616**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	76252	Well Type:	IGS well database
Well Depth:	100	Construction/Permit Date:	7/31/2013
Notes:	Bedrock depth: 0; Well type: Private		

35 **West** **1/2 - 1 Mile** **Lower**	**IA WELLS**	**IAPU40000123027**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	2180256	Well Type:	Private well tracking system
Well Depth:	98	Construction/Permit Date:	2/28/2015
Notes:	Status: Active Logged		

H36 **SSE** **1/2 - 1 Mile** **Higher**	**IA WELLS**	**IAPU40000123836**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	2113407	Well Type:	Private well tracking system
Well Depth:	unkn	Construction/Permit Date:	unkn
Notes:	Status: Retired		

Map ID Direction Distance Elevation	Database	EDR ID Number
H37 **SSE** **1/2 - 1 Mile** **Higher**	**IA WELLS**	**IAPW40000037097**

Database:	Private Well Tracking System Wells		
PWTS Well #:	2113407	Permit #:	20847
Tier #:	80	Range #:	25
Elevation:	0	Elevation Accuracy:	Not Reported
Total Well Depth:	0	Bedrock Depth:	0
Depth to Water:	0	Well Finished:	Not Reported
Driller:	Not Reported	Construction Method:	Not Reported
Remarks:	Not Reported	Well Use:	Household
Well Status:	Retired	Heat Pump Wells:	0
Permitted Private Well:	X	Abandoned Well:	Not Reported
Renovated Well:	Not Reported	Registered for Tests:	Not Reported

---

I38 **South** **1/2 - 1 Mile** **Lower**	**IA WELLS**	**IAPR40000055105**

Database:	Private Wells Tested	Well Depth:	104
Depth Reliability:	K	Private Permit #:	Not Reported
Sample Date:	22-FEB-99	Analysis Date:	Not Reported
Sampling Location:	NEXTTO PRESSURE TANK	Safe/Unsafe Bacteria Level:	S
Bacteria Results:	0	Bacteria Remarks:	Not Reported
Safe/Unsafe Nitrate Level:	S	Nitrate Results:	.1
Nitrate Remarks:	<	Construction Method:	DRILLED
Method Accuracy:	Not Reported	Casing Material:	UNKNOWN
Material Accuracy:	Not Reported	Casing Diameter:	0
Diameter Accuracy:	U	Year Constructed:	1989
Year Accuracy:	K	Agent:	DENNY MURROW

I39 **South** **1/2 - 1 Mile** **Lower**	**IA WELLS**	**IAPU40000246438**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	55106	Well Type:	Wells registered for testing
Well Depth:	104	Construction/Permit Date:	1989
Notes:	Drilling method: Drilled; Known well depth		

---

40 **SSE** **1/2 - 1 Mile** **Higher**	**IA WELLS**	**IAPU40000026633**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	79717	Well Type:	IGS well database
Well Depth:	100	Construction/Permit Date:	3/1/2015
Notes:	Bedrock depth: 0; Well type: Monitor		

Map ID Direction Distance Elevation	Database	EDR ID Number
J41 **SW** **1/2 - 1 Mile** **Lower**	**IA WELLS**	**IAPU40000315967**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	20804	Well Type:	Registered abandoned wells
Well Depth:	28	Construction/Permit Date:	n.a.
Notes:	Well plugged: 9/27/1995; Well type: > 18" dia.		

J42 **SW** **1/2 - 1 Mile** **Lower**	**IA WELLS**	**IAPU40000315964**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	20806	Well Type:	Registered abandoned wells
Well Depth:	79	Construction/Permit Date:	n.a.
Notes:	Well plugged: 9/27/1995; Well type: > 18" dia.		

43 **WNW** **1/2 - 1 Mile** **Lower**	**IA WELLS**	**IAPU40000315777**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	20817	Well Type:	Registered abandoned wells
Well Depth:	38	Construction/Permit Date:	n.a.
Notes:	Well plugged: 9/27/1995; Well type: < 18" dia.		

K44 **NW** **1/2 - 1 Mile** **Lower**	**IA WELLS**	**IAPU40000122923**

Database:	All Known Water Wells in the State of Iowa		
Well ID:	2093891	Well Type:	Private well tracking system
Well Depth:	305	Construction/Permit Date:	9/30/2003
Notes:	Status: Active		

K45 **NW** **1/2 - 1 Mile** **Lower**	**IA WELLS**	**IAPW40000024372**

Database:	Private Well Tracking System Wells		
PWTS Well #:	2093891	Permit #:	14664
Tier #:	80	Range #:	25
Elevation:	0	Elevation Accuracy:	Not Reported
Total Well Depth:	305	Bedrock Depth:	0
Depth to Water:	0	Well Finished:	30-SEP-03
Driller:	* Unknown	Construction Method:	Rotary Drill

Remarks:	Not Reported	Well Use:	Heat pump
Well Status:	Active	Heat Pump Wells:	220
Permitted Private Well:	X	Abandoned Well:	Not Reported
Renovated Well:	Not Reported	Registered for Tests:	Not Reported

---

46
WSW **IA WELLS** **IAPU40000315920**
1/2 - 1 Mile
Higher

Database:	All Known Water Wells in the State of Iowa		
Well ID:	20807	Well Type:	Registered abandoned wells
Well Depth:	245	Construction/Permit Date:	n.a.
Notes:	Well plugged: 9/27/1995; Well type: > 18" dia.		

47
South **IA WELLS** **IAUS30000003852**
1/2 - 1 Mile
Lower

Database:	Water Use Permits	IEFD Location ID:	20000318375
Facility ID:	310403937	Program ID:	5970
Facility Name:	Shattuck Rpm Inc	Operating Status:	Drilled
Well ID:	W1566	Well Location ID:	6571
Well Name:	Not Reported	Well Depth:	72
Construction Date:	Not Reported	Aquifer Type:	Unconsolidated - Drift, Alluv, Bur
Aquifer Rank:	Primary	Field Office #:	5
Coordinate Method:	INTERPOLATION-PHOTO	Coordinate Reference:	WELL
Coordinate Verification:	Not Reported	HUC #:	071000040811
URL:	http://programs.iowadnr.gov/wateruse/		

48
ENE **IA WELLS** **IAPU40000026529**
1/2 - 1 Mile
Higher

Database:	All Known Water Wells in the State of Iowa		
Well ID:	62869	Well Type:	IGS well database
Well Depth:	200	Construction/Permit Date:	9/10/2006
Notes:	Bedrock depth: 50; Well type: Heat Pump		

49
North **IA WELLS** **IAPU40000315801**
1/2 - 1 Mile
Higher

Database:	All Known Water Wells in the State of Iowa		
Well ID:	20819	Well Type:	Registered abandoned wells
Well Depth:	300	Construction/Permit Date:	n.a.
Notes:	Well plugged: 9/27/1995; Well type: < 18" dia.		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: IA Radon

Radon Test Results

Zipcode	Num Tests	Minimum	Maximum	Average
50131	172	0.1	30.6	4.9

Federal EPA Radon Zone for POLK County: 1

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 Zip Code: 50131

Number of sites tested: 1

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	Not Reported	Not Reported	Not Reported	Not Reported
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	13.100 pCi/L	0%	100%	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: National Wetland Inventory of Iowa
Source: Department of Natural Resources
Telephone: 319-335-1575

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

All Known Water Wells in the State of Iowa
Source: Department of Natural Resources
Telephone: 319-335-1353
Well types included are agricultural drainage, permitted private, public, registered abandoned, SDWIS public, water use permit sites, wells registered for testing.

Agricultural Drainage Wells
Source: Department of Natural Resources
Telephone: 515-281-5029
Agricultural drainage wells are required to be registered both with the Iowa Department of Natural Resources as a part of the 1987 Groundwater Protection Act, and with the U.S. Environmental Protection Agency as a part of the Underground Injection Control Program.

Private Well Tracking System Wells
Source: Department of Natural Resources
Telephone: 319-335-1353

Water Use Permits
Source: Department of Natural Resources
Telephone: 515-725-0336
Wells under Water Use permits. A water use permit is required of any person or entity that withdraws or diverts at least 25,000 gallons of water in a 24-hour period during any calendar year.

Private Wells Tested
Source: Department of Natural Resources
Telephone: 515-335-1353
This is a point coverage for private wells which have been tested for bacteria and nitrate contamination under the Grants to Counties program.

OTHER STATE DATABASE INFORMATION

Oil and Gas Well Database
Source: Department of Natural Resources
Oil and gas well locations.

RADON

State Database: IA Radon
Source: Department of Public Health
Telephone: 515-281-4340
Radon Test Results

PHYSICAL SETTING SOURCE RECORDS SEARCHED

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

STREET AND ADDRESS INFORMATION

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Camp Dodge
7105 Northwest 70th Avenue
Johnston, IA 50131

Inquiry Number: 5441925.2s
October 03, 2018

EDR Summary Radius Map Report

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

7105 NORTHWEST 70TH AVENUE
JOHNSTON, IA 50131

COORDINATES

Latitude (North):	41.6991890 - 41˚ 41' 57.08''
Longitude (West):	93.7149020 - 93˚ 42' 53.64''
Universal Tranverse Mercator:	Zone 15
UTM X (Meters):	440513.7
UTM Y (Meters):	4616412.0
Elevation:	856 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property:	TP
Source:	U.S. Geological Survey

Target Property:	W
Source:	U.S. Geological Survey

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20150824
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
7105 NORTHWEST 70TH AVENUE
JOHNSTON, IA 50131

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
A1	CAMP DODGE	7105 NW 70TH AVENUE	IA TIER 2		TP
A2	ARMED FORCES READINE	7105 NW 70TH AVENUE	IA NPDES		TP
A3	CAMP DODGE	7105 NW 70TH ANENUE	IA TIER 2		TP
A4	IOWA LAW ENFORCEMENT	7105 NW 70TH AVE	US AIRS, FINDS, ECHO		TP
A5	NDNODS LE MARS SA RA	7105 NW 70TH AVENUE	UXO		TP
A6	CAMP DODGE SANITARY	7105 NW 70TH AVE.	IA NPDES		TP
A7	IOWA ARMY NATIONAL G	7105 NW 70TH AVE, BL	IA AST		TP
A8	CAMP DODGE TRAINING	7105 NW 70TH AVE BLD	IA UST, IA Financial Assurance		TP
A9	CAMP DODGE	7105 NW 70TH AVE STR	IA TIER 2		TP
A10	IOWA ARMY NATIONAL G	7105 NW 70TH AVE.	IA NPDES		TP
A11	CAMP DODGE	7105 NW 70TH AVE	IA SPILLS, IA AIRS, IA NPDES		TP
A12	NDNODS MARSHALLTOWN	7105 NW 70TH AVENUE	UXO		TP
A13	CAMP DODGE	7105 NW 70TH AVE	ICIS, US AIRS		TP
A14	NDNODS MOUNT PLEASAN	7105 NW 70TH AVENUE	UXO		TP
A15	NDNODS OSKALOOSA SA	7105 NW 70TH AVENUE	UXO		TP
A16	NDNODS RED OAK 25-ME	7105 NW 70TH AVENUE	UXO		TP
A17	U.S. ARMY IOWA ARMY	7105 NW 70TH AVE	TRIS		TP
A18	NDNODS SHELDON 1,000	7105 NW 70TH AVENUE	UXO		TP
A19	NDNODS CENTERVILLE 1	7105 NW 70TH AVENUE	UXO		TP
A20	NDNODS SIOUX CITY HI	7105 NW 70TH AVENUE	UXO		TP
A21	IOWA ARMY NATIONAL G	7105 NW 70TH AVE	CORRACTS, RCRA-TSDF, RCRA-LQG, RAATS, WI MANIFEST		TP
A22	NDNODS DAVENPORT SA	7105 NW 70TH AVENUE	UXO		TP
Reg	CAMP DODGE MILITARY		DOD	Same	1 ft.
Reg	SAYLORVILLE LAKE		DOD	Same	3302, 0.625, NE
23	ARTILLERY RANGE		UXO	Higher	390, 0.074, NE
B24	CAMP DODGE AND POLK	7700 NW BEAVER DRIVE	IA ALLSITES, IA SPILLS	Higher	831, 0.157, East
B25	CAMP DODGE	7700 NW BEAVER DR.	SEMS-ARCHIVE	Higher	831, 0.157, East
B26	UNITED STATES MILITA	7700 N.W. BEAVER DRI	NY MANIFEST	Higher	831, 0.157, East
B27	CAMP DODGE BLDG S-4	7700 NW BEAVER DRIVE	IA UST	Higher	831, 0.157, East
B28	USPFO FOR IOWA, CAMP	7700 NW BEAVER DR CA	WI MANIFEST	Higher	831, 0.157, East

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
CAMP DODGE 7105 NW 70TH AVENUE JOHNSTON, IA 50131	IA TIER 2 Facility Id: 863	N/A
ARMED FORCES READINE 7105 NW 70TH AVENUE JOHNSTON, IA 50131	IA NPDES	N/A
CAMP DODGE 7105 NW 70TH ANENUE JOHNSTON, IA 50131	IA TIER 2 Facility Id: FAIDSIT2A00000863	N/A
IOWA LAW ENFORCEMENT 7105 NW 70TH AVE JOHNSTON, IA 50131	US AIRS Database: US AIRS (AFS), Date of Government Version: 10/12/2016 EPA plant ID:: 110037595064	N/A
	FINDS Registry ID:: 110037595064 Registry ID:: 110036386470	
	ECHO Registry ID: 110036386470 Registry ID: 110037595064	
NDNODS LE MARS SA RA 7105 NW 70TH AVENUE JOHNSTON, IA	UXO	N/A
CAMP DODGE SANITARY 7105 NW 70TH AVE. JOHNSTON, IA 50131	IA NPDES	N/A
IOWA ARMY NATIONAL G 7105 NW 70TH AVE, BL JOHNSTON, IA	IA AST Registration Number: 18253 Registration Number: 18254 Registration Number: 18255	N/A
CAMP DODGE TRAINING 7105 NW 70TH AVE BLD JOHNSTON, IA 50131	IA UST Facility Id: 6224 Registration: 198605890	N/A
	IA Financial Assurance Database: Financial Assurance 1, Date of Government Version: 08/30/2018	

EXECUTIVE SUMMARY

	Facility Id: 198605890	
CAMP DODGE 7105 NW 70TH AVE STR JOHNSTON, IA 50131	IA TIER 2 Facility Id: FAIDSIT2A00000863 State Id: IA	N/A
IOWA ARMY NATIONAL G 7105 NW 70TH AVE. JOHNSTON, IA 50131	IA NPDES	N/A
CAMP DODGE 7105 NW 70TH AVE JOHNSTON, IA 50131	IA SPILLS Facility Id: 051214-TWA-1410 Facility Id: 022015-BJB-0900 IA AIRS Status: MINOR EI Facility Id: 77-09-004 IA NPDES Permit Number: 7700901	N/A
NDNODS MARSHALLTOWN 7105 NW 70TH AVENUE JOHNSTON, IA	UXO	N/A
CAMP DODGE 7105 NW 70TH AVE JOHNSTON, IA 50131	ICIS FRS ID:: 110036386470 US AIRS Database: US AIRS (AFS), Date of Government Version: 10/12/2016 EPA plant ID:: 110036386470	N/A
NDNODS MOUNT PLEASAN 7105 NW 70TH AVENUE JOHNSTON, IA	UXO	N/A
NDNODS OSKALOOSA SA 7105 NW 70TH AVENUE JOHNSTON, IA	UXO	N/A
NDNODS RED OAK 25-ME 7105 NW 70TH AVENUE JOHNSTON, IA	UXO	N/A
U.S. ARMY IOWA ARMY 7105 NW 70TH AVE JOHNSTON, IA 50131	TRIS TRIS ID: 50131SRMYW715NW	50131SRMYW715NW
NDNODS SHELDON 1,000 7105 NW 70TH AVENUE JOHNSTON, IA	UXO	N/A

NDNODS CENTERVILLE 1 7105 NW 70TH AVENUE JOHNSTON, IA	UXO	N/A
NDNODS SIOUX CITY HI 7105 NW 70TH AVENUE JOHNSTON, IA	UXO	N/A
IOWA ARMY NATIONAL G 7105 NW 70TH AVE JOHNSTON, IA 50131	CORRACTS EPA ID:: IAD981504285 RCRA-TSDF EPA ID:: IAD981504285 RCRA-LQG EPA ID:: IAD981504285 RAATS Status: 01 Facility ID: IAD981504285 WI MANIFEST ACT Status: A FID: 0 EPA ID: IAD981504285	IAD981504285
NDNODS DAVENPORT SA 7105 NW 70TH AVENUE JOHNSTON, IA	UXO	N/A

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: A review of the SEMS-ARCHIVE list, as provided by EDR, and dated 07/17/2018 has

revealed that there is 1 SEMS-ARCHIVE site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
CAMP DODGE	7700 NW BEAVER DR.	E 1/8 - 1/4 (0.157 mi.)	B25	13

State and tribal registered storage tank lists

IA UST: A review of the IA UST list, as provided by EDR, and dated 08/30/2018 has revealed that there is 1 IA UST site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
CAMP DODGE BLDG S-4 Facility Id: 10550 Facility Id: 17130 Registration: 198710686 Registration: 199317591	7700 NW BEAVER DRIVE	E 1/8 - 1/4 (0.157 mi.)	B27	14

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Hazardous waste / Contaminated Sites

IA ALLSITES: A review of the IA ALLSITES list, as provided by EDR, and dated 07/16/2018 has revealed that there is 1 IA ALLSITES site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
CAMP DODGE AND POLK Status: Closed Site Id Number: 1236 Site Id Number: 638	***7700 NW BEAVER DRIVE***	***E 1/8 - 1/4 (0.157 mi.)***	***B24***	***13***

Other Ascertainable Records

DOD: A review of the DOD list, as provided by EDR, and dated 12/31/2005 has revealed that there are 2 DOD sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
CAMP DODGE MILITARY		0 - 1/8 (0.000 mi.)	0	12
SAYLORVILLE LAKE		NE 1/2 - 1 (0.625 mi.)	0	13

EXECUTIVE SUMMARY

UXO: A review of the UXO list, as provided by EDR, and dated 09/30/2017 has revealed that there is 1 UXO site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
ARTILLERY RANGE		NE 0 - 1/8 (0.074 mi.)	23	13

NY MANIFEST: A review of the NY MANIFEST list, as provided by EDR, and dated 07/01/2018 has revealed that there is 1 NY MANIFEST site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
UNITED STATES MILITA EPA ID: IAD981504244	7700 N.W. BEAVER DRI	E 1/8 - 1/4 (0.157 mi.)	B26	13

WI MANIFEST: A review of the WI MANIFEST list, as provided by EDR, and dated 12/31/2017 has revealed that there is 1 WI MANIFEST site within approximately 0.25 miles of the target property.

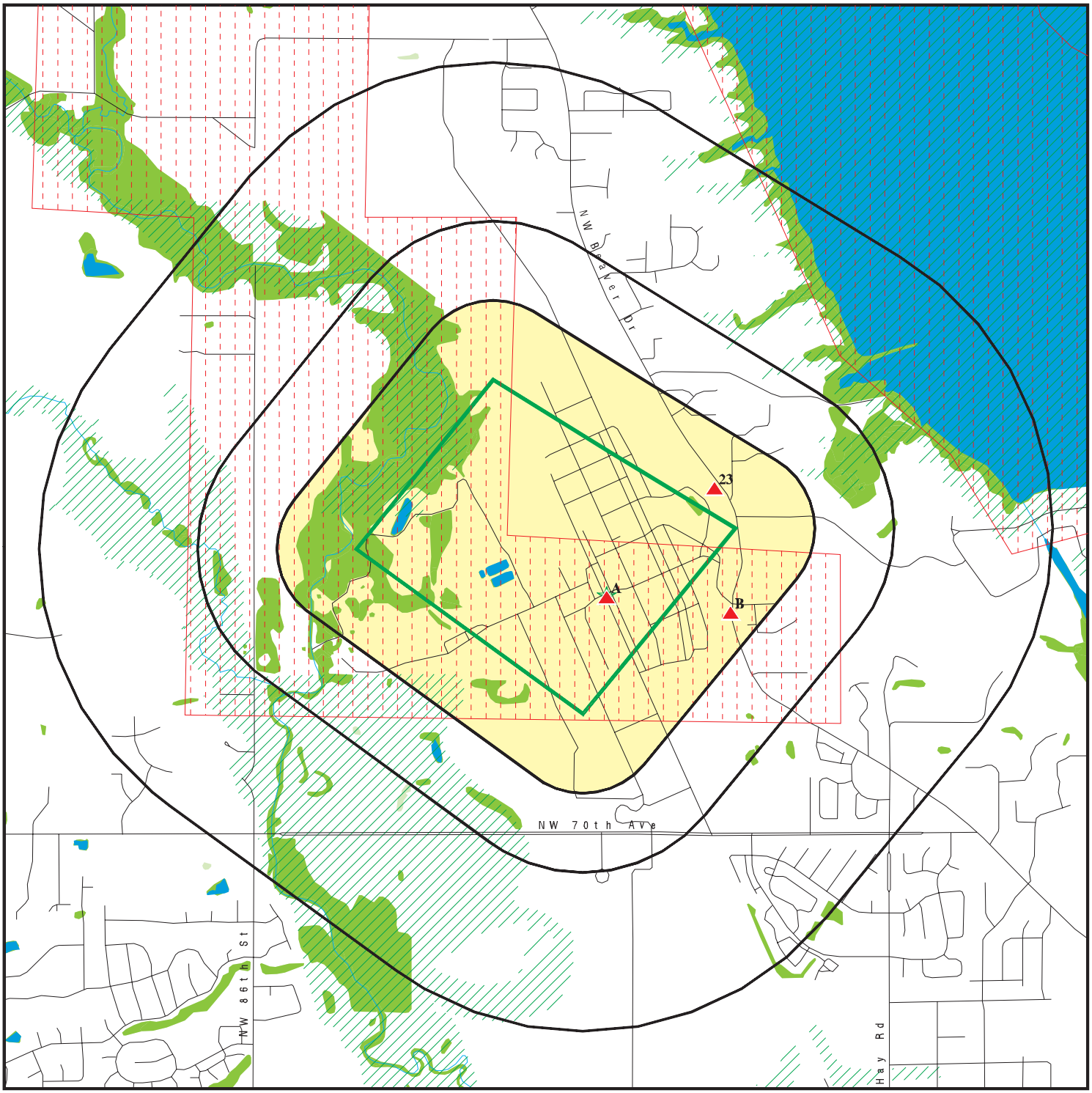
Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
USPFO FOR IOWA, CAMP ACT Status: A FID: 999584520 EPA ID: IAD981712698	7700 NW BEAVER DR CA	E 1/8 - 1/4 (0.157 mi.)	B28	14

Count: 0 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
		NO SITES FOUND			

OVERVIEW MAP - 5441925.2S



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

0 1/4 1/2 1 Miles

Indian Reservations BIA

100-year flood zone

500-year flood zone

National Wetland Inventory

State Wetlands

Upgradient Area

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: Camp Dodge ADDRESS: 7105 Northwest 70th Avenue Johnston IA 50131 LAT/LONG: 41.699189 / 93.714902	CLIENT: AECOM CONTACT: Brittany Kirchmann INQUIRY #: 5441925.2s DATE: October 03, 2018 8:25 am

