FINAL
Site Inspection Report
Camp San Luis Obispo
San Luis Obispo, California

Site Inspection for Perfluorooctanoic acid (PFOA), Perfluorooctanesulfonic acid (PFOS), Perfluorohexanesulfonic acid (PFHxS), Perfluorononanoic acid (PFNA), Hexafluoropropylene oxide dimer acid (HFPO-DA), and Perfluorobutanesulfonic acid (PFBS) at ARNG Installations, Nationwide

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Prepared for:

Army National Guard Bureau
111 S. George Mason Drive
Arlington, VA 22204

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Acronyms and Abbreviations

%	percent
°C	degrees Celsius
°F	degrees Fahrenheit
µg/kg	micrograms per kilogram
AECOM	AECOM Technical Services, Inc.
AFFF	aqueous film-forming foam
AOI	Area of Interest
ARNG	Army National Guard
bgs	below ground surface
CAARNG	California Army National Guard
Cal Poly	California Polytechnic State University
Camp SLO	Camp San Luis Obispo
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CMC	California Men's Colony
CoC	chain of custody
CSLRCD	Coastal San Luis Resource Conservation District
CSM	conceptual site model
DA	Department of the Army
DoD	Department of Defense
DPT	direct push technology
DQO	data quality objective
DUA	data usability assessment
ELAP	Environmental Laboratory Accreditation Program
EM	Engineer Manual
FedEx	Federal Express
FTA	Fire Training Area
gpm	gallons per minute
GPRS	Ground Penetrating Radar Systems
GSA	General Services Administration
HDPE	high-density polyethylene
HFPO-DA	hexafluoropropylene oxide dimer acid
IDW	investigation-derived waste
ITRC	Interstate Technology Regulatory Council
LC/MS/MS	liquid chromatography with tandem mass spectrometry
MBNEP	Morro Bay National Estuary Program
META	Motorized Equipment Training Academy
MIL-SPEC	military specification
MS	matrix spike
MSD	matrix spike duplicate
NELAP	National Environmental Laboratory Accreditation Program
ng/L	nanograms per liter
NOAA	National Oceanic and Atmospheric Administration
OSD	Office of the Secretary of Defense

PA	Preliminary Assessment
PFAS	per- and polyfluoroalkyl substances
PFBS	perfluorobutanesulfonic acid
PFHxS	perfluorohexanesulfonic acid
PFNA	perfluorononanoic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
PID	photoionization detector
PQAPP	Programmatic UFP-QAPP
PVC	polyvinyl chloride
QA	quality assurance
QAPP	Quality Assurance Project Plan
QC	quality control
QSM	Quality Systems Manual
RWQCB	Regional Water Quality Control Board
SI	Site Inspection
SL	screening level
SOP	standard operating procedure
TOC	total organic carbon
TPP	Technical Project Planning
UFP	Uniform Federal Policy
US	United States
USACE	United States Army Corps of Engineers
USCS	Unified Soil Classification System
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service

Executive Summary

The Army National Guard (ARNG) G-9 is performing Preliminary Assessments (PAs) and Site Inspections (SIs) on the current or potential historical use of per- and polyfluoroalkyl substances (PFAS) with a focus on the six compounds presented in the memorandum from the Office of the Secretary of Defense (OSD) dated 6 July 2022 (Assistant Secretary of Defense, 2022). The six compounds listed in the OSD memorandum include perfluorooctanesulfonic acid (PFOS), perfluorooctanoic acid (PFOA), perfluorononanoic acid (PFNA), perfluorohexanesulfonic acid (PFHxS), hexafluoropropylene oxide dimer acid (HFPO-DA)[1], and perfluorobutanesulfonic acid (PFBS). These compounds are collectively referred to as "relevant compounds" throughout the document and the applicable screening levels (SLs) are provided in **Table ES-1**.

The PA identified six Areas of Interest (AOIs) where PFAS-containing materials may have been used, stored, disposed, or released historically (see **Table ES-2** for AOI locations). The objective of the SI is to identify whether there has been a release to the environment from the AOIs identified in the PA and determine whether further investigation is warranted, a removal action is required to address immediate threats, or no further action is required based on SLs for relevant compounds. This SI was completed at Camp San Luis Obispo (Camp SLO) in San Luis Obispo, California and determined further investigation is warranted for AOI 1: Former Cal FIRE Fire Training Area (FTA) and AOI 2: Former Motorized Equipment Training Academy (META) Yard FTA. Camp SLO will also be referred to as the "facility" throughout this document.