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DETAIL MAP - 5441925.2S

Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

Sensitive Receptors

National Priority List Sites

Dept. Defense Sites

0 1/8 1/4 1/2 Miles

Indian Reservations BIA

100-year flood zone

500-year flood zone

National Wetland Inventory

State Wetlands

N

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: Camp Dodge	CLIENT: AECOM
ADDRESS: 7105 Northwest 70th Avenue Johnston IA 50131	CONTACT: Brittany Kirchmann INQUIRY #: 5441925.2s
LAT/LONG: 41.699189 / 93.714902	DATE: October 03, 2018 8:26 am

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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	TP		NR	NR	NR	NR	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		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site list								
SEMS-ARCHIVE	0.500		0	1	0	NR	NR	1
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000	1	0	0	0	0	NR	1
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500	1	0	0	0	NR	NR	1
Federal RCRA generators list								
RCRA-LQG	0.250	1	0	0	NR	NR	NR	1
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-CESQG	0.250		0	0	NR	NR	NR	0
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		NR	NR	NR	NR	NR	0
State- and tribal - equivalent CERCLIS								
IA SHWS	1.000		0	0	0	0	NR	0
State and tribal landfill and/or solid waste disposal site lists								
IA SWF/LF	0.500		0	0	0	NR	NR	0
State and tribal leaking storage tank lists								
IA LUST	0.500		0	0	0	NR	NR	0
IA LAST	0.500		0	0	0	NR	NR	0
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
IA UST	0.250	1	0	1	NR	NR	NR	2
IA AST	0.250	1	0	0	NR	NR	NR	1
INDIAN UST	0.250		0	0	NR	NR	NR	0
State and tribal institutional control / engineering control registries								
IA INST CONTROL	0.500		0	0	0	NR	NR	0
State and tribal voluntary cleanup sites								
IA VCP	0.500		0	0	0	NR	NR	0
INDIAN VCP	0.500		0	0	0	NR	NR	0
State and tribal Brownfields sites								
IA BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
INDIAN ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	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								
US HIST CDL	TP		NR	NR	NR	NR	NR	0
IA ALLSITES	0.500		0	1	0	NR	NR	1
IA DEL SHWS	1.000		0	0	0	0	NR	0
US CDL	TP		NR	NR	NR	NR	NR	0
Local Land Records								
IA LIENS	TP		NR	NR	NR	NR	NR	0
LIENS 2	TP		NR	NR	NR	NR	NR	0
Records of Emergency Release Reports								
HMIRS	TP		NR	NR	NR	NR	NR	0
IA SPILLS	TP	1	NR	NR	NR	NR	NR	1
IA SPILLS 90	TP		NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		1	0	0	1	NR	2
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

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
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	1	NR	NR	NR	NR	NR	1
PRP	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
ICIS	TP	1	NR	NR	NR	NR	NR	1
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	2	NR	NR	NR	NR	NR	2
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.250		0	0	NR	NR	NR	0
FINDS	TP	1	NR	NR	NR	NR	NR	1
ECHO	TP	1	NR	NR	NR	NR	NR	1
UXO	1.000	9	1	0	0	0	NR	10
DOCKET HWC	TP		NR	NR	NR	NR	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
IA AIRS	TP	1	NR	NR	NR	NR	NR	1
IA COAL ASH	0.500		0	0	0	NR	NR	0
IA DRYCLEANERS	0.250		0	0	NR	NR	NR	0
IA Financial Assurance	TP	1	NR	NR	NR	NR	NR	1
NY MANIFEST	0.250		0	1	NR	NR	NR	1
WI MANIFEST	0.250	1	0	1	NR	NR	NR	2
IA NPDES	TP	4	NR	NR	NR	NR	NR	4
IA TIER 2	TP	3	NR	NR	NR	NR	NR	3
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
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								
IA RGA HWS	TP		NR	NR	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
IA RGA LUST	TP		NR	NR	NR	NR	NR	0
- Totals --		32	2	5	0	1	0	40

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

Map ID Direction Distance Elevation	Site	Database(s)	EDR ID Number EPA ID Number
A1 **Target** **Property** **Actual:** **856 ft.**	**CAMP DODGE** **7105 NW 70TH AVENUE** **JOHNSTON, IA 50131** **Click here for full text details** **IA TIER 2** Facility Id: 863	**IA TIER 2**	**S116492798** **N/A**
A2 **Target** **Property** **Actual:** **856 ft.**	**ARMED FORCES READINESS CENTER** **7105 NW 70TH AVENUE** **JOHNSTON, IA 50131** **Click here for full text details**	**IA NPDES**	**S122535900** **N/A**
A3 **Target** **Property** **Actual:** **856 ft.**	**CAMP DODGE** **7105 NW 70TH ANENUE** **JOHNSTON, IA 50131** **Click here for full text details** **IA TIER 2** Facility Id: FAIDSIT2A00000863	**IA TIER 2**	**S116492814** **N/A**
A4 **Target** **Property** **Actual:** **856 ft.**	**IOWA LAW ENFORCEMENT ACADEMY** **7105 NW 70TH AVE** **JOHNSTON, IA 50131** **Click here for full text details** **US AIRS** EPA plant ID:: 110037595064 **FINDS** Registry ID:: 110037595064 Registry ID:: 110036386470 **ECHO** Registry ID: 110036386470 Registry ID: 110037595064	**US AIRS** **FINDS** **ECHO**	**1016062062** **N/A**

Map ID Direction Distance Elevation	Site	Database(s)	EDR ID Number EPA ID Number
A5 **Target** **Property** **Actual:** **856 ft.**	**NDNODS LE MARS SA RANGE** **7105 NW 70TH AVENUE** **JOHNSTON, IA** **Click here for full text details**	**UXO**	**1018152519** **N/A**
A6 **Target** **Property** **Actual:** **856 ft.**	**CAMP DODGE SANITARY SEWER LATERAL REPAIR - CONSTRU** **7105 NW 70TH AVE.** **JOHNSTON, IA 50131** **Click here for full text details**	**IA NPDES**	**S122553943** **N/A**
A7 **Target** **Property** **Actual:** **856 ft.**	**IOWA ARMY NATIONAL GUARD** **7105 NW 70TH AVE, BLDG S42** **JOHNSTON, IA** **Click here for full text details** **IA AST** Registration Number: 18253 Registration Number: 18254 Registration Number: 18255	**IA AST**	**A100413834** **N/A**
A8 **Target** **Property** **Actual:** **856 ft.**	**CAMP DODGE TRAINING SITE** **7105 NW 70TH AVE BLDG W46** **JOHNSTON, IA 50131** **Click here for full text details** **IA UST** Registration: 198605890 Facility Id: 6224 **IA Financial Assurance** Facility Id: 198605890	**IA UST** **IA Financial Assurance**	**U003634981** **N/A**
A9 **Target** **Property** **Actual:** **856 ft.**	**CAMP DODGE** **7105 NW 70TH AVE STREET** **JOHNSTON, IA 50131** **Click here for full text details** **IA TIER 2** Facility Id: FAIDSIT2A00000863 State Id: IA	**IA TIER 2**	**S109946752** **N/A**

Map ID Direction Distance Elevation	Site	Database(s)	EDR ID Number EPA ID Number
A10 **Target** **Property** **Actual:** **856 ft.**	**IOWA ARMY NATIONAL GUARD - TRAINING SITE** **7105 NW 70TH AVE.** **JOHNSTON, IA 50131** **Click here for full text details**	**IA NPDES**	**S122561846** **N/A**
A11 **Target** **Property** **Actual:** **856 ft.**	**CAMP DODGE** **7105 NW 70TH AVE** **JOHNSTON, IA 50131** **Click here for full text details** **IA SPILLS** Facility Id: 051214-TWA-1410 Facility Id: 022015-BJB-0900 **IA AIRS** Facility Id: 77-09-004 Status: MINOR EI **IA NPDES** Permit Number: 7700901	**IA SPILLS** **IA AIRS** **IA NPDES**	**S108268561** **N/A**
A12 **Target** **Property** **Actual:** **856 ft.**	**NDNODS MARSHALLTOWN SA RANGE** **7105 NW 70TH AVENUE** **JOHNSTON, IA** **Click here for full text details**	**UXO**	**1018152520** **N/A**
A13 **Target** **Property** **Actual:** **856 ft.**	**CAMP DODGE** **7105 NW 70TH AVE** **JOHNSTON, IA 50131** **Click here for full text details** **ICIS** FRS ID:: 110036386470 **US AIRS** EPA plant ID:: 110036386470	**ICIS** **US AIRS**	**1011295875** **N/A**

Map ID Direction Distance Elevation	Site	Database(s)	EDR ID Number EPA ID Number
A14 **Target** **Property** **Actual:** **856 ft.**	**NDNODS MOUNT PLEASANT SA RANGE NTA** **7105 NW 70TH AVENUE** **JOHNSTON, IA** **Click here for full text details**	**UXO**	**1018152521** **N/A**
A15 **Target** **Property** **Actual:** **856 ft.**	**NDNODS OSKALOOSA SA RANGE** **7105 NW 70TH AVENUE** **JOHNSTON, IA** **Click here for full text details**	**UXO**	**1018152522** **N/A**
A16 **Target** **Property** **Actual:** **856 ft.**	**NDNODS RED OAK 25-METER RANGE** **7105 NW 70TH AVENUE** **JOHNSTON, IA** **Click here for full text details**	**UXO**	**1018152524** **N/A**
A17 **Target** **Property** **Actual:** **856 ft.**	**U.S. ARMY IOWA ARMY NATIONAL GUARD CAMP DODGE INST** **7105 NW 70TH AVE** **JOHNSTON, IA 50131** **Click here for full text details** **TRIS** TRIS ID: 50131SRMYW715NW	**TRIS**	**1012009617** **50131SRMYW715NW**
A18 **Target** **Property** **Actual:** **856 ft.**	**NDNODS SHELDON 1,000-YARD RANGE** **7105 NW 70TH AVENUE** **JOHNSTON, IA** **Click here for full text details**	**UXO**	**1018152525** **N/A**
A19 **Target** **Property** **Actual:** **856 ft.**	**NDNODS CENTERVILLE 1,000-YARD RANGE** **7105 NW 70TH AVENUE** **JOHNSTON, IA** **Click here for full text details**	**UXO**	**1018152517** **N/A**

A20
Target
Property

NDNODS SIOUX CITY HILL FARM RANGE
7105 NW 70TH AVENUE
JOHNSTON, IA

UXO

1018152526
N/A

Actual:
856 ft.

Click here for full text details

A21
Target
Property

IOWA ARMY NATIONAL GUARD
7105 NW 70TH AVE
JOHNSTON, IA 50131

CORRACTS
RCRA-TSDF
RCRA-LQG
RAATS
WI MANIFEST

1000142942
IAD981504285

Actual:
856 ft.

Click here for full text details

CORRACTS
EPA ID:: IAD981504285

RCRA-TSDF
EPA Id: IAD981504285

RCRA-LQG
EPA Id: IAD981504285

RAATS
Status: 01
Facility ID: IAD981504285

WI MANIFEST
ACT Status: A
FID: 0
EPA ID: IAD981504285

A22
Target
Property

NDNODS DAVENPORT SA RANGE
7105 NW 70TH AVENUE
JOHNSTON, IA

UXO

1018152518
N/A

Actual:
856 ft.

Click here for full text details

DOD
Region

CAMP DODGE MILITARY RESERVATION

CAMP DODGE MILITARY RESER (County), IA

DOD

CUSA115384
N/A

< 1/8
1 ft.

Click here for full text details

Map ID Direction Distance Elevation	Site	Database(s)	EDR ID Number EPA ID Number
DOD **Region** **NE** **1/2-1** **3302 ft.**	**SAYLORVILLE LAKE** **SAYLORVILLE LAKE (County), IA** **Click here for full text details**	**DOD**	**CUSA113747** **N/A**
23 **NE** **< 1/8** **0.074 mi.** **390 ft.** **Relative:** **Higher**	**ARTILLERY RANGE** **DES MOINES, IA** **Click here for full text details**	**UXO**	**1018150800** **N/A**
B24 **East** **1/8-1/4** **0.157 mi.** **831 ft.** **Relative:** **Higher**	**CAMP DODGE AND POLK COUNTY TARGET RANGES** **7700 NW BEAVER DRIVE** **JOHNSTON, IA 50131** **Click here for full text details** **IA ALLSITES** Site Id Number: 1236 Site Id Number: 638 Status: Closed **IA SPILLS** Facility Id: 031314-WCG-1425	**IA ALLSITES** **IA SPILLS**	**S108269641** **N/A**
B25 **East** **1/8-1/4** **0.157 mi.** **831 ft.** **Relative:** **Higher**	**CAMP DODGE** **7700 NW BEAVER DR.** **JOHNSTON, IA 50131** **Click here for full text details**	**SEMS-ARCHIVE**	**1003108989** **IAN000703253**
B26 **East** **1/8-1/4** **0.157 mi.** **831 ft.** **Relative:** **Higher**	**UNITED STATES MILITARY** **7700 N.W. BEAVER DRIVE** **JOHNSTON, IA 50131** **Click here for full text details** **NY MANIFEST** EPA ID: IAD981504244	**NY MANIFEST**	**S121966535** **N/A**

Map ID Direction Distance Elevation	Site	Database(s)	EDR ID Number EPA ID Number
B27 **East** **1/8-1/4** **0.157 mi.** **831 ft.** **Relative:** **Higher**	**CAMP DODGE BLDG S-4** **7700 NW BEAVER DRIVE** **JOHNSTON, IA 50131** **Click here for full text details** **IA UST** Registration: 198710686 Registration: 199317591 Facility Id: 10550 Facility Id: 17130	**IA UST**	**U003632977** **N/A**
B28 **East** **1/8-1/4** **0.157 mi.** **831 ft.** **Relative:** **Higher**	**USPFO FOR IOWA, CAMP DODGE MAINT SHOP** **7700 NW BEAVER DR CAMP DODGE** **JOHNSTON, IA 50131** **Click here for full text details** **WI MANIFEST** ACT Status: A FID: 999584520 EPA ID: IAD981712698	**WI MANIFEST**	**1004468433** **N/A**

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
IA	AIRS	Minor and Title V Sources Listing	Department of Natural Resources	06/26/2018	07/31/2018	08/24/2018
IA	ALLSITES	Contaminated Sites Tracking Database	Department of Natural Resources	07/16/2018	07/18/2018	08/23/2018
IA	AST	Aboveground Storage Tank Sites	Department of Public Safety	07/31/2018	08/02/2018	08/24/2018
IA	BROWNFIELDS	Brownfields Site Listing	Department of Natural Resources	07/16/2018	07/18/2018	08/23/2018
IA	COAL ASH	Coal Ash Disposal Site Listing	Department of Natural Resources	09/04/2018	09/05/2018	10/02/2018
IA	DEL SHWS	Delisted Contaminated Sites Listing	Department of Natural Resources	12/31/2017	01/24/2018	02/23/2018
IA	DRYCLEANERS	Iowa Drycleaner List	Department of Natural Resources	07/06/2018	07/27/2018	08/24/2018
IA	Financial Assurance 1	Financial Assurance Information Listing	Department of Natural Resources	08/30/2018	09/07/2018	10/02/2018
IA	Financial Assurance 2	Financial Assurance Information Listing	Department of Natural Resources	08/29/2018	08/30/2018	10/02/2018
IA	INST CONTROL	Sites with Institutional Controls	Department of Natural Resources	07/16/2018	07/18/2018	08/24/2018
IA	LAST	Leaking Aboveground Storage Tank Sites	Department of Natural Resources	07/16/2018	07/18/2018	08/24/2018
IA	LIENS	Liens Filed Listing	Department of Natural Resources	07/05/2018	07/24/2018	08/24/2018
IA	LUST	Leaking Underground Storage Tank Data	Department of Natural Resources	08/30/2018	09/07/2018	10/02/2018
IA	NPDES	List of NPDES Permittees	Department of Natural Resources	08/08/2018	08/10/2018	08/24/2018
IA	RGA HWS	Recovered Government Archive State Hazardous Waste Facilitie	Department of Natural Resources		07/01/2013	01/03/2014
IA	RGA LUST	Recovered Government Archive Leaking Underground Storage Tan	Department of Natural Resources		07/01/2013	12/26/2013
IA	SHWS	Registry of Hazardous Waste or Hazardous Substance Disposal	Department of Natural Resources	12/31/2017	01/24/2018	02/23/2018
IA	SPILLS	Spills Database	Department of Natural Resources	09/04/2018	09/06/2018	10/02/2018
IA	SPILLS 90	SPILLS90 data from FirstSearch	FirstSearch	10/17/2012	01/03/2013	03/05/2013
IA	SWF/LF	Permitted Solid Waste Management Facilities	Department of Natural Resources	09/04/2018	09/05/2018	10/02/2018
IA	TIER 2	Tier 2 Information Listing	Department of Natural Resources	12/31/2017	09/18/2018	10/02/2018
IA	UST	Underground Storage Tank Data	Department of Natural Resources	08/30/2018	09/07/2018	10/02/2018
IA	VCP	Land Recycling Program Sites	Department of Natural Resources	07/16/2018	07/18/2018	08/23/2018
US	2020 COR ACTION	2020 Corrective Action Program List	Environmental Protection Agency	09/30/2017	05/08/2018	07/20/2018
US	ABANDONED MINES	Abandoned Mines	Department of Interior	09/10/2018	09/11/2018	09/14/2018
US	BRS	Biennial Reporting System	EPA/NTIS	12/31/2015	02/22/2017	09/28/2017
US	COAL ASH DOE	Steam-Electric Plant Operation Data	Department of Energy	12/31/2005	08/07/2009	10/22/2009
US	COAL ASH EPA	Coal Combustion Residues Surface Impoundments List	Environmental Protection Agency	07/01/2014	09/10/2014	10/20/2014
US	CONSENT	Superfund (CERCLA) Consent Decrees	Department of Justice, Consent Decree Library	03/31/2018	04/16/2018	06/29/2018
US	CORRACTS	Corrective Action Report	EPA	03/01/2018	03/28/2018	06/22/2018
US	DEBRIS REGION 9	Torres Martinez Reservation Illegal Dump Site Locations	EPA, Region 9	01/12/2009	05/07/2009	09/21/2009
US	DOCKET HWC	Hazardous Waste Compliance Docket Listing	Environmental Protection Agency	01/04/2018	01/19/2018	04/13/2018
US	DOD	Department of Defense Sites	USGS	12/31/2005	11/10/2006	01/11/2007
US	DOT OPS	Incident and Accident Data	Department of Transporation, Office of Pipeli	07/31/2012	08/07/2012	09/18/2012
US	Delisted NPL	National Priority List Deletions	EPA	07/17/2018	08/09/2018	09/07/2018
US	ECHO	Enforcement & Compliance History Information	Environmental Protection Agency	09/02/2018	09/05/2018	09/14/2018
US	EDR Hist Auto	EDR Exclusive Historical Auto Stations	EDR, Inc.			
US	EDR Hist Cleaner	EDR Exclusive Historical Cleaners	EDR, Inc.			
US	EDR MGP	EDR Proprietary Manufactured Gas Plants	EDR, Inc.			
US	EPA WATCH LIST	EPA WATCH LIST	Environmental Protection Agency	08/30/2013	03/21/2014	06/17/2014
US	ERNS	Emergency Response Notification System	National Response Center, United States Coast	06/18/2018	06/27/2018	09/14/2018
US	FEDERAL FACILITY	Federal Facility Site Information listing	Environmental Protection Agency	11/07/2016	01/05/2017	04/07/2017
US	FEDLAND	Federal and Indian Lands	U.S. Geological Survey	12/31/2005	02/06/2006	01/11/2007
US	FEMA UST	Underground Storage Tank Listing	FEMA	05/15/2017	05/30/2017	10/13/2017
US	FINDS	Facility Index System/Facility Registry System	EPA	02/21/2018	02/23/2018	03/23/2018
US	FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fu	EPA/Office of Prevention, Pesticides and Toxi	04/09/2009	04/16/2009	05/11/2009
US	FTTS INSP	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fu	EPA	04/09/2009	04/16/2009	05/11/2009

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
US	FUDS	Formerly Used Defense Sites	U.S. Army Corps of Engineers	01/31/2015	07/08/2015	10/13/2015
US	FUELS PROGRAM	EPA Fuels Program Registered Listing	EPA	05/21/2018	05/23/2018	09/07/2018
US	FUSRAP	Formerly Utilized Sites Remedial Action Program	Department of Energy	08/08/2017	09/11/2018	09/14/2018
US	HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing	Environmental Protection Agency	10/19/2006	03/01/2007	04/10/2007
US	HIST FTTS INSP	FIFRA/TSCA Tracking System Inspection & Enforcement Case Lis	Environmental Protection Agency	10/19/2006	03/01/2007	04/10/2007
US	HMIRS	Hazardous Materials Information Reporting System	U.S. Department of Transportation	03/26/2018	03/27/2018	06/08/2018
US	ICIS	Integrated Compliance Information System	Environmental Protection Agency	11/18/2016	11/23/2016	02/10/2017
US	IHS OPEN DUMPS	Open Dumps on Indian Land	Department of Health & Human Serivces, Indian	04/01/2014	08/06/2014	01/29/2015
US	INDIAN LUST R1	Leaking Underground Storage Tanks on Indian Land	EPA Region 1	04/13/2018	05/18/2018	07/20/2018
US	INDIAN LUST R10	Leaking Underground Storage Tanks on Indian Land	EPA Region 10	04/12/2018	05/18/2018	07/20/2018
US	INDIAN LUST R4	Leaking Underground Storage Tanks on Indian Land	EPA Region 4	05/08/2018	05/18/2018	07/20/2018
US	INDIAN LUST R5	Leaking Underground Storage Tanks on Indian Land	EPA, Region 5	04/12/2018	05/18/2018	07/20/2018
US	INDIAN LUST R6	Leaking Underground Storage Tanks on Indian Land	EPA Region 6	04/01/2018	05/18/2018	07/20/2018
US	INDIAN LUST R7	Leaking Underground Storage Tanks on Indian Land	EPA Region 7	04/24/2018	05/18/2018	07/20/2018
US	INDIAN LUST R8	Leaking Underground Storage Tanks on Indian Land	EPA Region 8	04/25/2018	05/18/2018	07/20/2018
US	INDIAN LUST R9	Leaking Underground Storage Tanks on Indian Land	Environmental Protection Agency	04/10/2018	05/18/2018	07/20/2018
US	INDIAN ODI	Report on the Status of Open Dumps on Indian Lands	Environmental Protection Agency	12/31/1998	12/03/2007	01/24/2008
US	INDIAN RESERV	Indian Reservations	USGS	12/31/2014	07/14/2015	01/10/2017
US	INDIAN UST R1	Underground Storage Tanks on Indian Land	EPA, Region 1	04/13/2018	05/18/2018	07/20/2018
US	INDIAN UST R10	Underground Storage Tanks on Indian Land	EPA Region 10	04/12/2018	05/18/2018	07/20/2018
US	INDIAN UST R4	Underground Storage Tanks on Indian Land	EPA Region 4	05/08/2018	05/18/2018	07/20/2018
US	INDIAN UST R5	Underground Storage Tanks on Indian Land	EPA Region 5	04/12/2018	05/18/2018	07/20/2018
US	INDIAN UST R6	Underground Storage Tanks on Indian Land	EPA Region 6	04/01/2018	05/18/2018	07/20/2018
US	INDIAN UST R7	Underground Storage Tanks on Indian Land	EPA Region 7	04/24/2018	05/18/2018	07/20/2018
US	INDIAN UST R8	Underground Storage Tanks on Indian Land	EPA Region 8	04/25/2018	05/18/2018	07/20/2018
US	INDIAN UST R9	Underground Storage Tanks on Indian Land	EPA Region 9	04/10/2018	05/18/2018	07/20/2018
US	INDIAN VCP R1	Voluntary Cleanup Priority Listing	EPA, Region 1	07/27/2015	09/29/2015	02/18/2016
US	INDIAN VCP R7	Voluntary Cleanup Priority Lisitng	EPA, Region 7	03/20/2008	04/22/2008	05/19/2008
US	LEAD SMELTER 1	Lead Smelter Sites	Environmental Protection Agency	05/13/2018	05/30/2018	06/29/2018
US	LEAD SMELTER 2	Lead Smelter Sites	American Journal of Public Health	04/05/2001	10/27/2010	12/02/2010
US	LIENS 2	CERCLA Lien Information	Environmental Protection Agency	05/13/2018	05/30/2018	06/29/2018
US	LUCIS	Land Use Control Information System	Department of the Navy	05/14/2018	05/18/2018	07/20/2018
US	MLTS	Material Licensing Tracking System	Nuclear Regulatory Commission	08/30/2016	09/08/2016	10/21/2016
US	NPL	National Priority List	EPA	07/17/2018	08/09/2018	09/07/2018
US	NPL LIENS	Federal Superfund Liens	EPA	10/15/1991	02/02/1994	03/30/1994
US	ODI	Open Dump Inventory	Environmental Protection Agency	06/30/1985	08/09/2004	09/17/2004
US	PADS	PCB Activity Database System	EPA	06/01/2017	06/09/2017	10/13/2017
US	PCB TRANSFORMER	PCB Transformer Registration Database	Environmental Protection Agency	05/24/2017	11/30/2017	12/15/2017
US	PRP	Potentially Responsible Parties	EPA	10/25/2013	10/17/2014	10/20/2014
US	Proposed NPL	Proposed National Priority List Sites	EPA	07/17/2018	08/09/2018	09/07/2018
US	RAATS	RCRA Administrative Action Tracking System	EPA	04/17/1995	07/03/1995	08/07/1995
US	RADINFO	Radiation Information Database	Environmental Protection Agency	04/03/2018	04/05/2018	06/29/2018
US	RCRA NonGen / NLR	RCRA - Non Generators / No Longer Regulated	Environmental Protection Agency	03/01/2018	03/28/2018	06/22/2018
US	RCRA-CESQG	RCRA - Conditionally Exempt Small Quantity Generators	Environmental Protection Agency	03/01/2018	03/28/2018	06/22/2018
US	RCRA-LQG	RCRA - Large Quantity Generators	Environmental Protection Agency	03/01/2018	03/28/2018	06/22/2018
US	RCRA-SQG	RCRA - Small Quantity Generators	Environmental Protection Agency	03/01/2018	03/28/2018	06/22/2018
US	RCRA-TSDF	RCRA - Treatment, Storage and Disposal	Environmental Protection Agency	03/01/2018	03/28/2018	06/22/2018

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
US	RMP	Risk Management Plans	Environmental Protection Agency	05/01/2018	05/17/2018	09/07/2018
US	ROD	Records Of Decision	EPA	05/13/2018	05/30/2018	06/29/2018
US	SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing	Environmental Protection Agency	01/01/2017	02/03/2017	04/07/2017
US	SEMS	Superfund Enterprise Management System	EPA	07/17/2018	08/09/2018	09/07/2018
US	SEMS-ARCHIVE	Superfund Enterprise Management System Archive	EPA	07/17/2018	08/09/2018	09/07/2018
US	SSTS	Section 7 Tracking Systems	EPA	12/31/2009	12/10/2010	02/25/2011
US	TRIS	Toxic Chemical Release Inventory System	EPA	12/31/2016	01/10/2018	01/12/2018
US	TSCA	Toxic Substances Control Act	EPA	12/31/2016	06/21/2017	01/05/2018
US	UMTRA	Uranium Mill Tailings Sites	Department of Energy	06/23/2017	10/11/2017	11/03/2017
US	US AIRS (AFS)	Aerometric Information Retrieval System Facility Subsystem (	EPA	10/12/2016	10/26/2016	02/03/2017
US	US AIRS MINOR	Air Facility System Data	EPA	10/12/2016	10/26/2016	02/03/2017
US	US BROWNFIELDS	A Listing of Brownfields Sites	Environmental Protection Agency	06/18/2018	06/20/2018	09/14/2018
US	US CDL	Clandestine Drug Labs	Drug Enforcement Administration	05/18/2018	06/20/2018	09/14/2018
US	US ENG CONTROLS	Engineering Controls Sites List	Environmental Protection Agency	07/31/2018	08/28/2018	09/14/2018
US	US FIN ASSUR	Financial Assurance Information	Environmental Protection Agency	03/01/2018	03/27/2018	06/22/2018
US	US HIST CDL	National Clandestine Laboratory Register	Drug Enforcement Administration	05/18/2018	06/20/2018	09/14/2018
US	US INST CONTROL	Sites with Institutional Controls	Environmental Protection Agency	07/31/2018	08/28/2018	09/14/2018
US	US MINES	Mines Master Index File	Department of Labor, Mine Safety and Health A	05/03/2018	05/31/2018	06/29/2018
US	US MINES 2	Ferrous and Nonferrous Metal Mines Database Listing	USGS	12/05/2005	02/29/2008	04/18/2008
US	US MINES 3	Active Mines & Mineral Plants Database Listing	USGS	04/14/2011	06/08/2011	09/13/2011
US	UXO	Unexploded Ordnance Sites	Department of Defense	09/30/2017	06/19/2018	09/14/2018
CT	CT MANIFEST	Hazardous Waste Manifest Data	Department of Energy & Environmental Protecti	08/10/2018	08/10/2018	09/10/2018
NJ	NJ MANIFEST	Manifest Information	Department of Environmental Protection	12/31/2017	07/13/2018	08/01/2018
NY	NY MANIFEST	Facility and Manifest Data	Department of Environmental Conservation	07/01/2018	08/01/2018	08/31/2018
RI	RI MANIFEST	Manifest information	Department of Environmental Management	12/31/2017	02/23/2018	04/09/2018
WI	WI MANIFEST	Manifest Information	Department of Natural Resources	12/31/2017	06/15/2018	07/09/2018
US	AHA Hospitals	Sensitive Receptor: AHA Hospitals	American Hospital Association, Inc.			
US	Medical Centers	Sensitive Receptor: Medical Centers	Centers for Medicare & Medicaid Services			
US	Nursing Homes	Sensitive Receptor: Nursing Homes	National Institutes of Health			
US	Public Schools	Sensitive Receptor: Public Schools	National Center for Education Statistics			
US	Private Schools	Sensitive Receptor: Private Schools	National Center for Education Statistics			
IA	Daycare Centers	Sensitive Receptor: Child Care Facilities	Department of Human Services			
US	Flood Zones	100-year and 500-year flood zones	Emergency Management Agency (FEMA)			
US	NWI	National Wetlands Inventory	U.S. Fish and Wildlife Service			
IA	State Wetlands	National Wetland Inventory of Iowa	Department of Natural Resources			
US	Topographic Map		U.S. Geological Survey			
US	Oil/Gas Pipelines		PennWell Corporation			
US	Electric Power Transmission Line Data		PennWell Corporation			

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

CAMP DODGE
7105 NORTHWEST 70TH AVENUE
JOHNSTON, IA 50131

TARGET PROPERTY COORDINATES

Latitude (North):	41.699189 - 41˚ 41' 57.08''
Longitude (West):	93.714902 - 93˚ 42' 53.65''
Universal Tranverse Mercator:	Zone 15
UTM X (Meters):	440513.7
UTM Y (Meters):	4616412.0
Elevation:	856 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	5942453 DES MOINES NW, IA
Version Date:	2013
West Map:	5942459 GRIMES, IA
Version Date:	2013

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).

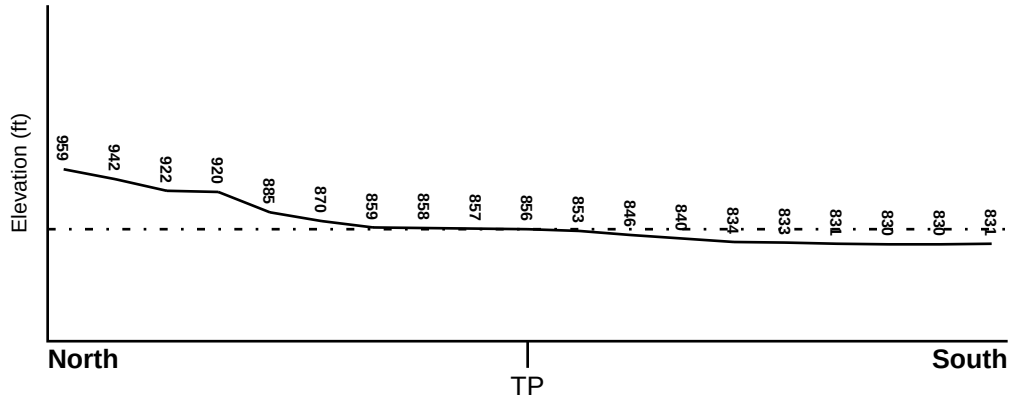
TOPOGRAPHIC INFORMATION

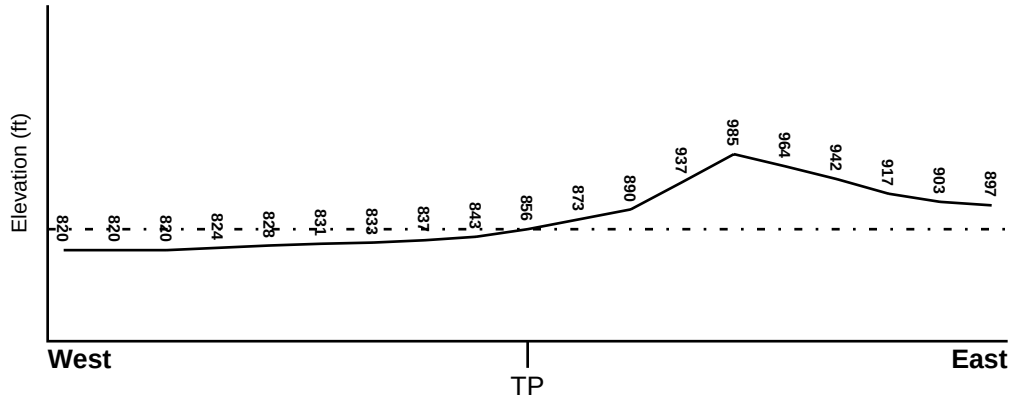
Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General West

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES





Target Property Elevation: 856 ft.

0 1/2 1 Miles

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
1907450003C	FEMA Q3 Flood data

Additional Panels in search area:	FEMA Source Type
1909010085C	FEMA Q3 Flood data
1907450001C	FEMA Q3 Flood data
1907450002C	FEMA Q3 Flood data
1907450004C	FEMA Q3 Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
DES MOINES NW	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

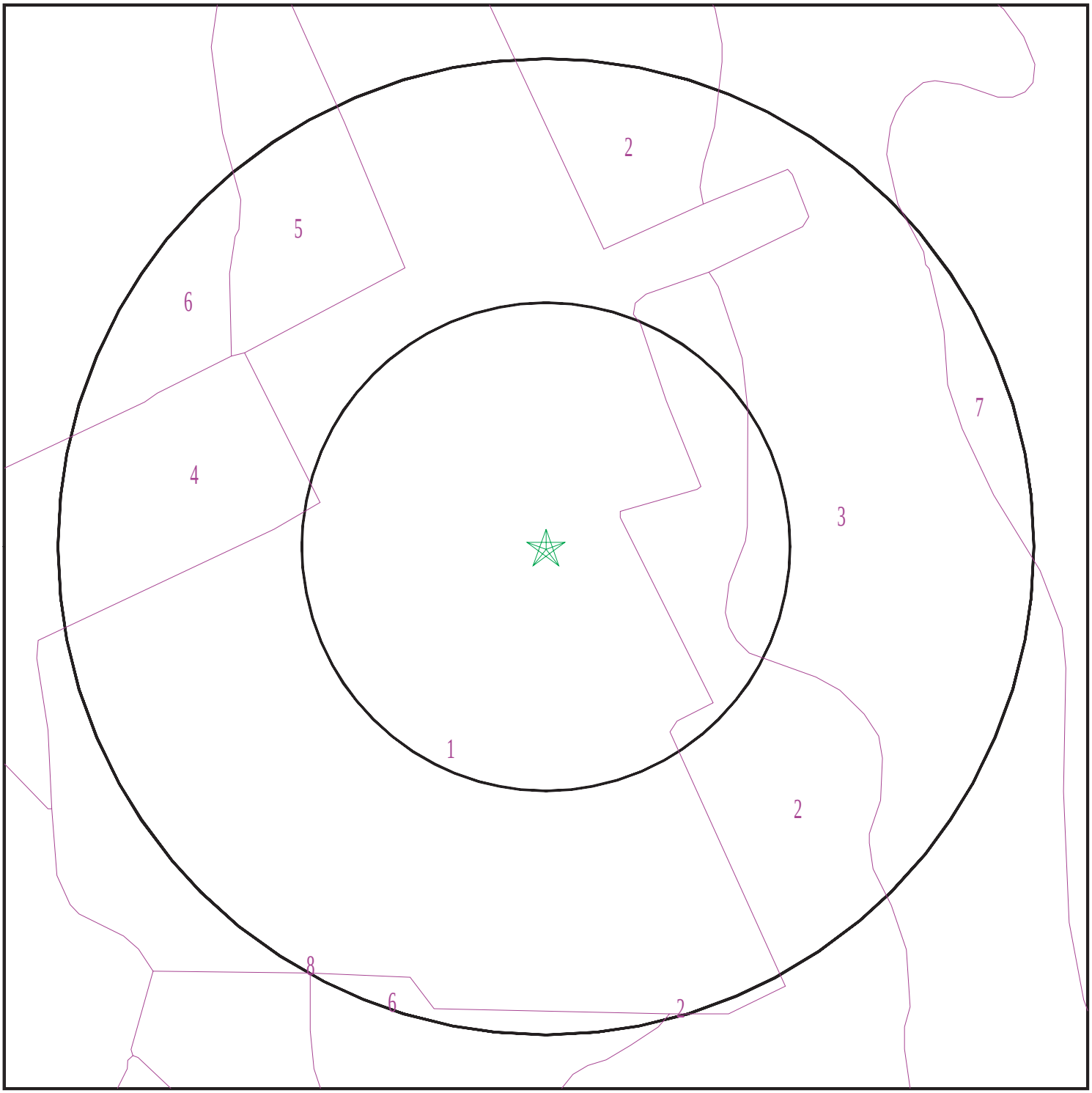
Era:	Paleozoic
System:	Pennsylvanian
Series:	Des Moinesian Series
Code:	PP2 *(decoded above as Era, System & Series)*

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 - 5441925.2s



Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

SITE NAME: Camp Dodge ADDRESS: 7105 Northwest 70th Avenue Johnston IA 50131 LAT/LONG: 41.699189 / 93.714902	CLIENT: AECOM CONTACT: Brittany Kirchmann INQUIRY #: 5441925.2s DATE: October 03, 2018 8:26 am

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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: Urban land

Soil Surface Texture:
Hydrologic Group: Not reported

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: 2

Soil Component Name: Ankeny

Soil Surface Texture: fine sandy 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: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

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		
1	0 inches	29 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 141 Min: 42	Max: 7.3 Min: 6.1
2	29 inches	44 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 141 Min: 42	Max: 7.3 Min: 6.1
3	44 inches	59 inches	loamy fine sand	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 141 Min: 42	Max: 7.3 Min: 6.1

Soil Map ID: 3

Soil Component Name: Dickinson

Soil Surface Texture: fine sandy 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: Somewhat excessively drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

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	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.3 Min: 5.6
2	11 inches	35 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.3 Min: 5.6
3	35 inches	59 inches	loamy fine sand	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.3 Min: 5.6

Soil Map ID: 4

Soil Component Name: Udorthents, loamy

Soil Surface Texture: fine sandy 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:
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: 5

Soil Component Name: Spillville

Soil Surface Texture: 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: Moderately well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 122 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	44 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 42 Min: 4	Max: 7.3 Min: 5.6
2	44 inches	59 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 42 Min: 4	Max: 7.3 Min: 5.6

Soil Map ID: 6

Soil Component Name: Cylinder

Soil Surface Texture: 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: Somewhat poorly drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 30 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	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 705 Min: 141	Max: 8.4 Min: 6.6
2	14 inches	33 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 705 Min: 141	Max: 8.4 Min: 6.6
3	33 inches	59 inches	gravelly coarse sand	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 705 Min: 141	Max: 8.4 Min: 6.6

Soil Map ID: 7

Soil Component Name: Dickinson

Soil Surface Texture: fine sandy 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: Somewhat excessively drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

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	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.3 Min: 5.6
2	11 inches	31 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.3 Min: 5.6
3	31 inches	59 inches	loamy fine sand	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.3 Min: 5.6

Soil Map ID: 8

Soil Component Name: Biscay

Soil Surface Texture: loam

Hydrologic Group: Class B/D - Drained/undrained hydrology class of soils that can be drained and are classified.

Soil Drainage Class: Poorly drained

Hydric Status: All hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

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		
1	0 inches	20 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Clean Sands, Poorly graded sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 8.4 Min: 7.4
2	20 inches	35 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Clean Sands, Poorly graded sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 8.4 Min: 7.4
3	35 inches	59 inches	stratified very gravelly coarse sand to loamy sand	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Clean Sands, Poorly graded sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 8.4 Min: 7.4

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

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

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.

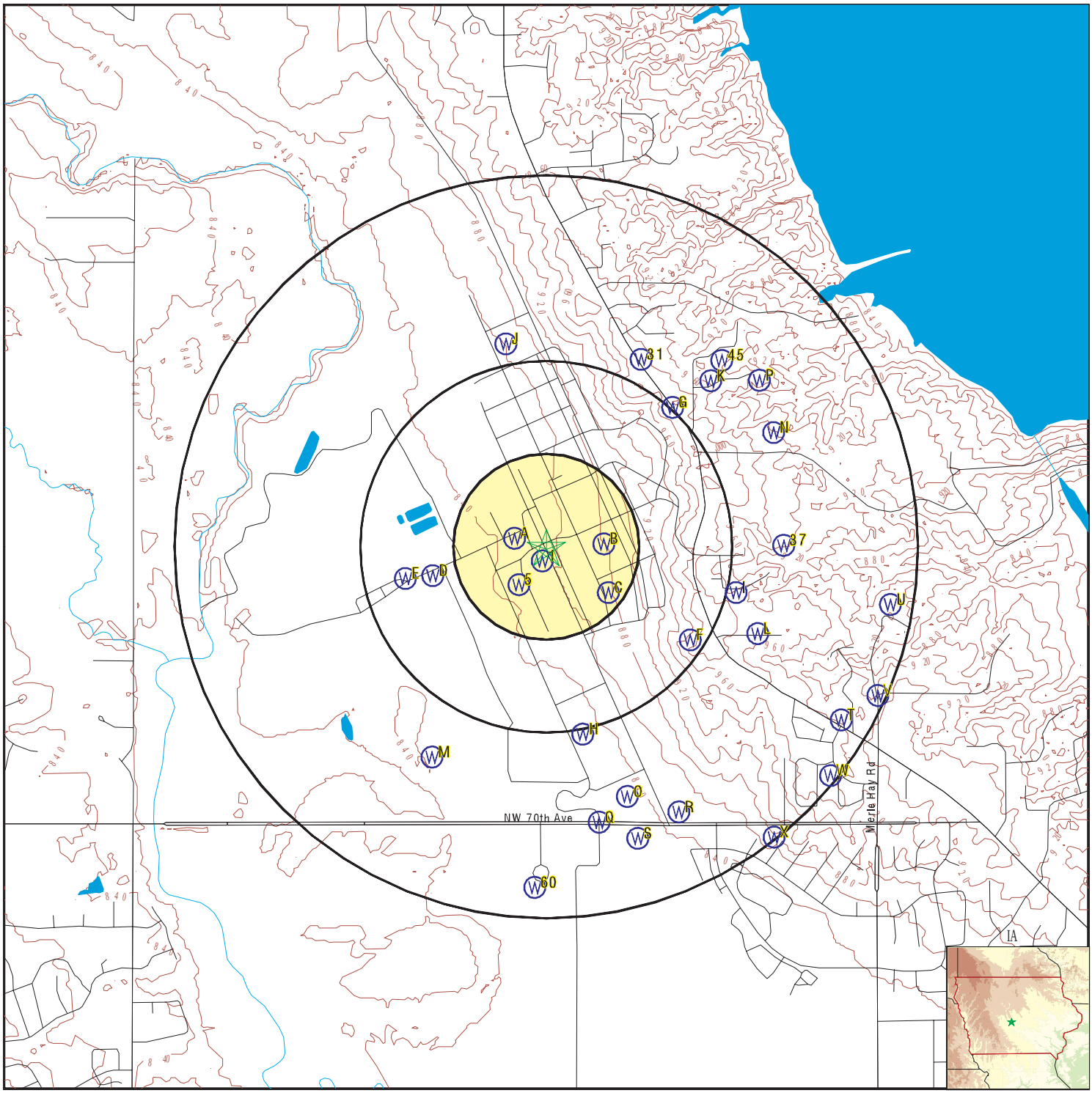
STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	IAPU40000027116	0 - 1/8 Mile SSW
A2	IAUS30000004178	0 - 1/8 Mile West
A3	IAPU40000027076	0 - 1/8 Mile WNW
A4	IAPU40000346500	0 - 1/8 Mile WNW
5	IAPU40000027114	1/8 - 1/4 Mile SW
B6	IAPW40000050973	1/8 - 1/4 Mile ENE
B7	IAPW40000068480	1/8 - 1/4 Mile East
C8	IAPU40000124822	1/8 - 1/4 Mile ESE
C9	IAPU40000124850	1/8 - 1/4 Mile SE
D10	IAPU40000072091	1/4 - 1/2 Mile WSW
D11	IAUS30000001484	1/4 - 1/2 Mile WSW
D12	IAPU40000351006	1/4 - 1/2 Mile WSW
E13	IAUS30000000704	1/4 - 1/2 Mile WSW
E14	IAUS30000003856	1/4 - 1/2 Mile WSW
E15	IAPU40000072089	1/4 - 1/2 Mile WSW
E16	IAPU40000351004	1/4 - 1/2 Mile WSW
F17	IAPU40000027252	1/4 - 1/2 Mile ESE
F18	IAPU40000027253	1/4 - 1/2 Mile ESE
G19	IAPW40000095315	1/2 - 1 Mile NE
G20	IAPW40000095545	1/2 - 1 Mile NE
G21	IAPU40000124748	1/2 - 1 Mile NE
G22	IAPU40000124749	1/2 - 1 Mile NE
H23	IAPU40000124925	1/2 - 1 Mile South
H24	IAPW40000087449	1/2 - 1 Mile South
H25	IAPU40000027227	1/2 - 1 Mile South
I26	IAPU40000316462	1/2 - 1 Mile ESE
H27	IAPU40000027244	1/2 - 1 Mile SSE
I28	IAPU40000316465	1/2 - 1 Mile ESE
J29	IAPW40000104203	1/2 - 1 Mile North
J30	IAPU40000124484	1/2 - 1 Mile North
31	IAPU40000124672	1/2 - 1 Mile NNE
K32	IAPW40000088086	1/2 - 1 Mile NE
K33	IAPU40000124774	1/2 - 1 Mile NE
L34	IAPW40000006779	1/2 - 1 Mile ESE
L35	IAPU40000125002	1/2 - 1 Mile ESE
K36	IAPU40000027131	1/2 - 1 Mile NE