Camp SLO occupies approximately 5,320 acres along the northern and southern sides of and adjacent to Highway 1, extending from Cerro Romualdo and Chumash Peak in the southern portion, to the foothills of the Santa Lucia Range in the northern portion of the facility. The facility supports federal and state military training activities and serves as a year-round training site for the California ARNG.

The PA identified six AOIs, five of which were investigated during the SI phase. SI sampling results from the five AOIs were compared to OSD SLs. **Table ES-2** summarizes the SI results for each AOI. Based on the results of this SI, further evaluation under CERCLA is warranted in a Remedial Investigation for AOI 1: Former Cal FIRE FTA and AOI 2: Former META Yard FTA; no further evaluation is warranted for AOI 3, AOI 4, AOI 5, and AOI 6 at this time.

[1] Of the six PFAS compounds presented in the 6 July 2022 OSD memorandum, HFPO-DA (commonly referred to as GenX) was not included as an analyte at the time of this SI. Based on the conceptual site model (CSM) developed during the PA and revised based on SI findings, the presence of HFPO-DA is not anticipated at the facility because HFPO-DA is generally not a component of military specification (MIL-SPEC) aqueous film forming foam (AFFF) and based on its history including distribution limitations that restricted use of GenX, it is generally not a component of other products the military used. In addition, it is unlikely that GenX would be an individual chemical of concern in the absence of other PFAS.

Table ES-1: Screening Levels (Soil and Groundwater)

Analyte[b]	Residential (Soil) (µg/kg)[a] 0-2 feet bgs	Industrial/ Commercial Composite Worker (Soil) (µg/kg)[a] 2-15 feet bgs	Tap Water (Groundwater) (ng/L)[a]
PFOA	19	250	6
PFOS	13	160	4
PFBS	1,900	25,000	601
PFHxS	130	1,600	39
PFNA	19	250	6

Notes:
bgs = below ground surface; µg/kg = micrograms per kilogram; ng/L = nanograms per liter

a.) Assistant Secretary of Defense, 2022. Risk Based Screening Levels in Groundwater and Soil using United States Environmental Protection Agency's (USEPA's) Regional Screening Level Calculator. Hazard Quotient (HQ) = 0.1. 6 July 2022.

b.) Of the six PFAS compounds presented in the 6 July 2022 OSD memorandum, HFPO-DA (commonly referred to as GenX) was not included as an analyte at the time of this SI. Based on the CSM developed during the PA and revised based on SI findings, the presence of HFPO-DA is not anticipated at the facility because HFPO-DA is generally not a component of MIL-SPEC AFFF and based on its history including distribution limitations that restricted use of GenX, it is generally not a component of other products the military used. In addition, it is unlikely that GenX would be an individual chemical of concern in the absence of other PFAS.

Table ES-2: Summary of Site Inspection Findings and Recommendations

AOI	Potential Release Area	Soil – Source Area	Groundwater – Source Area	Groundwater – Facility Boundary	Future Action
1	Former CAL FIRE FTA	●	●	◐	Proceed to RI
2	Former META Yard FTA	◐	●	◐	Proceed to RI
3	CAL FIRE Cuesta Camp Tenant	◐	N/A	N/A	No further action
4	O'Sullivan Airfield Shed	○	N/A	N/A	No further action
6	Fuel Point	◐	N/A	N/A	No further action

Legend:
N/A = not applicable
● = detected; exceedance of the screening levels
◐ = detected; no exceedance of the screening levels
○ = not detected

1. Introduction

1.1 Project Authorization

The Army National Guard (ARNG) G-9 is the lead agency in performing Preliminary Assessments (PAs) and Site Inspections (SIs) on the current or potential historical use of per- and polyfluoroalkyl substances (PFAS) with a focus on the six compounds presented in the memorandum from the Office of the Secretary of Defense (OSD) dated 6 July 2022 (Assistant Secretary of Defense, 2022). The six compounds listed in the OSD memorandum will be referred to as "relevant compounds" throughout this document and include perfluorooctanoic acid (PFOA), perfluorooctanesulfonic acid (PFOS), perfluorohexanesulfonic acid (PFHxS), perfluorononanoic acid (PFNA), hexafluoropropylene oxide dimer acid (HFPO-DA)[1], and perfluorobutanesulfonic acid (PFBS) at ARNG facilities nationwide. The ARNG performed this SI at Camp San Luis Obispo (SLO) in San Luis Obispo, California. Camp SLO is also referred to as the "facility" throughout this document.

The SI project elements were performed in compliance with Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA; United States [US] Environmental Protection Agency [USEPA], 1980), as amended, the National Oil and Hazardous Substances Pollution Contingency Plan (40 Code of Federal Regulations Part 300; USEPA, 1994), and in compliance with US Department of the Army (DA) requirements and guidance for field investigations.