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
37	IAPU40000027260	1/2 - 1 Mile East
M38	IAPU40000316417	1/2 - 1 Mile SSW
M39	IAPU40000316418	1/2 - 1 Mile SSW
K40	IAPW40000075205	1/2 - 1 Mile NE
K41	IAPU40000027135	1/2 - 1 Mile NE
K42	IAPU40000124769	1/2 - 1 Mile NE
N43	IAPW40000060221	1/2 - 1 Mile ENE
N44	IAPU40000124874	1/2 - 1 Mile ENE
45	IAPU40000124763	1/2 - 1 Mile NE
O46	IAPU40000125013	1/2 - 1 Mile SSE
O47	IAPU40000125010	1/2 - 1 Mile SSE
O48	IAPU40000125012	1/2 - 1 Mile SSE
P49	IAPW40000069880	1/2 - 1 Mile NE
P50	IAPU40000124811	1/2 - 1 Mile NE
Q51	IAPU40000027302	1/2 - 1 Mile South
Q52	IAPU40000125004	1/2 - 1 Mile South
Q53	IAPW40000087471	1/2 - 1 Mile South
R54	IAPU40000027335	1/2 - 1 Mile SSE
R55	IAUS30000000364	1/2 - 1 Mile SSE
R56	IAPU40000027345	1/2 - 1 Mile SSE
R57	IAUS30000000241	1/2 - 1 Mile SSE
S58	IAPU40000125045	1/2 - 1 Mile SSE
S59	IAPW40000081515	1/2 - 1 Mile SSE
60	IAPW40000065758	1/2 - 1 Mile South
T61	IAPW40000087249	1/2 - 1 Mile ESE
T62	IAPU40000125149	1/2 - 1 Mile ESE
U63	IAPW40000099536	1/2 - 1 Mile East
U64	IAPU40000125098	1/2 - 1 Mile East
U65	IAPU40000027366	1/2 - 1 Mile East
V66	IAPU40000027405	1/2 - 1 Mile ESE
W67	IAPU40000316585	1/2 - 1 Mile SE
V68	IAPU40000125164	1/2 - 1 Mile ESE
V69	IAPW40000091342	1/2 - 1 Mile ESE
V70	IAPU40000125165	1/2 - 1 Mile ESE
W71	IAPU40000316597	1/2 - 1 Mile SE
W72	IAPU40000316600	1/2 - 1 Mile SE
X73	IAPU40000125174	1/2 - 1 Mile SE
X74	IAPW40000085917	1/2 - 1 Mile SE

PHYSICAL SETTING SOURCE MAP - 5441925.2s



County Boundary
Major Roads
Contour Lines
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: Camp Dodge	CLIENT: AECOM
ADDRESS: 7105 Northwest 70th Avenue Johnston IA 50131	CONTACT: Brittany Kirchmann
LAT/LONG: 41.699189 / 93.714902	INQUIRY #: 5441925.2s
	DATE: October 03, 2018 8:26 am

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
1 **SSW** **0 - 1/8 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAPU40000027116**
A2 **West** **0 - 1/8 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAUS30000004178**
A3 **WNW** **0 - 1/8 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAPU40000027076**
A4 **WNW** **0 - 1/8 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAPU40000346500**
5 **SW** **1/8 - 1/4 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAPU40000027114**
B6 **ENE** **1/8 - 1/4 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPW40000050973**
B7 **East** **1/8 - 1/4 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPW40000068480**
C8 **ESE** **1/8 - 1/4 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPU40000124822**
C9 **SE** **1/8 - 1/4 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPU40000124850**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
D10 **WSW** **1/4 - 1/2 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAPU40000072091**
D11 **WSW** **1/4 - 1/2 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAUS30000001484**
D12 **WSW** **1/4 - 1/2 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAPU40000351006**
E13 **WSW** **1/4 - 1/2 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAUS30000000704**
E14 **WSW** **1/4 - 1/2 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAUS30000003856**
E15 **WSW** **1/4 - 1/2 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAPU40000072089**
E16 **WSW** **1/4 - 1/2 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAPU40000351004**
F17 **ESE** **1/4 - 1/2 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPU40000027252**
F18 **ESE** **1/4 - 1/2 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPU40000027253**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
G19 **NE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPW40000095315**
G20 **NE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPW40000095545**
G21 **NE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPU40000124748**
G22 **NE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPU40000124749**
H23 **South** **1/2 - 1 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAPU40000124925**
H24 **South** **1/2 - 1 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAPW40000087449**
H25 **South** **1/2 - 1 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAPU40000027227**
I26 **ESE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPU40000316462**
H27 **SSE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAPU40000027244**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
I28 **ESE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPU40000316465**
J29 **North** **1/2 - 1 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPW40000104203**
J30 **North** **1/2 - 1 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPU40000124484**
31 **NNE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPU40000124672**
K32 **NE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPW40000088086**
K33 **NE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPU40000124774**
L34 **ESE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPW40000006779**
L35 **ESE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPU40000125002**
K36 **NE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPU40000027131**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
37 **East** **1/2 - 1 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPU40000027260**
M38 **SSW** **1/2 - 1 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAPU40000316417**
M39 **SSW** **1/2 - 1 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAPU40000316418**
K40 **NE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPW40000075205**
K41 **NE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPU40000027135**
K42 **NE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPU40000124769**
N43 **ENE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPW40000060221**
N44 **ENE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPU40000124874**
45 **NE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPU40000124763**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
O46 **SSE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAPU40000125013**
O47 **SSE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAPU40000125010**
O48 **SSE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAPU40000125012**
P49 **NE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPW40000069880**
P50 **NE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPU40000124811**
Q51 **South** **1/2 - 1 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAPU40000027302**
Q52 **South** **1/2 - 1 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAPU40000125004**
Q53 **South** **1/2 - 1 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAPW40000087471**
R54 **SSE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAPU40000027335**

Map ID Direction Distance Elevation		Database	EDR ID Number
R55 **SSE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAUS30000000364**
R56 **SSE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAPU40000027345**
R57 **SSE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAUS30000000241**
S58 **SSE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAPU40000125045**
S59 **SSE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAPW40000081515**
60 **South** **1/2 - 1 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAPW40000065758**
T61 **ESE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPW40000087249**
T62 **ESE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPU40000125149**
U63 **East** **1/2 - 1 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPW40000099536**

Map ID Direction Distance Elevation		Database	EDR ID Number
U64 **East** **1/2 - 1 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPU40000125098**
U65 **East** **1/2 - 1 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPU40000027366**
V66 **ESE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPU40000027405**
W67 **SE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPU40000316585**
V68 **ESE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPU40000125164**
V69 **ESE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPW40000091342**
V70 **ESE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPU40000125165**
W71 **SE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPU40000316597**
W72 **SE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPU40000316600**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
X73 **SE** **1/2 - 1 Mile** **Higher**	**Click here for full text details**	**IA WELLS**	**IAPU40000125174**
X74 **SE** **1/2 - 1 Mile** **Higher**	**Click here for full text details**	**IA WELLS**	**IAPW40000085917**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: IA Radon

Radon Test Results

Zipcode	Num Tests	Minimum	Maximum	Average
50131	172	0.1	30.6	4.9

Federal EPA Radon Zone for POLK County: 1

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 Zip Code: 50131

Number of sites tested: 1

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	Not Reported	Not Reported	Not Reported	Not Reported
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	13.100 pCi/L	0%	100%	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.

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: National Wetland Inventory of Iowa
Source: Department of Natural Resources
Telephone: 319-335-1575

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

All Known Water Wells in the State of Iowa
Source: Department of Natural Resources
Telephone: 319-335-1353
Well types included are agricultural drainage, permitted private, public, registered abandoned, SDWIS public, water use permit sites, wells registered for testing.

Agricultural Drainage Wells
Source: Department of Natural Resources
Telephone: 515-281-5029
Agricultural drainage wells are required to be registered both with the Iowa Department of Natural Resources as a part of the 1987 Groundwater Protection Act, and with the U.S. Environmental Protection Agency as a part of the Underground Injection Control Program.

Private Well Tracking System Wells
Source: Department of Natural Resources
Telephone: 319-335-1353

Water Use Permits
Source: Department of Natural Resources
Telephone: 515-725-0336
Wells under Water Use permits. A water use permit is required of any person or entity that withdraws or diverts at least 25,000 gallons of water in a 24-hour period during any calendar year.

Private Wells Tested
Source: Department of Natural Resources
Telephone: 515-335-1353
This is a point coverage for private wells which have been tested for bacteria and nitrate contamination under the Grants to Counties program.

OTHER STATE DATABASE INFORMATION

Oil and Gas Well Database
Source: Department of Natural Resources
Oil and gas well locations.

RADON

State Database: IA Radon
Source: Department of Public Health
Telephone: 515-281-4340
Radon Test Results

PHYSICAL SETTING SOURCE RECORDS SEARCHED

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

STREET AND ADDRESS INFORMATION

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Camp Dodge
7105 Northwest 70th Avenue
Johnston, IA 50131

Inquiry Number: 5441936.2s
October 03, 2018

EDR Summary Radius Map Report

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

7105 NORTHWEST 70TH AVENUE
JOHNSTON, IA 50131

COORDINATES

Latitude (North):	41.7242090 - 41˚ 43' 27.15''
Longitude (West):	93.7411000 - 93˚ 44' 27.96''
Universal Tranverse Mercator:	Zone 15
UTM X (Meters):	438357.7
UTM Y (Meters):	4619208.5
Elevation:	861 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property:	TP
Source:	U.S. Geological Survey

Target Property:	SW
Source:	U.S. Geological Survey

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20150824
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
7105 NORTHWEST 70TH AVENUE
JOHNSTON, IA 50131

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
A1	IOWA LAW ENFORCEMENT	7105 NW 70TH AVE	US AIRS, FINDS, ECHO		TP
A2	IOWA ARMY NATIONAL G	7105 NW 70TH AVE	CORRACTS, RCRA-TSDF, RCRA-LQG, RAATS, WI MANIFEST		TP
A3	CAMP DODGE	7105 NW 70TH AVE	ICIS, US AIRS		TP
A4	NDNODS LE MARS SA RA	7105 NW 70TH AVENUE	UXO		TP
A5	CAMP DODGE SANITARY	7105 NW 70TH AVE.	IA NPDES		TP
A6	NDNODS CENTERVILLE 1	7105 NW 70TH AVENUE	UXO		TP
A7	NDNODS DAVENPORT SA	7105 NW 70TH AVENUE	UXO		TP
A8	NDNODS SIOUX CITY HI	7105 NW 70TH AVENUE	UXO		TP
A9	NDNODS MOUNT PLEASAN	7105 NW 70TH AVENUE	UXO		TP
A10	NDNODS OSKALOOSA SA	7105 NW 70TH AVENUE	UXO		TP
A11	NDNODS SHELDON 1,000	7105 NW 70TH AVENUE	UXO		TP
A12	U.S. ARMY IOWA ARMY	7105 NW 70TH AVE	TRIS		TP
A13	NDNODS MARSHALLTOWN	7105 NW 70TH AVENUE	UXO		TP
A14	NDNODS RED OAK 25-ME	7105 NW 70TH AVENUE	UXO		TP
A15	ARMED FORCES READINE	7105 NW 70TH AVENUE	IA NPDES		TP
A16	IOWA ARMY NATIONAL G	7105 NW 70TH AVE, BL	IA AST		TP
A17	CAMP DODGE	7105 NW 70TH AVENUE	IA TIER 2		TP
A18	CAMP DODGE	7105 NW 70TH AVE STR	IA TIER 2		TP
A19	CAMP DODGE	7105 NW 70TH AVE	IA SPILLS, IA AIRS, IA NPDES		TP
A20	IOWA ARMY NATIONAL G	7105 NW 70TH AVE.	IA NPDES		TP
A21	CAMP DODGE TRAINING	7105 NW 70TH AVE BLD	IA UST, IA Financial Assurance		TP
A22	CAMP DODGE	7105 NW 70TH ANENUE	IA TIER 2		TP
Reg	CAMP DODGE MILITARY		DOD	Same	1 ft.
23	POLK COUNTY PROPERTY	8500 NW 86TH ST	IA UST	Lower	1094, 0.207, SE

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
IOWA LAW ENFORCEMENT 7105 NW 70TH AVE JOHNSTON, IA 50131	US AIRS Database: US AIRS (AFS), Date of Government Version: 10/12/2016 EPA plant ID:: 110037595064	N/A
	FINDS Registry ID:: 110037595064 Registry ID:: 110036386470	
	ECHO Registry ID: 110036386470 Registry ID: 110037595064	
IOWA ARMY NATIONAL G 7105 NW 70TH AVE JOHNSTON, IA 50131	CORRACTS EPA ID:: IAD981504285	IAD981504285
	RCRA-TSDF EPA ID:: IAD981504285	
	RCRA-LQG EPA ID:: IAD981504285	
	RAATS Status: 01 Facility ID: IAD981504285	
	WI MANIFEST ACT Status: A FID: 0 EPA ID: IAD981504285	
CAMP DODGE 7105 NW 70TH AVE JOHNSTON, IA 50131	ICIS FRS ID:: 110036386470	N/A
	US AIRS Database: US AIRS (AFS), Date of Government Version: 10/12/2016 EPA plant ID:: 110036386470	
NDNODS LE MARS SA RA 7105 NW 70TH AVENUE JOHNSTON, IA	UXO	N/A
CAMP DODGE SANITARY 7105 NW 70TH AVE. JOHNSTON, IA 50131	IA NPDES	N/A
NDNODS CENTERVILLE 1 7105 NW 70TH AVENUE JOHNSTON, IA	UXO	N/A
NDNODS DAVENPORT SA 7105 NW 70TH AVENUE JOHNSTON, IA	UXO	N/A

EXECUTIVE SUMMARY

NDNODS SIOUX CITY HI 7105 NW 70TH AVENUE JOHNSTON, IA	UXO	N/A
NDNODS MOUNT PLEASAN 7105 NW 70TH AVENUE JOHNSTON, IA	UXO	N/A
NDNODS OSKALOOSA SA 7105 NW 70TH AVENUE JOHNSTON, IA	UXO	N/A
NDNODS SHELDON 1,000 7105 NW 70TH AVENUE JOHNSTON, IA	UXO	N/A
U.S. ARMY IOWA ARMY 7105 NW 70TH AVE JOHNSTON, IA 50131	TRIS TRIS ID: 50131SRMYW715NW	50131SRMYW715NW
NDNODS MARSHALLTOWN 7105 NW 70TH AVENUE JOHNSTON, IA	UXO	N/A
NDNODS RED OAK 25-ME 7105 NW 70TH AVENUE JOHNSTON, IA	UXO	N/A
ARMED FORCES READINE 7105 NW 70TH AVENUE JOHNSTON, IA 50131	IA NPDES	N/A
IOWA ARMY NATIONAL G 7105 NW 70TH AVE, BL JOHNSTON, IA	IA AST Registration Number: 18253 Registration Number: 18254 Registration Number: 18255	N/A
CAMP DODGE 7105 NW 70TH AVENUE JOHNSTON, IA 50131	IA TIER 2 Facility Id: 863	N/A
CAMP DODGE 7105 NW 70TH AVE STR JOHNSTON, IA 50131	IA TIER 2 Facility Id: FAIDSIT2A00000863	N/A

EXECUTIVE SUMMARY

	State Id: IA	
CAMP DODGE 7105 NW 70TH AVE JOHNSTON, IA 50131	IA SPILLS Facility Id: 051214-TWA-1410 Facility Id: 022015-BJB-0900 IA AIRS Status: MINOR EI Facility Id: 77-09-004 IA NPDES Permit Number: 7700901	N/A
IOWA ARMY NATIONAL G 7105 NW 70TH AVE. JOHNSTON, IA 50131	IA NPDES	N/A
CAMP DODGE TRAINING 7105 NW 70TH AVE BLD JOHNSTON, IA 50131	IA UST Facility Id: 6224 Registration: 198605890 IA Financial Assurance Database: Financial Assurance 1, Date of Government Version: 08/30/2018 Facility Id: 198605890	N/A
CAMP DODGE 7105 NW 70TH ANENUE JOHNSTON, IA 50131	IA TIER 2 Facility Id: FAIDSIT2A00000863	N/A

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

State and tribal registered storage tank lists

IA UST: A review of the IA UST list, as provided by EDR, and dated 08/30/2018 has revealed that there

is 1 IA UST site within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
POLK COUNTY PROPERTY Facility Id: 5617 Registration: 198605262	8500 NW 86TH ST	SE 1/8 - 1/4 (0.207 mi.)	23	13

ADDITIONAL ENVIRONMENTAL RECORDS

Other Ascertainable Records

DOD: A review of the DOD list, as provided by EDR, and dated 12/31/2005 has revealed that there is 1 DOD site within approximately 1 mile of the target property.

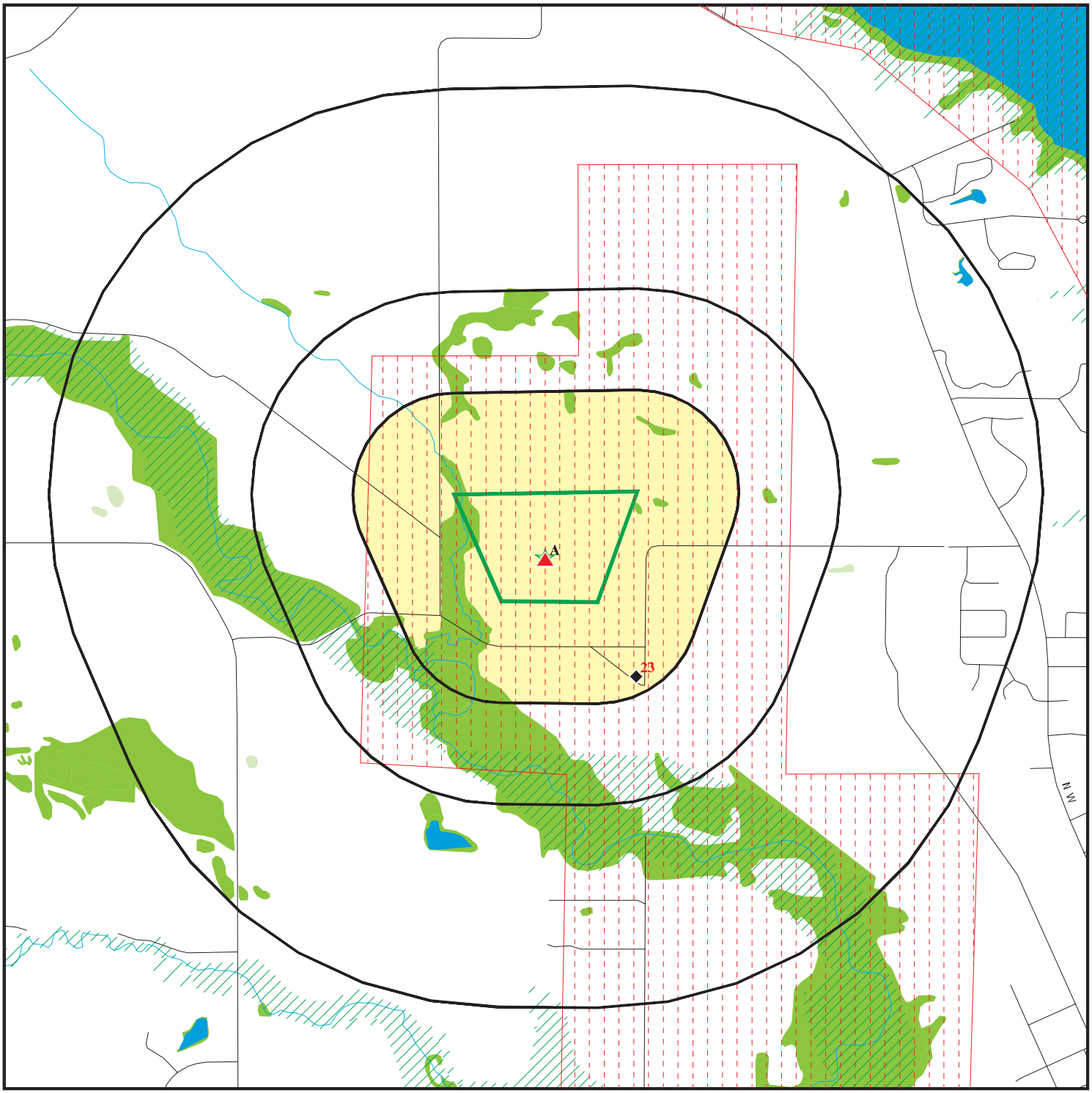
Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
CAMP DODGE MILITARY		0 - 1/8 (0.000 mi.)	0	12

Count: 0 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
		NO SITES FOUND			

OVERVIEW MAP - 5441936.2S



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

0 1/4 1/2 1 Miles

Indian Reservations BIA

100-year flood zone

500-year flood zone

National Wetland Inventory

State Wetlands

Upgradient Area

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: Camp Dodge ADDRESS: 7105 Northwest 70th Avenue Johnston IA 50131 LAT/LONG: 41.724209 / 93.7411	CLIENT: AECOM CONTACT: Brittany Bailey INQUIRY #: 5441936.2s DATE: October 03, 2018 8:25 am