1.2 SI Purpose

A PA was performed at Camp SLO (AECOM Technical Services, Inc. [AECOM], 2020) that identified six Areas of Interest (AOIs) where PFAS-containing materials may have been used, stored, disposed, or released historically. The objective of the SI is to identify whether there has been a release to the environment from the AOIs identified in the PA and determine whether further investigation is warranted, a removal action is required to address immediate threats, or no further action is required based on screening levels (SLs) for the relevant compounds.

[1] Of the six PFAS compounds presented in the 6 July 2022 OSD memorandum, HFPO-DA (commonly referred to as GenX) was not included as an analyte at the time of this SI. Based on the conceptual site model (CSM) developed during the PA and revised based on SI findings, the presence of HFPO-DA is not anticipated at the facility because HFPO-DA is generally not a component of military specification (MIL-SPEC) aqueous film forming foam (AFFF) and based on its history including distribution limitations that restricted use of GenX, it is generally not a component of other products the military used. In addition, it is unlikely that GenX would be an individual chemical of concern in the absence of other PFAS.

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2. Facility Background

2.1 Facility Location and Description

Camp SLO is located in southern San Luis Obispo County in central California, approximately 6.5 miles east of the Pacific Ocean and 5 miles northwest of the City of San Luis Obispo (**Figure 2-1**). The facility occupies approximately 5,320 acres along the northern and southern sides of Highway 1, extending from Cerro Romualdo and Chumash Peak in the southern portion, to the foothills of the Santa Lucia Range in the northern portion of the facility.

Camp SLO was originally established by California in 1929, on 5,800 acres, as a National Guard Training Camp known as Camp Merriam. In 1940, Congress authorized funds for the Army to lease about 44,000 acres of ranch lands and eventually purchased the leased parcels and additional lands in 1943. Construction of the Main Garrison began on 15 November 1940. Camp SLO officially began its mission as a training site in March 1941 (Camp Roberts Historical Museum, 2020).

From 1939 to 1945, Camp SLO served as a California ARNG (CAARNG) training site for horse cavalry, and the Navy also likely used the area for live-fire training activities during World War II. In 1947, control of the Camp reverted to CAARNG, and the US Army operated the Southwest Signal Center at Camp SLO in 1951 during the Korean conflict. Part of Camp SLO remained under federal control until 1 July 1965, when the entire property was returned to State control. Approximately 4,685 acres were relinquished to the General Services Administration (GSA) in 1965. The GSA then transferred the property to other agencies and individuals beginning in the late 1960s through the 1980s. Most of the property was transferred to California Polytechnic State University (Cal Poly) and Cuesta College for educational use. A total of 5,880 acres were retained by the CAARNG for the purpose of developing a training facility for CAARNG.

Camp SLO supports federal and state military training activities and serves as a year-round training site for the CAARNG. Access to the facility is restricted and inaccessible to the general public in some areas. The facility's mission is to maintain and allocate training areas, airspace, facilities, and ranges in order to support CAARNG. Additionally, the facility provides quality of life, logistical support to training units, and administrative services. Future land use is not anticipated to change.

2.2 Facility Environmental Setting

Camp SLO is located on the western slopes of the Santa Lucia Range, approximately 4.5 miles and 6.5 miles east of Morro Bay and the Pacific Ocean, respectively. The terrain in and around the facility is primarily the foothills of the Santa Lucia Range, which exhibits high relief with grasslands, rolling hills, and canyons. The facility is bounded to the north by Los Padres National Forest in the Santa Lucia Mountains and to the south by Cerro Romualdo and Chumash Peak, two hills that are a part of the Nine Sisters Peaks. The elevation of the facility ranges from approximately 190 feet to 2,440 feet above mean sea level, with elevation increasing from west to east (**Figure 2-2**).

2.2.1 Geology

Camp SLO lies within the Pacific Border physiographic province, California Coast Ranges. The California Coast Ranges are predominantly composed of late Mesozoic and Cenozoic sedimentary rocks (Franciscan Complex) formed from subduction of the Pacific Plate under the North American Plate. The landscape also displays lateral deformation from the San Andreas Fault System, which dominates the California Coast Ranges, resulting in parallel sequences of

linear ridges and valleys (Fuller, M. et al., 2015). The various geologic formations and features at Camp SLO and within the surrounding area are presented in **Figure 2-3**.