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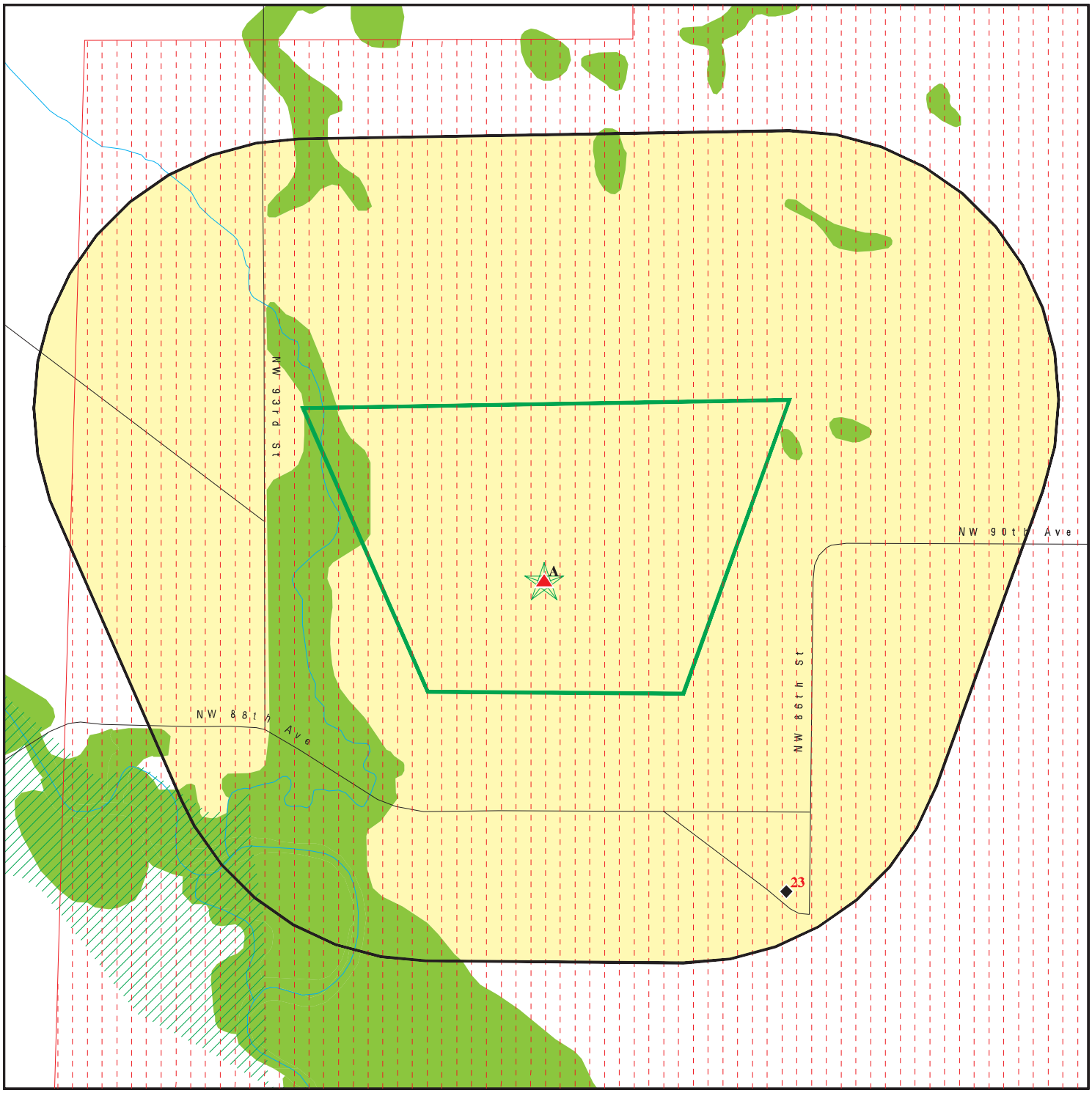
DETAIL MAP - 5441936.2S



0 1/8 1/4 1/2 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

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: Camp Dodge ADDRESS: 7105 Northwest 70th Avenue Johnston IA 50131 LAT/LONG: 41.724209 / 93.7411	CLIENT: AECOM CONTACT: Brittany Bailey INQUIRY #: 5441936.2s DATE: October 03, 2018 8:26 am

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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	TP		NR	NR	NR	NR	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		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site list								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000	1	0	0	0	0	NR	1
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500	1	0	0	0	NR	NR	1
Federal RCRA generators list								
RCRA-LQG	0.250	1	0	0	NR	NR	NR	1
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-CESQG	0.250		0	0	NR	NR	NR	0
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		NR	NR	NR	NR	NR	0
State- and tribal - equivalent CERCLIS								
IA SHWS	1.000		0	0	0	0	NR	0
State and tribal landfill and/or solid waste disposal site lists								
IA SWF/LF	0.500		0	0	0	NR	NR	0
State and tribal leaking storage tank lists								
IA LUST	0.500		0	0	0	NR	NR	0
IA LAST	0.500		0	0	0	NR	NR	0
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
IA UST	0.250	1	0	1	NR	NR	NR	2
IA AST	0.250	1	0	0	NR	NR	NR	1
INDIAN UST	0.250		0	0	NR	NR	NR	0
State and tribal institutional control / engineering control registries								
IA INST CONTROL	0.500		0	0	0	NR	NR	0
State and tribal voluntary cleanup sites								
IA VCP	0.500		0	0	0	NR	NR	0
INDIAN VCP	0.500		0	0	0	NR	NR	0
State and tribal Brownfields sites								
IA BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
INDIAN ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	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								
US HIST CDL	TP		NR	NR	NR	NR	NR	0
IA ALLSITES	0.500		0	0	0	NR	NR	0
IA DEL SHWS	1.000		0	0	0	0	NR	0
US CDL	TP		NR	NR	NR	NR	NR	0
Local Land Records								
IA LIENS	TP		NR	NR	NR	NR	NR	0
LIENS 2	TP		NR	NR	NR	NR	NR	0
Records of Emergency Release Reports								
HMIRS	TP		NR	NR	NR	NR	NR	0
IA SPILLS	TP	1	NR	NR	NR	NR	NR	1
IA SPILLS 90	TP		NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		1	0	0	0	NR	1
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

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
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	1	NR	NR	NR	NR	NR	1
PRP	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
ICIS	TP	1	NR	NR	NR	NR	NR	1
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	2	NR	NR	NR	NR	NR	2
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.250		0	0	NR	NR	NR	0
FINDS	TP	1	NR	NR	NR	NR	NR	1
ECHO	TP	1	NR	NR	NR	NR	NR	1
UXO	1.000	9	0	0	0	0	NR	9
DOCKET HWC	TP		NR	NR	NR	NR	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
IA AIRS	TP	1	NR	NR	NR	NR	NR	1
IA COAL ASH	0.500		0	0	0	NR	NR	0
IA DRYCLEANERS	0.250		0	0	NR	NR	NR	0
IA Financial Assurance	TP	1	NR	NR	NR	NR	NR	1
WI MANIFEST	0.250	1	0	0	NR	NR	NR	1
IA NPDES	TP	4	NR	NR	NR	NR	NR	4
IA TIER 2	TP	3	NR	NR	NR	NR	NR	3
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
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								
IA RGA HWS	TP		NR	NR	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
IA RGA LUST	TP		NR	NR	NR	NR	NR	0
- Totals --		32	1	1	0	0	0	34

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

A1
Target
Property

IOWA LAW ENFORCEMENT ACADEMY
7105 NW 70TH AVE
JOHNSTON, IA 50131

US AIRS **1016062062**
FINDS **N/A**
ECHO

Actual:
861 ft.

Click here for full text details

US AIRS
EPA plant ID:: 110037595064

FINDS
Registry ID:: 110037595064
Registry ID:: 110036386470

ECHO
Registry ID: 110036386470
Registry ID: 110037595064

A2
Target
Property

IOWA ARMY NATIONAL GUARD
7105 NW 70TH AVE
JOHNSTON, IA 50131

CORRACTS **1000142942**
RCRA-TSDF **IAD981504285**
RCRA-LQG
RAATS
WI MANIFEST

Actual:
861 ft.

Click here for full text details

CORRACTS
EPA ID:: IAD981504285

RCRA-TSDF
EPA Id: IAD981504285

RCRA-LQG
EPA Id: IAD981504285

RAATS
Status: 01
Facility ID: IAD981504285

WI MANIFEST
ACT Status: A
FID: 0
EPA ID: IAD981504285

A3
Target
Property

CAMP DODGE
7105 NW 70TH AVE
JOHNSTON, IA 50131

ICIS **1011295875**
US AIRS **N/A**

Actual:
861 ft.

Click here for full text details

ICIS
FRS ID:: 110036386470

CAMP DODGE (Continued) **1011295875**

US AIRS
EPA plant ID:: 110036386470

A4 Target Property | **NDNODS LE MARS SA RANGE** | **UXO** | **1018152519**
7105 NW 70TH AVENUE | **N/A**
JOHNSTON, IA

Actual: 861 ft.

Click here for full text details

A5 Target Property | **CAMP DODGE SANITARY SEWER LATERAL REPAIR - CONSTRU** | **IA NPDES** | **S122553943**
7105 NW 70TH AVE. | **N/A**
JOHNSTON, IA 50131

Actual: 861 ft.

Click here for full text details

A6 Target Property | **NDNODS CENTERVILLE 1,000-YARD RANGE** | **UXO** | **1018152517**
7105 NW 70TH AVENUE | **N/A**
JOHNSTON, IA

Actual: 861 ft.

Click here for full text details

A7 Target Property | **NDNODS DAVENPORT SA RANGE** | **UXO** | **1018152518**
7105 NW 70TH AVENUE | **N/A**
JOHNSTON, IA

Actual: 861 ft.

Click here for full text details

A8 Target Property | **NDNODS SIOUX CITY HILL FARM RANGE** | **UXO** | **1018152526**
7105 NW 70TH AVENUE | **N/A**
JOHNSTON, IA

Actual: 861 ft.

Click here for full text details

Map ID Direction Distance Elevation	Site	Database(s)	EDR ID Number EPA ID Number
A9 **Target** **Property** **Actual:** **861 ft.**	**NDNODS MOUNT PLEASANT SA RANGE NTA** **7105 NW 70TH AVENUE** **JOHNSTON, IA** **Click here for full text details**	**UXO**	**1018152521** **N/A**
A10 **Target** **Property** **Actual:** **861 ft.**	**NDNODS OSKALOOSA SA RANGE** **7105 NW 70TH AVENUE** **JOHNSTON, IA** **Click here for full text details**	**UXO**	**1018152522** **N/A**
A11 **Target** **Property** **Actual:** **861 ft.**	**NDNODS SHELDON 1,000-YARD RANGE** **7105 NW 70TH AVENUE** **JOHNSTON, IA** **Click here for full text details**	**UXO**	**1018152525** **N/A**
A12 **Target** **Property** **Actual:** **861 ft.**	**U.S. ARMY IOWA ARMY NATIONAL GUARD CAMP DODGE INST** **7105 NW 70TH AVE** **JOHNSTON, IA 50131** **Click here for full text details** **TRIS** TRIS ID: 50131SRMYW715NW	**TRIS**	**1012009617** **50131SRMYW715NW**
A13 **Target** **Property** **Actual:** **861 ft.**	**NDNODS MARSHALLTOWN SA RANGE** **7105 NW 70TH AVENUE** **JOHNSTON, IA** **Click here for full text details**	**UXO**	**1018152520** **N/A**
A14 **Target** **Property** **Actual:** **861 ft.**	**NDNODS RED OAK 25-METER RANGE** **7105 NW 70TH AVENUE** **JOHNSTON, IA** **Click here for full text details**	**UXO**	**1018152524** **N/A**

Map ID Direction Distance Elevation	Site	Database(s)	EDR ID Number EPA ID Number
A15 **Target** **Property**	**ARMED FORCES READINESS CENTER** **7105 NW 70TH AVENUE** **JOHNSTON, IA 50131**	**IA NPDES**	**S122535900** **N/A**
Actual: **861 ft.**	**Click here for full text details**		
A16 **Target** **Property**	**IOWA ARMY NATIONAL GUARD** **7105 NW 70TH AVE, BLDG S42** **JOHNSTON, IA**	**IA AST**	**A100413834** **N/A**
Actual: **861 ft.**	**Click here for full text details** **IA AST** Registration Number: 18253 Registration Number: 18254 Registration Number: 18255		
A17 **Target** **Property**	**CAMP DODGE** **7105 NW 70TH AVENUE** **JOHNSTON, IA 50131**	**IA TIER 2**	**S116492798** **N/A**
Actual: **861 ft.**	**Click here for full text details** **IA TIER 2** Facility Id: 863		
A18 **Target** **Property**	**CAMP DODGE** **7105 NW 70TH AVE STREET** **JOHNSTON, IA 50131**	**IA TIER 2**	**S109946752** **N/A**
Actual: **861 ft.**	**Click here for full text details** **IA TIER 2** Facility Id: FAIDSIT2A00000863 State Id: IA		
A19 **Target** **Property**	**CAMP DODGE** **7105 NW 70TH AVE** **JOHNSTON, IA 50131**	**IA SPILLS** **IA AIRS** **IA NPDES**	**S108268561** **N/A**
Actual: **861 ft.**	**Click here for full text details** **IA SPILLS** Facility Id: 051214-TWA-1410 Facility Id: 022015-BJB-0900 **IA AIRS** Facility Id: 77-09-004		

CAMP DODGE (Continued) **S108268561**

Status: MINOR EI

IA NPDES
Permit Number: 7700901

A20 Target Property | **IOWA ARMY NATIONAL GUARD - TRAINING SITE** | **IA NPDES** | **S122561846**
7105 NW 70TH AVE. **N/A**
JOHNSTON, IA 50131

Actual: 861 ft.

Click here for full text details

A21 Target Property | **CAMP DODGE TRAINING SITE** | **IA UST** | **U003634981**
7105 NW 70TH AVE BLDG W46 | **IA Financial Assurance** | **N/A**
JOHNSTON, IA 50131

Actual: 861 ft.

Click here for full text details

IA UST
Registration: 198605890
Facility Id: 6224

IA Financial Assurance
Facility Id: 198605890

A22 Target Property | **CAMP DODGE** | **IA TIER 2** | **S116492814**
7105 NW 70TH ANENUE **N/A**
JOHNSTON, IA 50131

Actual: 861 ft.

Click here for full text details

IA TIER 2
Facility Id: FAIDSIT2A00000863

DOD Region | **CAMP DODGE MILITARY RESERVATION** | **DOD** | **CUSA115384**
N/A

CAMP DODGE MILITARY RESER (County), IA

< 1/8
1 ft.

Click here for full text details

Map ID Direction Distance Elevation	Site	Database(s)	EDR ID Number EPA ID Number
23 SE 1/8-1/4 0.207 mi. 1094 ft. Relative: Lower	**POLK COUNTY PROPERTY 8500 NW 86TH ST DES MOINES, IA 50131** **Click here for full text details** **IA UST** Registration: 198605262 Facility Id: 5617	**IA UST**	**U003935079 N/A**

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
IA	AIRS	Minor and Title V Sources Listing	Department of Natural Resources	06/26/2018	07/31/2018	08/24/2018
IA	ALLSITES	Contaminated Sites Tracking Database	Department of Natural Resources	07/16/2018	07/18/2018	08/23/2018
IA	AST	Aboveground Storage Tank Sites	Department of Public Safety	07/31/2018	08/02/2018	08/24/2018
IA	BROWNFIELDS	Brownfields Site Listing	Department of Natural Resources	07/16/2018	07/18/2018	08/23/2018
IA	COAL ASH	Coal Ash Disposal Site Listing	Department of Natural Resources	09/04/2018	09/05/2018	10/02/2018
IA	DEL SHWS	Delisted Contaminated Sites Listing	Department of Natural Resources	12/31/2017	01/24/2018	02/23/2018
IA	DRYCLEANERS	Iowa Drycleaner List	Department of Natural Resources	07/06/2018	07/27/2018	08/24/2018
IA	Financial Assurance 1	Financial Assurance Information Listing	Department of Natural Resources	08/30/2018	09/07/2018	10/02/2018
IA	Financial Assurance 2	Financial Assurance Information Listing	Department of Natural Resources	08/29/2018	08/30/2018	10/02/2018
IA	INST CONTROL	Sites with Institutional Controls	Department of Natural Resources	07/16/2018	07/18/2018	08/24/2018
IA	LAST	Leaking Aboveground Storage Tank Sites	Department of Natural Resources	07/16/2018	07/18/2018	08/24/2018
IA	LIENS	Liens Filed Listing	Department of Natural Resources	07/05/2018	07/24/2018	08/24/2018
IA	LUST	Leaking Underground Storage Tank Data	Department of Natural Resources	08/30/2018	09/07/2018	10/02/2018
IA	NPDES	List of NPDES Permittees	Department of Natural Resources	08/08/2018	08/10/2018	08/24/2018
IA	RGA HWS	Recovered Government Archive State Hazardous Waste Facilitie	Department of Natural Resources		07/01/2013	01/03/2014
IA	RGA LUST	Recovered Government Archive Leaking Underground Storage Tan	Department of Natural Resources		07/01/2013	12/26/2013
IA	SHWS	Registry of Hazardous Waste or Hazardous Substance Disposal	Department of Natural Resources	12/31/2017	01/24/2018	02/23/2018
IA	SPILLS	Spills Database	Department of Natural Resources	09/04/2018	09/06/2018	10/02/2018
IA	SPILLS 90	SPILLS90 data from FirstSearch	FirstSearch	10/17/2012	01/03/2013	03/05/2013
IA	SWF/LF	Permitted Solid Waste Management Facilities	Department of Natural Resources	09/04/2018	09/05/2018	10/02/2018
IA	TIER 2	Tier 2 Information Listing	Department of Natural Resources	12/31/2017	09/18/2018	10/02/2018
IA	UST	Underground Storage Tank Data	Department of Natural Resources	08/30/2018	09/07/2018	10/02/2018
IA	VCP	Land Recycling Program Sites	Department of Natural Resources	07/16/2018	07/18/2018	08/23/2018
US	2020 COR ACTION	2020 Corrective Action Program List	Environmental Protection Agency	09/30/2017	05/08/2018	07/20/2018
US	ABANDONED MINES	Abandoned Mines	Department of Interior	09/10/2018	09/11/2018	09/14/2018
US	BRS	Biennial Reporting System	EPA/NTIS	12/31/2015	02/22/2017	09/28/2017
US	COAL ASH DOE	Steam-Electric Plant Operation Data	Department of Energy	12/31/2005	08/07/2009	10/22/2009
US	COAL ASH EPA	Coal Combustion Residues Surface Impoundments List	Environmental Protection Agency	07/01/2014	09/10/2014	10/20/2014
US	CONSENT	Superfund (CERCLA) Consent Decrees	Department of Justice, Consent Decree Library	03/31/2018	04/16/2018	06/29/2018
US	CORRACTS	Corrective Action Report	EPA	03/01/2018	03/28/2018	06/22/2018
US	DEBRIS REGION 9	Torres Martinez Reservation Illegal Dump Site Locations	EPA, Region 9	01/12/2009	05/07/2009	09/21/2009
US	DOCKET HWC	Hazardous Waste Compliance Docket Listing	Environmental Protection Agency	01/04/2018	01/19/2018	04/13/2018
US	DOD	Department of Defense Sites	USGS	12/31/2005	11/10/2006	01/11/2007
US	DOT OPS	Incident and Accident Data	Department of Transporation, Office of Pipeli	07/31/2012	08/07/2012	09/18/2012
US	Delisted NPL	National Priority List Deletions	EPA	07/17/2018	08/09/2018	09/07/2018
US	ECHO	Enforcement & Compliance History Information	Environmental Protection Agency	09/02/2018	09/05/2018	09/14/2018
US	EDR Hist Auto	EDR Exclusive Historical Auto Stations	EDR, Inc.			
US	EDR Hist Cleaner	EDR Exclusive Historical Cleaners	EDR, Inc.			
US	EDR MGP	EDR Proprietary Manufactured Gas Plants	EDR, Inc.			
US	EPA WATCH LIST	EPA WATCH LIST	Environmental Protection Agency	08/30/2013	03/21/2014	06/17/2014
US	ERNS	Emergency Response Notification System	National Response Center, United States Coast	06/18/2018	06/27/2018	09/14/2018
US	FEDERAL FACILITY	Federal Facility Site Information listing	Environmental Protection Agency	11/07/2016	01/05/2017	04/07/2017
US	FEDLAND	Federal and Indian Lands	U.S. Geological Survey	12/31/2005	02/06/2006	01/11/2007
US	FEMA UST	Underground Storage Tank Listing	FEMA	05/15/2017	05/30/2017	10/13/2017
US	FINDS	Facility Index System/Facility Registry System	EPA	02/21/2018	02/23/2018	03/23/2018
US	FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fu	EPA/Office of Prevention, Pesticides and Toxi	04/09/2009	04/16/2009	05/11/2009
US	FTTS INSP	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fu	EPA	04/09/2009	04/16/2009	05/11/2009

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
US	FUDS	Formerly Used Defense Sites	U.S. Army Corps of Engineers	01/31/2015	07/08/2015	10/13/2015
US	FUELS PROGRAM	EPA Fuels Program Registered Listing	EPA	05/21/2018	05/23/2018	09/07/2018
US	FUSRAP	Formerly Utilized Sites Remedial Action Program	Department of Energy	08/08/2017	09/11/2018	09/14/2018
US	HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing	Environmental Protection Agency	10/19/2006	03/01/2007	04/10/2007
US	HIST FTTS INSP	FIFRA/TSCA Tracking System Inspection & Enforcement Case Lis	Environmental Protection Agency	10/19/2006	03/01/2007	04/10/2007
US	HMIRS	Hazardous Materials Information Reporting System	U.S. Department of Transportation	03/26/2018	03/27/2018	06/08/2018
US	ICIS	Integrated Compliance Information System	Environmental Protection Agency	11/18/2016	11/23/2016	02/10/2017
US	IHS OPEN DUMPS	Open Dumps on Indian Land	Department of Health & Human Serivces, Indian	04/01/2014	08/06/2014	01/29/2015
US	INDIAN LUST R1	Leaking Underground Storage Tanks on Indian Land	EPA Region 1	04/13/2018	05/18/2018	07/20/2018
US	INDIAN LUST R10	Leaking Underground Storage Tanks on Indian Land	EPA Region 10	04/12/2018	05/18/2018	07/20/2018
US	INDIAN LUST R4	Leaking Underground Storage Tanks on Indian Land	EPA Region 4	05/08/2018	05/18/2018	07/20/2018
US	INDIAN LUST R5	Leaking Underground Storage Tanks on Indian Land	EPA, Region 5	04/12/2018	05/18/2018	07/20/2018
US	INDIAN LUST R6	Leaking Underground Storage Tanks on Indian Land	EPA Region 6	04/01/2018	05/18/2018	07/20/2018
US	INDIAN LUST R7	Leaking Underground Storage Tanks on Indian Land	EPA Region 7	04/24/2018	05/18/2018	07/20/2018
US	INDIAN LUST R8	Leaking Underground Storage Tanks on Indian Land	EPA Region 8	04/25/2018	05/18/2018	07/20/2018
US	INDIAN LUST R9	Leaking Underground Storage Tanks on Indian Land	Environmental Protection Agency	04/10/2018	05/18/2018	07/20/2018
US	INDIAN ODI	Report on the Status of Open Dumps on Indian Lands	Environmental Protection Agency	12/31/1998	12/03/2007	01/24/2008
US	INDIAN RESERV	Indian Reservations	USGS	12/31/2014	07/14/2015	01/10/2017
US	INDIAN UST R1	Underground Storage Tanks on Indian Land	EPA, Region 1	04/13/2018	05/18/2018	07/20/2018
US	INDIAN UST R10	Underground Storage Tanks on Indian Land	EPA Region 10	04/12/2018	05/18/2018	07/20/2018
US	INDIAN UST R4	Underground Storage Tanks on Indian Land	EPA Region 4	05/08/2018	05/18/2018	07/20/2018
US	INDIAN UST R5	Underground Storage Tanks on Indian Land	EPA Region 5	04/12/2018	05/18/2018	07/20/2018
US	INDIAN UST R6	Underground Storage Tanks on Indian Land	EPA Region 6	04/01/2018	05/18/2018	07/20/2018
US	INDIAN UST R7	Underground Storage Tanks on Indian Land	EPA Region 7	04/24/2018	05/18/2018	07/20/2018
US	INDIAN UST R8	Underground Storage Tanks on Indian Land	EPA Region 8	04/25/2018	05/18/2018	07/20/2018
US	INDIAN UST R9	Underground Storage Tanks on Indian Land	EPA Region 9	04/10/2018	05/18/2018	07/20/2018
US	INDIAN VCP R1	Voluntary Cleanup Priority Listing	EPA, Region 1	07/27/2015	09/29/2015	02/18/2016
US	INDIAN VCP R7	Voluntary Cleanup Priority Lisitng	EPA, Region 7	03/20/2008	04/22/2008	05/19/2008
US	LEAD SMELTER 1	Lead Smelter Sites	Environmental Protection Agency	05/13/2018	05/30/2018	06/29/2018
US	LEAD SMELTER 2	Lead Smelter Sites	American Journal of Public Health	04/05/2001	10/27/2010	12/02/2010
US	LIENS 2	CERCLA Lien Information	Environmental Protection Agency	05/13/2018	05/30/2018	06/29/2018
US	LUCIS	Land Use Control Information System	Department of the Navy	05/14/2018	05/18/2018	07/20/2018
US	MLTS	Material Licensing Tracking System	Nuclear Regulatory Commission	08/30/2016	09/08/2016	10/21/2016
US	NPL	National Priority List	EPA	07/17/2018	08/09/2018	09/07/2018
US	NPL LIENS	Federal Superfund Liens	EPA	10/15/1991	02/02/1994	03/30/1994
US	ODI	Open Dump Inventory	Environmental Protection Agency	06/30/1985	08/09/2004	09/17/2004
US	PADS	PCB Activity Database System	EPA	06/01/2017	06/09/2017	10/13/2017
US	PCB TRANSFORMER	PCB Transformer Registration Database	Environmental Protection Agency	05/24/2017	11/30/2017	12/15/2017
US	PRP	Potentially Responsible Parties	EPA	10/25/2013	10/17/2014	10/20/2014
US	Proposed NPL	Proposed National Priority List Sites	EPA	07/17/2018	08/09/2018	09/07/2018
US	RAATS	RCRA Administrative Action Tracking System	EPA	04/17/1995	07/03/1995	08/07/1995
US	RADINFO	Radiation Information Database	Environmental Protection Agency	04/03/2018	04/05/2018	06/29/2018
US	RCRA NonGen / NLR	RCRA - Non Generators / No Longer Regulated	Environmental Protection Agency	03/01/2018	03/28/2018	06/22/2018
US	RCRA-CESQG	RCRA - Conditionally Exempt Small Quantity Generators	Environmental Protection Agency	03/01/2018	03/28/2018	06/22/2018
US	RCRA-LQG	RCRA - Large Quantity Generators	Environmental Protection Agency	03/01/2018	03/28/2018	06/22/2018
US	RCRA-SQG	RCRA - Small Quantity Generators	Environmental Protection Agency	03/01/2018	03/28/2018	06/22/2018
US	RCRA-TSDF	RCRA - Treatment, Storage and Disposal	Environmental Protection Agency	03/01/2018	03/28/2018	06/22/2018

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
US	RMP	Risk Management Plans	Environmental Protection Agency	05/01/2018	05/17/2018	09/07/2018
US	ROD	Records Of Decision	EPA	05/13/2018	05/30/2018	06/29/2018
US	SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing	Environmental Protection Agency	01/01/2017	02/03/2017	04/07/2017
US	SEMS	Superfund Enterprise Management System	EPA	07/17/2018	08/09/2018	09/07/2018
US	SEMS-ARCHIVE	Superfund Enterprise Management System Archive	EPA	07/17/2018	08/09/2018	09/07/2018
US	SSTS	Section 7 Tracking Systems	EPA	12/31/2009	12/10/2010	02/25/2011
US	TRIS	Toxic Chemical Release Inventory System	EPA	12/31/2016	01/10/2018	01/12/2018
US	TSCA	Toxic Substances Control Act	EPA	12/31/2016	06/21/2017	01/05/2018
US	UMTRA	Uranium Mill Tailings Sites	Department of Energy	06/23/2017	10/11/2017	11/03/2017
US	US AIRS (AFS)	Aerometric Information Retrieval System Facility Subsystem (	EPA	10/12/2016	10/26/2016	02/03/2017
US	US AIRS MINOR	Air Facility System Data	EPA	10/12/2016	10/26/2016	02/03/2017
US	US BROWNFIELDS	A Listing of Brownfields Sites	Environmental Protection Agency	06/18/2018	06/20/2018	09/14/2018
US	US CDL	Clandestine Drug Labs	Drug Enforcement Administration	05/18/2018	06/20/2018	09/14/2018
US	US ENG CONTROLS	Engineering Controls Sites List	Environmental Protection Agency	07/31/2018	08/28/2018	09/14/2018
US	US FIN ASSUR	Financial Assurance Information	Environmental Protection Agency	03/01/2018	03/27/2018	06/22/2018
US	US HIST CDL	National Clandestine Laboratory Register	Drug Enforcement Administration	05/18/2018	06/20/2018	09/14/2018
US	US INST CONTROL	Sites with Institutional Controls	Environmental Protection Agency	07/31/2018	08/28/2018	09/14/2018
US	US MINES	Mines Master Index File	Department of Labor, Mine Safety and Health A	05/03/2018	05/31/2018	06/29/2018
US	US MINES 2	Ferrous and Nonferrous Metal Mines Database Listing	USGS	12/05/2005	02/29/2008	04/18/2008
US	US MINES 3	Active Mines & Mineral Plants Database Listing	USGS	04/14/2011	06/08/2011	09/13/2011
US	UXO	Unexploded Ordnance Sites	Department of Defense	09/30/2017	06/19/2018	09/14/2018
CT	CT MANIFEST	Hazardous Waste Manifest Data	Department of Energy & Environmental Protecti	08/10/2018	08/10/2018	09/10/2018
NJ	NJ MANIFEST	Manifest Information	Department of Environmental Protection	12/31/2017	07/13/2018	08/01/2018
NY	NY MANIFEST	Facility and Manifest Data	Department of Environmental Conservation	07/01/2018	08/01/2018	08/31/2018
RI	RI MANIFEST	Manifest information	Department of Environmental Management	12/31/2017	02/23/2018	04/09/2018
WI	WI MANIFEST	Manifest Information	Department of Natural Resources	12/31/2017	06/15/2018	07/09/2018
US	AHA Hospitals	Sensitive Receptor: AHA Hospitals	American Hospital Association, Inc.			
US	Medical Centers	Sensitive Receptor: Medical Centers	Centers for Medicare & Medicaid Services			
US	Nursing Homes	Sensitive Receptor: Nursing Homes	National Institutes of Health			
US	Public Schools	Sensitive Receptor: Public Schools	National Center for Education Statistics			
US	Private Schools	Sensitive Receptor: Private Schools	National Center for Education Statistics			
IA	Daycare Centers	Sensitive Receptor: Child Care Facilities	Department of Human Services			
US	Flood Zones	100-year and 500-year flood zones	Emergency Management Agency (FEMA)			
US	NWI	National Wetlands Inventory	U.S. Fish and Wildlife Service			
IA	State Wetlands	National Wetland Inventory of Iowa	Department of Natural Resources			
US	Topographic Map		U.S. Geological Survey			
US	Oil/Gas Pipelines		PennWell Corporation			
US	Electric Power Transmission Line Data		PennWell Corporation			

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

CAMP DODGE
7105 NORTHWEST 70TH AVENUE
JOHNSTON, IA 50131

TARGET PROPERTY COORDINATES

Latitude (North):	41.724209 - 41˚ 43’ 27.15’’
Longitude (West):	93.7411 - 93˚ 44’ 27.96’’
Universal Tranverse Mercator:	Zone 15
UTM X (Meters):	438357.7
UTM Y (Meters):	4619208.5
Elevation:	861 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	5942453 DES MOINES NW, IA
Version Date:	2013
Southwest Map:	5942459 GRIMES, IA
Version Date:	2013

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).

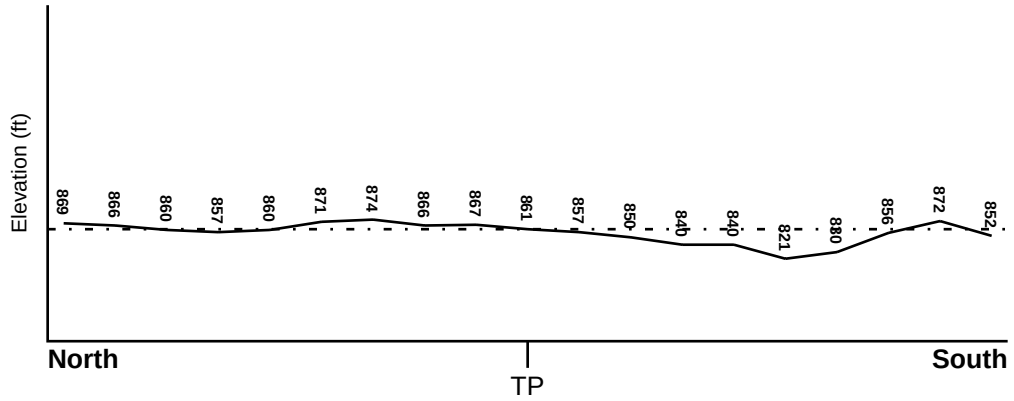
TOPOGRAPHIC INFORMATION

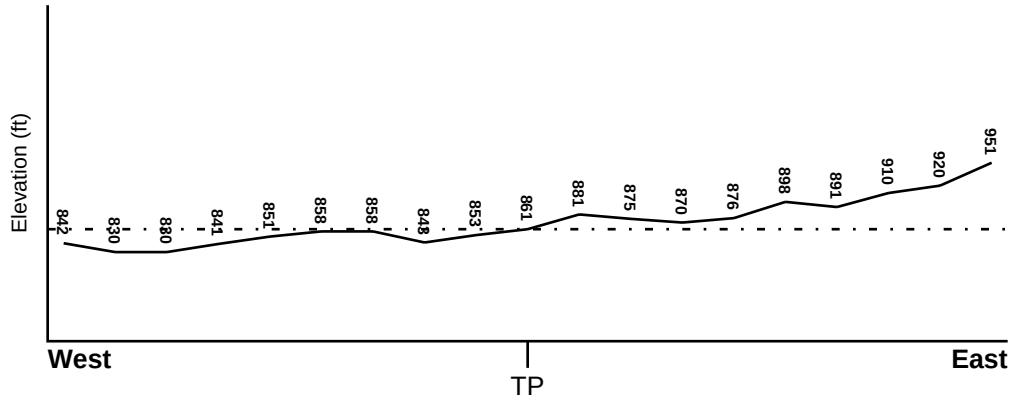
Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General SW

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES





Target Property Elevation: 861 ft.

0 1/2 1 Miles

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
1907450001C	FEMA Q3 Flood data

Additional Panels in search area:	FEMA Source Type
1909010085C	FEMA Q3 Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
DES MOINES NW	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

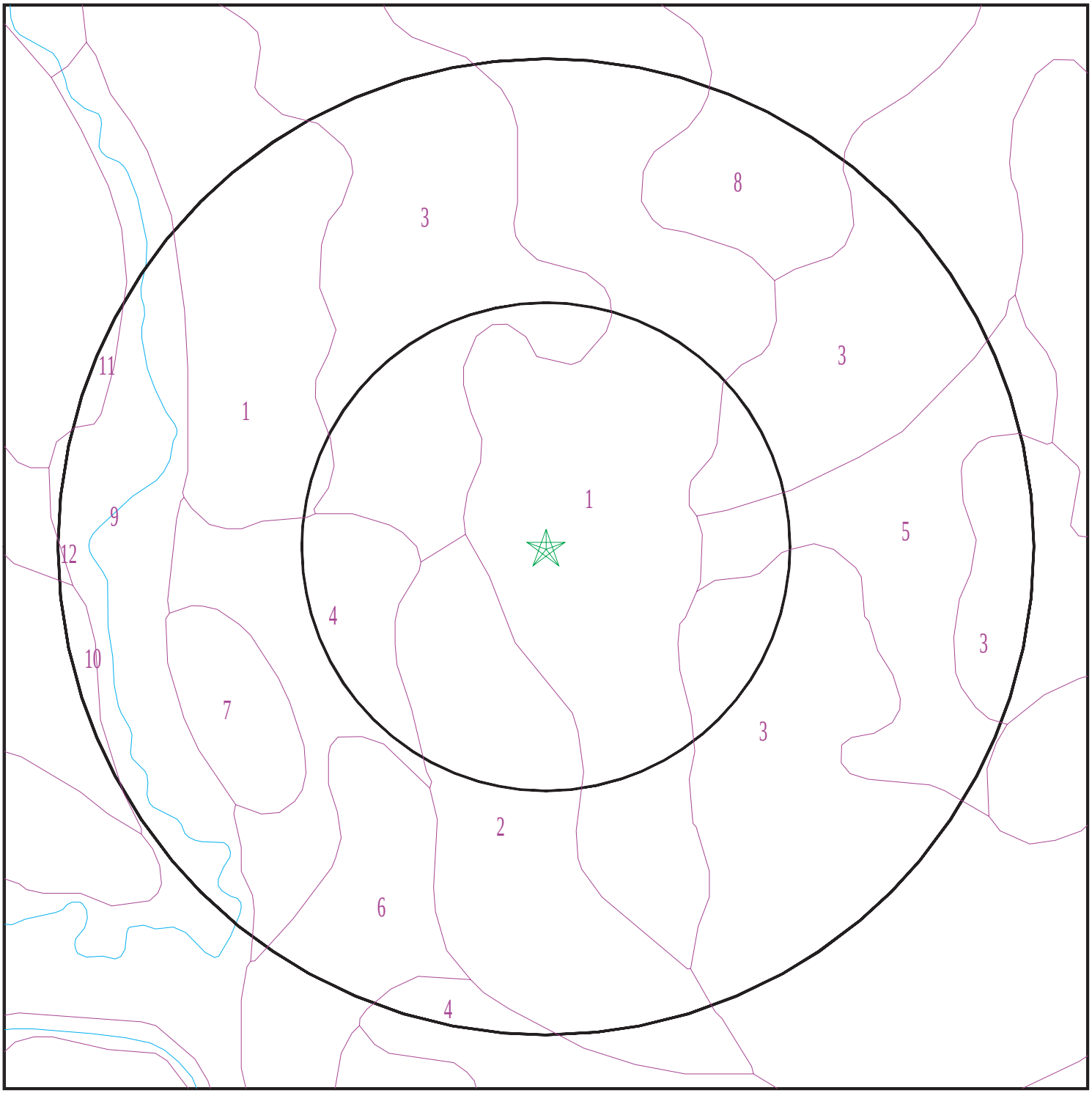
Era:	Paleozoic
System:	Pennsylvanian
Series:	Des Moinesian Series
Code:	PP2 *(decoded above as Era, System & Series)*

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 - 5441936.2s



Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

SITE NAME: Camp Dodge ADDRESS: 7105 Northwest 70th Avenue Johnston IA 50131 LAT/LONG: 41.724209 / 93.7411	CLIENT: AECOM CONTACT: Brittany Bailey INQUIRY #: 5441936.2s DATE: October 03, 2018 8:26 am

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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: Zenor

Soil Surface Texture: sandy 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: Somewhat excessively drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

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	7 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Clean Sands, Poorly graded sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 705 Min: 141	Max: 8.4 Min: 7.9
2	7 inches	24 inches	loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Clean Sands, Poorly graded sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 705 Min: 141	Max: 8.4 Min: 7.9

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
3	24 inches	59 inches	gravelly sand	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Clean Sands, Poorly graded sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 705 Min: 141	Max: 8.4 Min: 7.9

Soil Map ID: 2

Soil Component Name: Terril

Soil Surface Texture: 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: Moderately well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 122 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	24 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 7.8 Min: 6.1

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	24 inches	51 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 7.8 Min: 6.1
3	51 inches	59 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 7.8 Min: 6.1

Soil Map ID: 3

Soil Component Name: Clarion

Soil Surface Texture: 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: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

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	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 8.4 Min: 7.4

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	40 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 8.4 Min: 7.4
3	40 inches	59 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 8.4 Min: 7.4

Soil Map ID: 4

Soil Component Name: Biscay

Soil Surface Texture: loam

Hydrologic Group: Class B/D - Drained/undrained hydrology class of soils that can be drained and are classified.

Soil Drainage Class: Poorly drained

Hydric Status: All 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	20 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Clean Sands, Poorly graded sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 8.4 Min: 7.4

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	20 inches	35 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Clean Sands, Poorly graded sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 8.4 Min: 7.4
3	35 inches	59 inches	stratified very gravelly coarse sand to loamy sand	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Clean Sands, Poorly graded sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 8.4 Min: 7.4

Soil Map ID: 5

Soil Component Name: Nicollet

Soil Surface Texture: 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: Somewhat poorly drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 30 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	18 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 8.4 Min: 7.4
2	18 inches	40 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 8.4 Min: 7.4
3	40 inches	59 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 8.4 Min: 7.4

Soil Map ID: 6

Soil Component Name: Dickinson

Soil Surface Texture: fine sandy 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: Somewhat excessively drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

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	16 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.3 Min: 5.6
2	16 inches	40 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.3 Min: 5.6
3	40 inches	59 inches	loamy fine sand	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.3 Min: 5.6

Soil Map ID: 7

Soil Component Name: Cylinder

Soil Surface Texture: 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: Somewhat poorly drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 30 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	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 705 Min: 141	Max: 8.4 Min: 6.6
2	14 inches	33 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 705 Min: 141	Max: 8.4 Min: 6.6
3	33 inches	59 inches	gravelly coarse sand	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 705 Min: 141	Max: 8.4 Min: 6.6

Soil Map ID: 8

Soil Component Name: Clarion

Soil Surface Texture: 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: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

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	7 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 8.4 Min: 7.4
2	7 inches	31 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 8.4 Min: 7.4
3	31 inches	59 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 8.4 Min: 7.4

Soil Map ID: 9

Soil Component Name: Spillville

Soil Surface Texture: 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: Moderately well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

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	44 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 42 Min: 4	Max: 7.3 Min: 5.6
2	44 inches	59 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 42 Min: 4	Max: 7.3 Min: 5.6

Soil Map ID: 10

Soil Component Name: Farrar

Soil Surface Texture: fine sandy 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: Well 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	fine sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 8.4 Min: 6.1

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	22 inches	fine sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 8.4 Min: 6.1
3	22 inches	59 inches	loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 8.4 Min: 6.1

Soil Map ID: 11

Soil Component Name: Clarion

Soil Surface Texture: 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: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

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	7 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 8.4 Min: 7.4

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	7 inches	35 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 8.4 Min: 7.4
3	35 inches	59 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 8.4 Min: 7.4

Soil Map ID: 12

Soil Component Name: Webster

Soil Surface Texture: silty clay loam

Hydrologic Group: Class B/D - Drained/undrained hydrology class of soils that can be drained and are classified.

Soil Drainage Class: Poorly drained

Hydric Status: All hydric

Corrosion Potential - Uncoated Steel: High

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	16 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 8.4 Min: 7.4

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	16 inches	40 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 8.4 Min: 7.4
3	40 inches	59 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 8.4 Min: 7.4

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
No Wells Found		

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

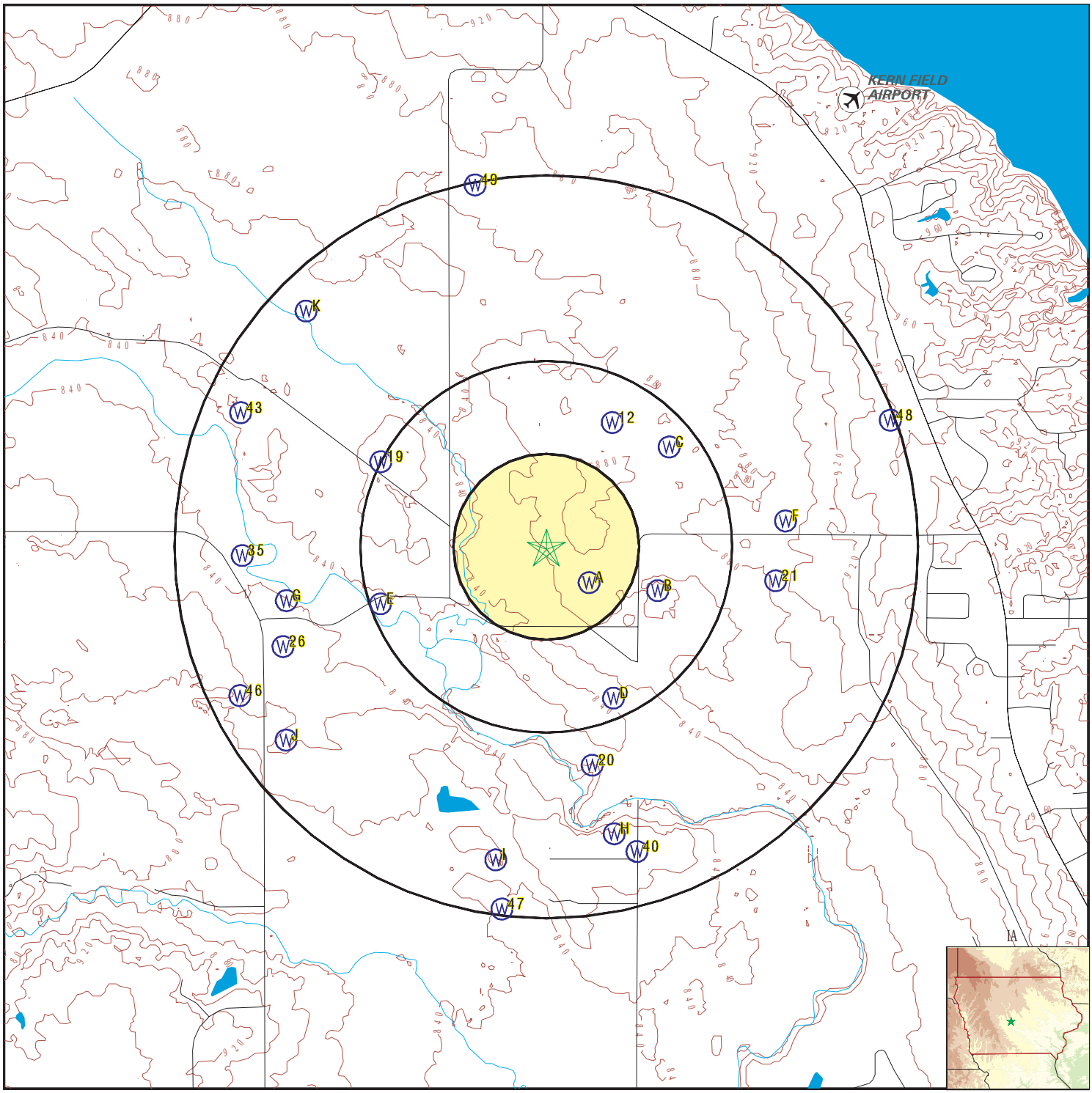
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A1	IAPU40000316038	1/8 - 1/4 Mile SE
A2	IAPU40000316039	1/8 - 1/4 Mile SE
A3	IAPU40000316040	1/8 - 1/4 Mile SE
A4	IAPU40000316042	1/8 - 1/4 Mile SE
A5	IAPU40000316043	1/8 - 1/4 Mile SE
A6	IAPU40000316044	1/8 - 1/4 Mile SE
A7	IAPU40000316045	1/8 - 1/4 Mile SE
A8	IAPU40000316046	1/8 - 1/4 Mile SE
A9	IAPU40000316047	1/8 - 1/4 Mile SE
B10	IAPU40000026465	1/4 - 1/2 Mile ESE
B11	IAPU40000346461	1/4 - 1/2 Mile ESE
12	IAPU40000316002	1/4 - 1/2 Mile NNE
C13	IAPW40000041882	1/4 - 1/2 Mile NE
C14	IAPU40000123448	1/4 - 1/2 Mile NE
D15	IAPU40000123631	1/4 - 1/2 Mile SSE
D16	IAPW40000009756	1/4 - 1/2 Mile SSE
E17	IAPU40000315951	1/4 - 1/2 Mile WSW
E18	IAPU40000315952	1/4 - 1/2 Mile WSW
19	IAPU40000315867	1/2 - 1 Mile WNW
20	IAPU40000199018	1/2 - 1 Mile SSE
21	IAPU40000316094	1/2 - 1 Mile East
F22	IAPW40000055299	1/2 - 1 Mile East
F23	IAPU40000123651	1/2 - 1 Mile East
G24	IAPU40000315873	1/2 - 1 Mile WSW
G25	IAPU40000315874	1/2 - 1 Mile WSW
26	IAPU40000315921	1/2 - 1 Mile WSW
H27	IAPU40000123785	1/2 - 1 Mile SSE
H28	IAPU40000123808	1/2 - 1 Mile SSE
H29	IAPU40000123807	1/2 - 1 Mile SSE
H30	IAPW40000073698	1/2 - 1 Mile SSE
H31	IAPW40000099838	1/2 - 1 Mile SSE
H32	IAPU40000026611	1/2 - 1 Mile SSE
H33	IAPU40000026615	1/2 - 1 Mile SSE
H34	IAPU40000026616	1/2 - 1 Mile SSE
35	IAPU40000123027	1/2 - 1 Mile West
H36	IAPU40000123836	1/2 - 1 Mile SSE
H37	IAPW40000037097	1/2 - 1 Mile SSE
I38	IAPR40000055105	1/2 - 1 Mile South
I39	IAPU40000246438	1/2 - 1 Mile South
40	IAPU40000026633	1/2 - 1 Mile SSE
J41	IAPU40000315967	1/2 - 1 Mile SW
J42	IAPU40000315964	1/2 - 1 Mile SW
43	IAPU40000315777	1/2 - 1 Mile WNW
K44	IAPU40000122923	1/2 - 1 Mile NW
K45	IAPW40000024372	1/2 - 1 Mile NW
46	IAPU40000315920	1/2 - 1 Mile WSW
47	IAUS30000003852	1/2 - 1 Mile South
48	IAPU40000026529	1/2 - 1 Mile ENE
49	IAPU40000315801	1/2 - 1 Mile North

PHYSICAL SETTING SOURCE MAP - 5441936.2s



County Boundary
Major Roads
Contour Lines
Airports
Earthquake epicenter, Richter 5 or greater
Water Wells
Public Water Supply Wells
Cluster of Multiple Icons

0 1/4 1/2 1 Miles

Groundwater Flow Direction
Indeterminate Groundwater Flow at Location
Groundwater Flow Varies at Location
Oil, gas or related wells

N

SITE NAME: Camp Dodge ADDRESS: 7105 Northwest 70th Avenue Johnston IA 50131 LAT/LONG: 41.724209 / 93.7411	CLIENT: AECOM CONTACT: Brittany Bailey INQUIRY #: 5441936.2s DATE: October 03, 2018 8:26 am

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
A1 **SE** **1/8 - 1/4 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPU40000316038**
A2 **SE** **1/8 - 1/4 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPU40000316039**
A3 **SE** **1/8 - 1/4 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPU40000316040**
A4 **SE** **1/8 - 1/4 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPU40000316042**
A5 **SE** **1/8 - 1/4 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPU40000316043**
A6 **SE** **1/8 - 1/4 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPU40000316044**
A7 **SE** **1/8 - 1/4 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPU40000316045**
A8 **SE** **1/8 - 1/4 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPU40000316046**
A9 **SE** **1/8 - 1/4 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPU40000316047**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
B10 **ESE** **1/4 - 1/2 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPU40000026465**
B11 **ESE** **1/4 - 1/2 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPU40000346461**
12 **NNE** **1/4 - 1/2 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPU40000316002**
C13 **NE** **1/4 - 1/2 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPW40000041882**
C14 **NE** **1/4 - 1/2 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPU40000123448**
D15 **SSE** **1/4 - 1/2 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAPU40000123631**
D16 **SSE** **1/4 - 1/2 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAPW40000009756**
E17 **WSW** **1/4 - 1/2 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAPU40000315951**
E18 **WSW** **1/4 - 1/2 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAPU40000315952**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
19 **WNW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPU40000315867**
20 **SSE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAPU40000199018**
21 **East** **1/2 - 1 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPU40000316094**
F22 **East** **1/2 - 1 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPW40000055299**
F23 **East** **1/2 - 1 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPU40000123651**
G24 **WSW** **1/2 - 1 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAPU40000315873**
G25 **WSW** **1/2 - 1 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAPU40000315874**
26 **WSW** **1/2 - 1 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAPU40000315921**
H27 **SSE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAPU40000123785**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
H28 **SSE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAPU40000123808**
H29 **SSE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAPU40000123807**
H30 **SSE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAPW40000073698**
H31 **SSE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAPW40000099838**
H32 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPU40000026611**
H33 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPU40000026615**
H34 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPU40000026616**
35 **West** **1/2 - 1 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAPU40000123027**
H36 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPU40000123836**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
H37 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPW40000037097**
I38 **South** **1/2 - 1 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAPR40000055105**
I39 **South** **1/2 - 1 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAPU40000246438**
40 **SSE** **1/2 - 1 Mile** **Higher**	Click here for full text details	**IA WELLS**	**IAPU40000026633**
J41 **SW** **1/2 - 1 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAPU40000315967**
J42 **SW** **1/2 - 1 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAPU40000315964**
43 **WNW** **1/2 - 1 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAPU40000315777**
K44 **NW** **1/2 - 1 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAPU40000122923**
K45 **NW** **1/2 - 1 Mile** **Lower**	Click here for full text details	**IA WELLS**	**IAPW40000024372**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
46 **WSW** **1/2 - 1 Mile** **Higher**	**Click here for full text details**	**IA WELLS**	**IAPU40000315920**
47 **South** **1/2 - 1 Mile** **Lower**	**Click here for full text details**	**IA WELLS**	**IAUS30000003852**
48 **ENE** **1/2 - 1 Mile** **Higher**	**Click here for full text details**	**IA WELLS**	**IAPU40000026529**
49 **North** **1/2 - 1 Mile** **Higher**	**Click here for full text details**	**IA WELLS**	**IAPU40000315801**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: IA Radon

Radon Test Results

Zipcode	Num Tests	Minimum	Maximum	Average
50131	172	0.1	30.6	4.9

Federal EPA Radon Zone for POLK County: 1

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 Zip Code: 50131

Number of sites tested: 1

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	Not Reported	Not Reported	Not Reported	Not Reported
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	13.100 pCi/L	0%	100%	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.

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: National Wetland Inventory of Iowa
Source: Department of Natural Resources
Telephone: 319-335-1575

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

All Known Water Wells in the State of Iowa
Source: Department of Natural Resources
Telephone: 319-335-1353
Well types included are agricultural drainage, permitted private, public, registered abandoned, SDWIS public, water use permit sites, wells registered for testing.

Agricultural Drainage Wells
Source: Department of Natural Resources
Telephone: 515-281-5029
Agricultural drainage wells are required to be registered both with the Iowa Department of Natural Resources as a part of the 1987 Groundwater Protection Act, and with the U.S. Environmental Protection Agency as a part of the Underground Injection Control Program.

Private Well Tracking System Wells
Source: Department of Natural Resources
Telephone: 319-335-1353

Water Use Permits
Source: Department of Natural Resources
Telephone: 515-725-0336
Wells under Water Use permits. A water use permit is required of any person or entity that withdraws or diverts at least 25,000 gallons of water in a 24-hour period during any calendar year.

Private Wells Tested
Source: Department of Natural Resources
Telephone: 515-335-1353
This is a point coverage for private wells which have been tested for bacteria and nitrate contamination under the Grants to Counties program.

OTHER STATE DATABASE INFORMATION

Oil and Gas Well Database
Source: Department of Natural Resources
Oil and gas well locations.

RADON

State Database: IA Radon
Source: Department of Public Health
Telephone: 515-281-4340
Radon Test Results

PHYSICAL SETTING SOURCE RECORDS SEARCHED

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

STREET AND ADDRESS INFORMATION

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Appendix B
Preliminary Assessment Documentation

Appendix B.1
Interview Records

PA Interview Questionnaire - Other

Facility: Camp Dodge
Interviewer: [redacted]
Date/Time: 8/21/2018; 15:15

Interviewee: [redacted] **Title: GIS Specialist** **Phone Number: contact through [redacted]** **Email: contact through [redacted]**	Can your name/role be used in the PA Report? **Y** or N Can you recommend anyone we can interview? **Y** or N [redacted] and [redacted]

Roles or activities with the Facility/Years working at the Facility:

[redacted] is a GIS Specialist for IAARNG. He has been at Camp Dodge for 12-13 years. From 2007-2012, [redacted] served as a volunteer fire fighter.

[redacted] provided GIS and CAD data for all four Iowa facilities. The disc includes imagery, assessor imagery, and imagery shot from rotary-winged aircraft. [redacted] provided an updated acreage estimate of 4,830 acres which includes the newly acquired property. The GIS data contains a well layer for drinking water wells; however, monitoring wells are not included. Some monitoring wells exist within the facility, but their locations are not maintained by GIS. [redacted] did not have information regarding the state database for wells, but suggested talking to [redacted] at Camp Dodge or looking deep into the metadata.

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?

[redacted] served as a volunteer fire fighter with the Camp Dodge Fire Brigade from 2007 to 2012. [redacted] recalled the use of AFFF for training in 2009 at the chapel parking lot and in 2011 at the fire house. During the 2011 event, [redacted] tested a new nozzle by spraying AFFF foam into the drainage ditch outside the fire department. The foam persisted approximately one day. The drainage ditch drains to a storm sewer that runs to Beaver Creek. In addition, [redacted] noted that foam was used to put out a trash can fire near the fire station. [redacted] noted foam was used to extinguish the fire to keep the debris down, but did not know whether the foam was Class A or AFFF. [redacted] contacted [redacted] to discuss other possible historic uses of AFFF at Camp Dodge. [redacted] indicated that foam was possibly used at the fuel point, at the gravel lot north of the rail load FTA, on range fires and during controlled burns, and that the Johnston Fire Department possibly trained at Camp Dodge. [redacted] sent [redacted] a map to mark locations and received permission for an interview. In addition, [redacted] indicated that [redacted] (Fire Training Specialist prior to [redacted]) may have experienced issues with crystallized AFFF that had to be cycled through and flushed from the fire truck.

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

[redacted]
Title: Former Camp Dodge Training Specialist
Contact Information: [redacted]

What were your roles or activities at Camp Dodge?

- Training Specialist / Fire Chief

What years did you work at Camp Dodge?

- 2006 to 2011

Please note the locations of potential AFFF releases at Camp Dodge on a map.

- See attached

What was the frequency of AFFF use at each location (e.g., annual training)?

- Infrequent and sporadic. It was used in training, use for testing of apparatus, and at times used during rangeland fires.
- Conex drills – urban warfare training facilities drills, approximately 5 to 10 gallons total used from time to time
- Fuel Point – training at least annually at the fuel point pad from 2007 to 2009. Approximately 25 gallons of AFFF concentrate were used over the course of 2 years for training. Final disposition was to the sanitary sewer.

What years was AFFF released at each location? Approximate date ranges are ok.

- This is going to be very difficult to estimate. At most we might have used limited quantities. I would estimate less than 300 gallons of foam concentrate. We used foam often, but we used a lot of WD881 and SilveX Class A foam as well. [redacted] was at Camp Dodge from 2006-2012.

Approximately how many gallons of AFFF were released per event?

- At most 30gals of concentrate per event, that is basing off the capability of the apparatus' foam storage cell. I do not believe, except for the live fire shoot house fire, that we ever had any sustain application of ARFF.

What was the concentration of AFFF released during each event (3% or 6%)? Note whether percentage is concentrate or foam.

- This would vary. We have 6%, 3% and 3/6% (polar/nonpolar) foam on hand. At times the foam would be used on much lower concentrations of less than 1% during a rangeland fire.

Was AFFF released by IAARNG or another entity at each location? If another entity released AFFF, who?

- The installation did have an IAARNG fire unit that was disbanded / relocated from the base (possibly the 767th). This unit was located by the State Quartermaster Headquarters. Uncertain of their usage of foam. A majority of foam we had on hand was from their unit. That would have been prior to my time at the installation.

Can you recommend anyone else we could contact that would have knowledge of the IAARNG fire unit that was disbanded?

- [redacted]

- The only other agencies that would have used foam on the base would have been the City of Johnston Fire Department, however that would have been class A foam and not foam with the PFOAs.

Where were the nozzles for the fire truck tested and where was the fire truck washed?

- Vehicle washed either on the fire department drive pad (front of station) or the installation wash pit
- The nozzles were tested around the Iowa Law Enforcement Agency fields as noted on maps.

Did the Army Reserves of the City of Johnston ever train with or use AFFF at Camp Dodge?

- The army reserves may have used foam, however I do not believe I was present.
- The City of Johnston may have been present at one of our trainings, but to my knowledge they did not come to the installation to specifically do ARFF foam training.

Was AFFF ever used during controlled burns or range fires?

- Yes, it would have been used at lower concentrations across large sections to manage rangeland fires. Typically, we loaded class A in the mini-pumper, and ARFF in the MACI Engine (ARFF pumper). The MACI would run on many grassland fires and on occasion the crews would utilize foam. Application rate would likely be <1% and be dispersed across a longer fire line only enough to knock down and extinguish a narrow progressing fire line. It total 20-30 gallons of AFFF concentrate were used over the entire range.

Was AFFF ever used for emergency response at Camp Dodge?

- Yes, the specific incident was the live fire shoot house fire. At least 30 gallons of concentrate would have been released. During construction of the live shoot house, some materials (e.g., rubber) caught fire and were extinguished with AFFF.
- We also had a controlled burn of a structure (house) where foam was used to assist in training evolutions and to extinguish the basement. Approximately 5 gallons of AFFF concentrate were used. Training involved ARNG and municipalities.

Were any buildings ever fitted with an AFFF fire suppression system?

- None that I am aware of.

May we use your name in the PA Report?

- Yes.

[redacted]
Chief Training Officer
City of Tonganoxie Fire Department
825 E 4th St. - PO Box 326
Tonganoxie KS 66086
[redacted]

PA Interview Questionnaire - Environmental Manager

Facility: Camp Dodge
Interviewer: [redacted]
Date/Time: 8/21/2018; 09:00

Interviewee: [redacted] **Title: Environmental Program Manager** **Phone Number:** [redacted] **Email:** [redacted]	Can your name/role be used in the PA Report? **Y** or N Can you recommend anyone we can interview? **Y** or N [redacted] (Camp Dodge Fire Brigade) and [redacted] (DPW)

1. Roles or activities with the Facility/years working at the Facility.

[redacted] has worked as the Environmental Program Manager (State Environmental Specialist) at Camp Dodge since 1986.

2. Where can I find previous facility ownership information?

Real property information can be obtained from [redacted] (GIS). In 1909, the area now known as Camp Dodge was a gathering point for the IAARNG (~60 acres of non-reversionary land). Surrounding land was acquired by the Federal government through fee simple or lease. After WWII, the fee simple land was excess, grounds were raised, and the land was turned over to the State of Iowa (1954) through a reversionary clause. Additional land was purchased by the state in the 1980s and in the last couple of years. All Camp Dodge lands are federally supported.

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. None known, but recommend discussing with the Fire Brigade and maintenance shops.

Recommends checking the following areas:

Maintenance - FMS, CSMS, Yutes; shops checked with [redacted] (no AFFF)
Fire Training Areas
Firefighting (Active Fire)
Crash
Fire Suppression Systems (Hangers/Dining Facilities) – Purple K only
Fire Protection at Fueling Stations – Forward Area Refueling Point (FARPs) and fuel point
Non-Technical/Recreational/ Pest Management
Metals Plating Facility
Waterproofing Uniforms (Laundry Facilities)
Other – Safety (fire extinguisher inventory) check with Tammy Avery

4. Fill out CSM Information worksheet with the Environmental Manager.

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 AFFF fire suppression systems known
Building S2A, F100, and A6 are fitted with Halon fire suppression systems
Humvees are fitted with Purple K or Halon
AASFs (Boone, Waterloo, Davenport) do not have fire suppression systems (water only)

PA Interview Questionnaire - Environmental Manager

Facility: Camp Dodge
Interviewer:_[redacted]
Date/Time: 8/21/2018; 09:00

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?

N/A

7. How is AFFF procured? Do you have an inventory/procurement system that tracks use?

MilSpec AFFF is procured through USPFO. Returned AFFF would come to the USPFO warehouse at Camp Dodge and be turned in as excess or non-RCRA waste. The USPFO would find a defense turn in document contract line item number to dispose of the AFFF.

AR-AFFF is procured by [redacted] through the State Comptroller

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)?

Discuss with Fire Brigade

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?

Discuss with Fire Brigade

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?

Discuss with Fire Brigade

Intentional structure fires (e.g., buildings on lands acquired) were left to burn or extinguished with water

PA Interview Questionnaire - Environmental Manager

Facility: Camp Dodge
Interviewer:_[redacted]
Date/Time: 8/21/2018; 09:00

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? Discuss with Fire Brigade
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? None known
13. Did military routinely or occasionally fire train off-post? List the units that you can recall used/trained at various areas. None known
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? No incidents

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?

Check fuel point and ask Fire Brigade about FARPs.
Established helicopter pad is used for transient aircraft; no refueling at the helipad
AFFF not used in fuel spills

17. Was AFFF used for forest fires or fire management on-post/off-post? If so, please describe what happened and who was involved?

Camp Dodge has bermed and unbermed ranges (hand guns, smoke range, subcaliber, inert projectiles, demo house; mock town military operations and urban terrain [MOUT] in Herrold is a blank range). Live fire is from north to south and south to north. Most of the land inbetween (90%) is farmed with beans and corn; no grazing. Prescribed burns (~400 acres/year) are conducted for fire management purposes using diesel fuel. No AFFF is used during fire management (class A foam, water, and flappers only are used).

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?

Yes, City of Johnston.

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)?

Discuss with Fire Brigade

20. Are you aware of any other creative uses of AFFF? If so, how was AFFF used? What entities were involved?

None known

PA Interview Questionnaire - Environmental Manager

Facility: Camp Dodge
Interviewer:_[redacted]
Date/Time: 8/21/2018; 09:00

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? 2013 INRMP PA/SI – check this document for information regarding landfills; 7 landfills at Camp Dodge (last modern landfill closed in the early 1980s). Historically, a municipal "burning" landfill existed on Beaver Creek. All waste is currently taken off-site. All documents provided by the facility
22. What other records might be helpful to us (environmental compliance, investigation records, admin record) and where can we find them? SPCC, SWPPP
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? N/A
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? Discuss with Fire Brigade

PA Interview Questionnaire - Environmental Manager

Facility: Camp Dodge
Interviewer:_[redacted]
Date/Time: 8/21/2018; 09:00

26. Do you recommend anyone else we can interview? If so, do you have contact information for them?
Yes,
[redacted] (GIS); discuss initial potential release map
[redacted] (Fire Brigade)
[redacted] (DPW)

PA Interview Questionnaire - Other

Facility:_____
Interviewer:_____
Date/Time:_____

Interviewee: [redacted] **Title: Training Specialist – Camp Dodge Fire Brigade** **Phone Number:** [redacted] **Email: contact through** [redacted]	Can your name/role be used in the PA Report? **Y** or N Can you recommend anyone we can interview? **Y** or N [redacted] – former Training Specialist

Roles or activities with the Facility/Years working at the Facility:

[redacted] has worked as the Fire Brigade Training Specialist at Camp Dodge since 2012.

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?

The Camp Dodge Fire Station (Building B-59) was constructed in the 1980s as a 2 bay stand-alone fire station. Fire-fighting services were on a volunteer basis. The building was expanded in the early 2000s. The current staff makeup consists of 1 full time, state- and federally-funded training specialist ([redacted]) and 6 volunteers. AFFF is and has been stored at and used by the Fire Station. Prior to 2016, the Fire Station ordered 6% Milspec AFFF; after 2016, the Fire Station began ordering AR-AFFF (alcohol resistant) due to the presence of E-85 ethanol fuel at the fuel point. Ordering of milspec AFFF is done through USPFO. Ordering of AR-AFFF is done through state purchasing. During the VSI, 24 5-gallon jugs of 3% AR-AFFF were noted in the fire house along with approximately 20 5-gallon jugs of Class A foam. Class A foam is used for fire extinguisher training and controlled burn/wildland fires. The fire station has one fire truck with a capacity for 20 gallons of AFFF concentrate and 400 gallons of water. Concentrated AFFF is manually dumped into the tank on the truck. Occasionally, some of the AFFF spills during filling of the tanks onto the concrete slab outside of the bay doors of the fire house. During the VSI, a north-south drainage ditch was noted outside the fire house. Any spilled AFFF would drain to this ditch which drains to a storm sewer that runs to Beaver Creek. The foam mixture is made on the truck by a proportioning valve. No leaking of AFFF or corrosion from AFFF on the truck has been noted by [redacted]. The valves are tested annually IAW NFPA regulations by Emergency Apparatus Maintenance (EAM). [redacted] has no knowledge of details of the testing (where, how much, containment). Once or twice a year since 2012, [redacted] and the 6 volunteers train with AFFF at two locations (Rail Load FTA and the Tank Aggregate FTA). During the training, approximately 5 gallons of AR-AFFF foam are dispensed from the truck. The truck is then washed at the FTA. In addition, AFFF was used by

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

PA Interview Questionnaire - Other

Facility:_____
Interviewer:_____
Date/Time:_____

IAARNG to put out a car demolition exhibition completed by Iowa ATF. According to [redacted], the IAARNG does not have designated fire fighters that regularly train; however, the Army Reserve does have fire fighters that train at Fort Des Moines (SW 9th and Army Post Road). No fire suppression agents are located at the helipad. Camp Dodge does not have enough flights per day to require fire suppressants at the helipad. Fire suppression systems are located at A6, W12, W41, W42, and in the basement of joint forces. These fire suppression systems are all clean agent (gaseous) Novec. Controlled burns and wildland fires are extinguished using Class A foam or water. Camp Dodge has a mutual aid or cooperative agreement with the Johnston Fire Department. Since 2012, the Camp Dodge Fire Brigade and the Johnston Fire Department have not responded to an emergency requiring the use of AFFF at Camp Dodge. The Johnston Fire Department does carry AFFF, but has never used it for training or an emergency at Camp Dodge. [redacted] recommends following-up with the Johnston Fire Department. One AFFF fire extinguisher is located at the retail fuel point, which is a DLA fuel point. Drainage at the fuel point contains an oil-water separator with a valve for sanitary or storm sewer drainage. The fire extinguisher has never been used.

PA Interview Questionnaire - Other

Facility: Camp Dodge
Interviewer: [redacted]
Date/Time: 8/21/2018; 09:00

Interviewee: [redacted] **Title: Chief Warrant Officer** **Phone Number:** [redacted] **Email:** [redacted]	Can your name/role be used in the PA Report? **Y** or N Can you recommend anyone we can interview? **Y** or N [redacted] coordinated interviews at all Iowa facilities

Roles or activities with the Facility/Years working at the Facility:

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?

[redacted] has participated in several Forward Area Refueling Point (FARP) training operations at Camp Dodge. FARP training operations involve active refueling from a 2500 gallon tanker using a series of hoses and 300 gallon fuel bladders. FARP training operation fire protection is supplied by ABC fire extinguishers. [redacted] has never seen TriMax fire extinguishers or AFFF at FARP training operations.

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

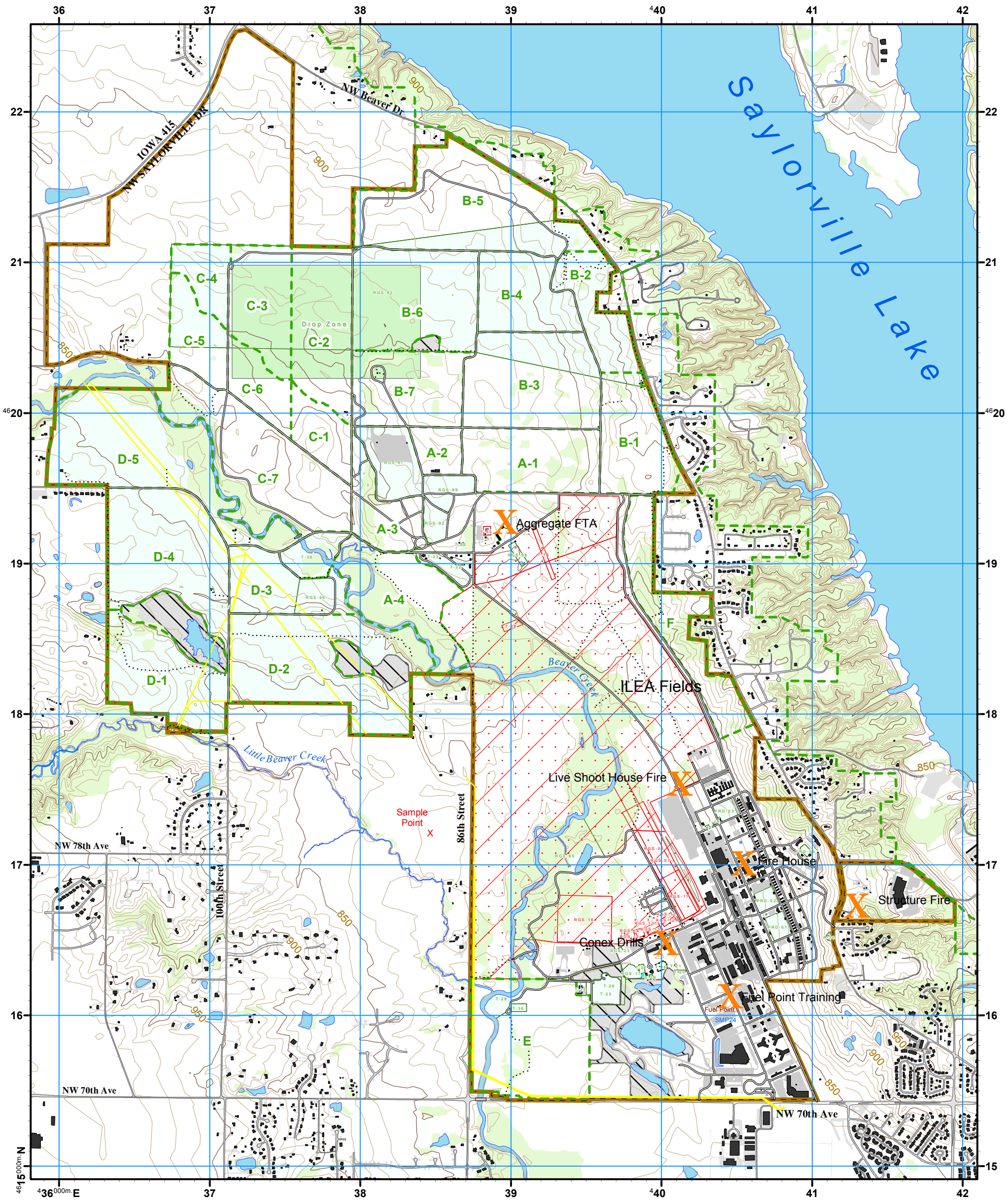
Facility: Camp Dodge
Interviewer: [redacted]
Date/Time: 8/21/2018; 09:00

PA Interview Questionnaire - Other

Facility: Camp Dodge
Interviewer: [redacted]
Date/Time: 8/21/2018; 09:00

Camp Dodge Joint Maneuver Training Center, Iowa National Guard

Scale: 1:25,000



Legend

- Rivers and Lakes
- 10 Foot Contour
- 50 Foot Contour
- Structures
- Roads
- Trails
- Surfaced Area
- Installation Boundary
- Natural Gas Pipeline
- Impact Area
- Drop Zone
- Foot Traffic Only
- Live Fire Range
- Range Area
- Timber

INTEGRATED TRAINING AREA MANAGEMENT
ITAM GIS
GEOGRAPHIC INFORMATION SYSTEM

1 cm = 250 m (Meters: 500 250 0 500 1,000)

1 in = 2,083.3 ft (Feet: 2,000 1,000 0 2,000 4,000)

HUNTING INFORMATION

Training Area	*Limits*
F	Bow Only
B1,B2,B5,E	Shotgun(no slug) and Bow Only
Impact Area	Closed during S06 - S16 Fire
	Closed during Rifle and T14 Fire
	Closed during T14 and S06 Fire
T-22,T-50	No Hunting within 200 feet
All Other	No Limits
Trapping	1 November - 31 January

No Hunting within 100 Feet of Installation Boundary

Projection: Universal Transverse Mercator
Horizontal Datum: North American Datum of 1983
BLUE NUMBERED LINES INDICATE 1000 METER GRID

2010 G - M ANGLE 2° 09' (38 MILS)

TO CONVERT A MAGNETIC AZIMUTH TO A GRID AZIMUTH ADD G-M ANGLE

TO CONVERT A GRID AZIMUTH TO A MAGNETIC AZIMUTH SUBTRACT G-M ANGLE

GN
GRID NORTH
TRUE NORTH
MAGNETIC NORTH

GRID CONVERGENCE AT CENTER OF SHEET 0° 29' (8.5 MILS)

N W E S

11 January 2018
Iowa Army National Guard
Installation Geospatial Information & Services
NGIA-DIM-P

SAMPLE 1,000-METER GRID SQ

18 Sample Point X 17
38 39

100,000-METER SQUARE IDENTIFICATION
VG

GRID ZONE DESIGNATION
15T

100-METER REFERENCE

1. Read large numbers labeling the VERTICAL grid line left of point and estimate tenths (100-meters) from grid line to point.
2. Read large numbers labeling the HORIZONTAL grid line below point and estimate (100-meters) from grid line.

Example: 385172

WHEN REPORTING ACROSS A 100,000-METER LINE, PREFIX THE 100,000-METER SQUARE IDENTIFICATION, IN WHICH THE POINT LIES.

Example: VG385172

WHEN REPORTING OUTSIDE THE GRID ZONE DESIGNATION AREA, PREFIX THE GRID ZONE DESIGNATION

Example: 15TVG385172

Appendix B.2
Visual Site Inspection Checklists

Visual Site Inspection Checklist

Names(s) of people performing VSI: [redacted]

Recorded by: [redacted]

ARNG Contact: [redacted]

Date and Time: 8/20/2018; 13:00 and 8/24/2018; 9:00

Method of visit (walking, driving, adjacent): walking

Source/Release Information

Site Name / Area Name / Unique ID: Camp Dodge

Site / Area Acreage: 4,830 acres

Historic Site Use (Brief Description): Rifle range and training area

Current Site Use (Brief Description): Major Training Area for the Iowa Army National Guard (IAARNG) and also serves as a training area for the Army National Guard, Air National Guard, Army Reserve, Marine Corps Reserve, Reserve Officer's Training Corps, and state law enforcement agencies

Physical barriers or access restrictions: Access to the area is restricted

1. Was PFAS used (or spilled) at the site/area? **Y / N**

   1a. If yes, document how PFAS was used and usage time (e.g., fire fighting training 2001 to 2014):

   Information regarding PFAS usage was only available from 2006 to present. AFFF was dispensed at several training areas, a car detonation demonstration, and two emergency events.

2. Has usage been documented? **Y / N**

   2a. If yes, keep a record (place electronic files on a disk):

   Records are not available. Potential releases were recalled by interviewees.

3. What types of businesses are located near the site? **Industrial / Commercial / Plating / Waterproofing / Residential**

   3a. Indicate what businesses are located near the site

   Pioneer Hi-Bred International

4. Is this site located at an airport/flightline? **Y / N**

   4a. If yes, provide a description of the airport/flightline tenants:

   N/A

Visual Site Inspection Checklist

Other Significant Site Features:

1. Does the facility have a fire suppression system? **Y / N**

1a. If yes, indicate which type of AFFF has been used:

N/A

1b. If yes, describe maintenance schedule/leaks:

N/A

1c. If yes, how often is the AFFF replaced:

N/A

1d. If yes, does the facility have floor drains and where do they lead? Can we obtain an as built drawing?

N/A

Transport / Pathway Information

Migration Potential:

1. Does site/area drainage flow off installation? **Y / N**

1a. If so, note observation and location:

NPDES discharge point is near an unnamed pond in the northwest section of the cantonment area. Discharge flows to Beaver Creek.

2. Is there channelized flow within the site/area? **Y / N**

2a. If so, please note observation and location:

Camp Dodge is within a 100-year flood plain. Several areas of channelized flow and wetlands exist throughout the facility.

3. Are monitoring or drinking water wells located near the site? **Y / N**

3a. If so, please note the location:

Well 7 and Well 8 provide drinking water for the entire facility with the exception of four buildings that are on city water.

4. Are surface water intakes located near the site? **Y / N**

4a. If so, please note the location:

The closest surface water intake is located approximately 10 miles downstream on the Des Moines River.

5. Can wind dispersion information be obtained? **Y / N**

5a. If so, please note and observe the location.

Des Moines Airport

6. Does an adjacent non-ARNG PFAS source exist? **Y / N**

6a. If so, please note the source and location.

6b. Will off-site reconnaissance be conducted? **Y / N**

Visual Site Inspection Checklist

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):

Camp Dodge Fire Station has been expanded. Sewer lines in the drainage ditch along Main Avenue were repaired.

2. Is the site/area vegetated? **Y / N**

2a. If not vegetated, briefly describe the site/area composition:

Vegetated except for parking areas and building foundations.

3. Does the site or area exhibit evidence of erosion? **Y / N**

3a. If yes, describe the location and extent of the erosion:

Camp Dodge is in a 100-year flood plain. Several areas show evidence of erosion due to water.

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:

Several wetlands, an unnamed pond, and creeks run through Camp Dodge.

Receptor Information

1. Is access to the site restricted? **Y / N**

1a. If so, please note to what extent:

The facility has controlled access

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:

Immediately adjacent

4. Are any schools/day care centers located near the site? **Y / N**

4a. If so, please note the location/distance/type:

schools and daycares exist approximately 2 miles south of facility

5. Are any wetlands located near the site? **Y / N**

5a. If so, please note the location/distance/type:

Intermittent streams and a few ephemeral wetlands exist on the facility. Hillside wetlands exist within the slopes of the upland area on the eastern border of Camp Dodge

Visual Site Inspection Checklist

Additional Notes

Photographic Log

Photo ID/Name	Date & Location	Photograph Description
Photograph No. 1	8/24/2018; Camp Dodge	Facing east. Camp Dodge Fire Station.
Photograph No. 2	8/20/2018; Camp Dodge	Facing southeast. Camp Dodge Class A and AFFF inventory.
Photograph No. 3	8/20/2018; Camp Dodge	Ansulite® 3 percent AR AFFF.
Photograph No. 4	8/20/2018; Camp Dodge	Phos Chek® Class A Foam.
Photograph No. 5	8/20/2018; Camp Dodge	Facing east. Camp Dodge fire truck.
Photograph No. 6	8/20/2018; Camp Dodge	AFFF tank on the Camp Dodge fire truck.
Photograph No. 7	8/20/2018; Camp Dodge	Facing northwest. Stormwater drainage ditch along Main Avenue in front of the Camp Dodge fire station. Nozzle testing was historically conducted in this ditch
Photograph No. 8	8/20/2018; Camp Dodge	Facing west. Rail Load FTA.
Photograph No. 9	8/24/2018; Camp Dodge	Facing south. Chapel FTA.
Photograph No. 10	8/24/2018; Camp Dodge	Facing southeast. Stormwater drainage at Chapel FTA.
Photograph No. 11	8/20/2018; Camp Dodge	Facing southwest. Aggregate Collection Point FTA.
Photograph No. 12	8/20/2018; Camp Dodge	Facing north. Car Detonation Area.
Photograph No. 13	8/20/2018; Camp Dodge	Non-AFFF fire extinguishers at the Camp Dodge Fire Station.
Photograph No. 14	8/20/2018; Camp Dodge	Facing southwest. AR AFFF fire extinguisher at the Camp Dodge Fuel Point.

Appendix B.3
Conceptual Site Model Information

Preliminary Assessment – Conceptual Site Model Information

Site Name: Camp Dodge

Why has this location been identified as a site?

Facility is a training site with multiple vehicle maintenance and fueling areas. AFFF was stored and potentially released at several locations.

Are there any other activities nearby that could also impact this location?

None known. Pioneer (seed/corn) headquarters is located south of the facility. The infrastructure is primarily land and greenhouses.

Training Events

Have any training events with AFFF occurred at this site? Yes

If so, how often? Once or twice a year since 2012; Prior to 2012, training was conducted approximately once per year.

How much material was used? Is it documented? Approximately 5 gallons of mixed foam (3% AFFF concentrate)

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? The northeast edge of cantonment is on a ridgeline; surface water flow is southeast towards Beaver Creek

Average rainfall? 36 inches of rain

Any flooding during rainy season? Yes, rapid flooding of Beaver Creek can cause flooding (100 year flood plain)

Direct or indirect pathway to ditches? Yes

Direct or indirect pathway to larger bodies of water? Yes, General's Pond, wetland areas, and Beaver Creek

Does surface water pond any place on site? Yes, General's Pond, wetland areas, and Beaver Creek

Any impoundment areas or retention ponds?

Any NPDES location points near the site? Yes, near lime drying beds and sludge beds for the WWTP

How does surface water drain on and around the flight line? N/A

Preliminary Assessment – Conceptual Site Model Information

Groundwater:

Groundwater flow direction? Beaver Drive at the northeast end of cantonment is a ridgeline. Groundwater flow southeast from Beaver Drive towards Beaver Creek. A golf course for the Hyperion Field Club is adjacent to the facility. The golf course uses a non-public irrigation well for watering that likely pulls from the same aquifer as Camp Dodge. Sewage from the golf course is sent to Camp Dodge.

Depth to groundwater? GW is very close to SW; Camp Dodge is in a 100-year flood plain; DW wells are at approximately 60 feet

Uses (agricultural, drinking water, irrigation)? Drinking, irrigation, agricultural

Any groundwater treatment systems? Yes, on-facility WWTP

Any groundwater monitoring well locations near the site? Monitoring wells are located at Camp Dodge, but their locations are unknown and not maintained by GIS.

Is groundwater used for drinking water? Yes, groundwater is used for drinking water for the majority of Camp Dodge. Only Buildings 3800, 3788, 1212, and 1216 are on Johnston city water. These building are on city water to meet fire suppression (pressure) requirements or because they are on the city limit.

Are there drinking water supply wells on installation? Yes, Well 7 and Well 8. Supply from these wells is alternated. These wells were tested in 2017 and were nondetect for PFAS.

Do they serve off-post populations? No

Are there off-post drinking water wells downgradient Yes; however, the wells are on the southeast side of Beaver Creek and are not likely impacted.

Waste Water Treatment Plant:

Has the installation ever had a WWTP, past or present? Yes (Building S-40); built after flooding in 1968 due to construction of the Saylorville Dam

If so, do we understand the process and which water is/was treated at the plant? Yes

Do we understand the fate of sludge waste? Aerated lagoons and finishing cell within the property built in 1989; lime drying beds for waste water from the drinking water plant were added in 2003; sludge from lime drying beds is stockpiled and spread in agricultural areas

Is surface water from potential contaminated sites treated? No

Equipment Rinse Water

1. Is firefighting equipment washed? Where does the rinse water go?

Yes, on the ground in the training areas.

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?

Nozzles are tested annually by Emergency Apparatus Maintenance (EAM); location is unknown; unknown whether AFFF is contained or not during testing

Preliminary Assessment – Conceptual Site Model Information

3. Other? N/A

Identify Potential Receptors:

Site Worker Yes

Construction Worker Yes

Recreational User: No, no fishing in General's Pond

Residential Yes

Trespasser: Yes

Farmer: Yes

Child Yes

Ecological Yes

Note what is located near by the site (e.g. daycare, schools, hospitals, churches, agricultural, livestock)?
Agriculture and residents

Documentation

Ask for Engineering drawings (if applicable). Done

Has there been a reconstruction or changes to the drainage system? When did that occur?
Repairs to the sewer lines near the fire station occurred in 2015 to alleviate water backup in some of the low lying buildings at Camp Dodge. No information was available on the final disposition of the soil, but most of it likely ended up back in the ground.

Appendix C
Photographic Log

APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Camp Dodge	Johnston, Iowa

Photograph No. 1

Description:

Facing east. Camp Dodge Fire Station.

Photograph No. 2

Description:

Facing southeast. Camp Dodge Class A and AFFF inventory.

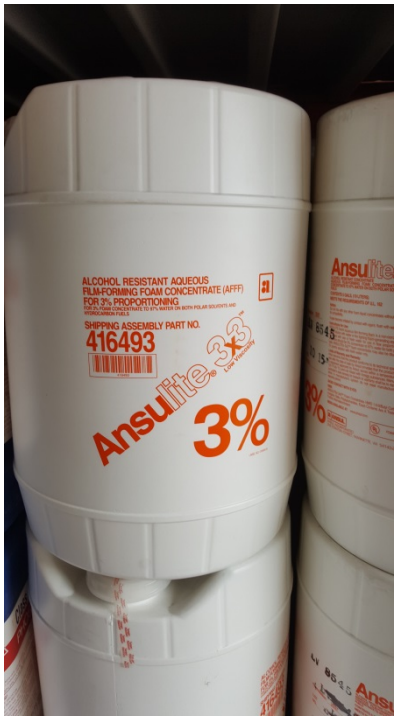
APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Camp Dodge	Johnston, Iowa

Photograph No. 3

Description:

Ansulite® 3 percent AR-AFFF.



Photograph No. 4

Description:

Phos Chek® Class A Foam.

APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Camp Dodge	Johnston, Iowa

Photograph No. 5

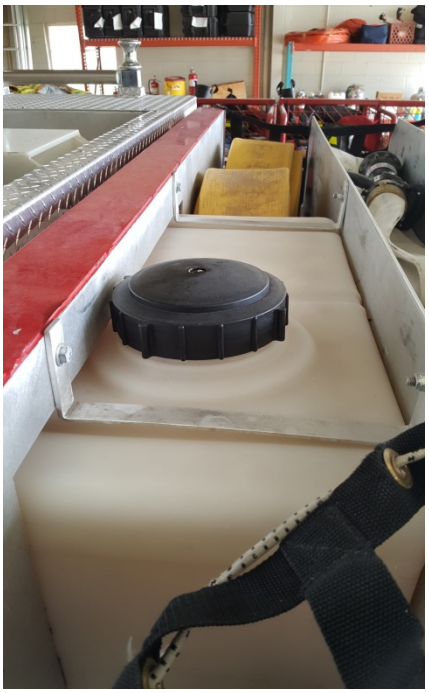
Description:

Facing east. Camp Dodge fire truck.

Photograph No. 6

Description:

AFFF tank on the Camp Dodge fire truck.



APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Camp Dodge	Johnston, Iowa

Photograph No. 7

Description:

Facing northwest. Stormwater drainage ditch along Main Avenue in front of the Camp Dodge fire station. Nozzle testing was historically conducted in this ditch.

Photograph No. 8

Description:

Facing west. Rail Load FTA.

APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Camp Dodge	Johnston, Iowa

Photograph No. 9

Description:

Facing south. Chapel FTA.

Photograph No. 10

Description:

Facing southeast. Stormwater drainage at Chapel FTA.

APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Camp Dodge	Johnston, Iowa

Photograph No. 11

Description:

Facing southwest. Aggregate Collection Point FTA.

Photograph No. 12

Description:

Facing north. Car Detonation Area.

APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Camp Dodge	Johnston, Iowa

Photograph No. 13

Description:

Non-AFFF fire extinguishers at the Camp Dodge Fire Station.

Photograph No. 14

Description:

Facing southwest. AR-AFFF fire extinguisher at the Camp Dodge Fuel Point.