The majority of Camp SLO lies on the Franciscan Complex, which is a mélange of Cretaceous to Jurassic-age fragmented rock masses in a sheared matrix of argillite and crushed metasandstone. Individual rock masses within the mélange range in size from less than a meter to kilometers. Blocks large enough to map include sandstone and shale in the western portion of the facility and metavolcanic rocks in the south and central portions of the facility. The sandstone and shale are made up of fine- to medium-grained greywacke sandstone interbedded with shale and siltstone. The metavolcanic rocks are primarily greenstone metamorphosed from basalt. The Jurassic-age, serpentinized, ultramafic rocks lie on the north side of the Franciscan Complex, bounded on both sides by faults and composed of pervasively sheared serpentinite (Wiegers, M.O., 2010).

Oligocene and Miocene-aged rocks unconformably lie above the Franciscan Complex and are composed of the Rincon Shale, the Obispo Formation, and the Monterey Formation. The Rincon Shale is located on the east side of the Chorro Reservoir and comprises primarily siltstone and silty claystone and locally contains zones of dolomite and arkosic sandstone. The Obispo Formation lies above the Rincon Shale to the northeast and is composed primarily of fine- to coarse-grained vitric tuff. The Monterey Formation begins just north of the Chorro Reservoir and is composed of laminated to thin-bedded shale, siliceous claystone, and soft diatomaceous siltstone (Wiegers, M.O., 2010).

Holocene and Pleistocene landslide deposits overlie the Monterey Formation and occupy the northeastern portion of the facility. The landslide complex is deeply dissected in a serpentinite and diabase dike-and-sill complex on the southwest side of the Santa Lucia Range (Wiegers, M.O., 2010). The Oceanic Fault is a reverse fault that strikes west-northwest, stretches from Santa Maria to its convergence with the San Simeon Fault, just northwest of San Simeon, and runs through the northern side of the landslide deposits. Additional, smaller faults appear in the area as right-lateral, strike-slip faults with near vertical fault planes.

The Morro Rock – Islay Hill Volcanic Intrusive Complex forms a series of volcanic plugs and lava domes known as the Nine Sisters Peaks. Two of the peaks (Cerro Romualdo and Chumash Peak) are located in the southern side of Camp SLO along the facility boundary. The Morro Rock – Islay Hill Volcanic Intrusive Complex (Oligocene) is composed of porphyritic dacite, with flow banding common (Wiegers, M.O., 2010). The Intrusive Complex penetrates the Franciscan Complex, with the Franciscan Complex mélange on the slopes of Cerro Romualdo, and the Franciscan Complex sandstone and shale on the north slope of Chumash Peak.

The westernmost portion of the facility is composed of young Holocene to late Pleistocene alluvial flood-plain deposits of unconsolidated sand, silt, and clay. These alluvial deposits are observed as thick as 50 feet and found along Chorro Creek as well as several other unnamed streams traversing the facility. The remaining unconsolidated overburden is also observed as thick as 50 feet and is primarily composed of silt and clay terrace deposits.

Soil borings completed during the SI found silty sand and lean clay as the dominant lithology of the unconsolidated sediments below Camp SLO and are consistent with the alluvial and flood-plain deposits described in the region. The borings were completed at depths between 30 and 100 feet below ground surface (bgs). In the shallower portions of the borings, isolated layers of silt and gravel were also observed in the boring logs at thicknesses ranging from 0.5 to 9 feet. Many of the logs also reported varying percentages of gravel included in the sand packages. These results and facility observations are consistent with the understood localized use of fill material and the alluvial depositional environment. The original estimated depth to water was assumed to be 30 feet bgs, based on historical information. During the second mobilization, a maximum depth of 100 feet bgs was selected for drilling, given the lack of any moisture observed

in the overburden and the challenging drilling conditions. These deeper borings were dominated by fine-grain materials (smectitic clay-dominated) consistent with the volcanic deposits in the region. Boring logs are presented in **Appendix E**.

2.2.2 Hydrogeology

Regional groundwater flow is to the west, towards the Chorro Valley Groundwater Basin and Morro Bay. Groundwater in the region is found in Pleistocene to Holocene age surficial deposits. The primary source of groundwater extracted from wells in the region is from generally thin alluvium deposits that blanket the San Luis Obispo Creek watershed. Recharge to the groundwater basin is from applied irrigation water, influence from streams, and infiltration of precipitation on the valley (State of California, 2004).

Both the City of San Luis Obispo and San Luis Obispo County extract groundwater from the San Luis Obispo Valley Groundwater Basin, located to the south and east of the facility. The northwest boundary of the San Luis Obispo Valley Groundwater Basin contacts the impermeable Franciscan Group rocks approximately 1 mile south of the facility. Based on available information, domestic and private supply wells are located within 2 miles of the facility (**Figure 2-3**) (AECOM, 2020; California State Water Resources Control Board, 2022).

Camp SLO is not located on a principal aquifer system, and the underlying bedrock formations are not generally recognized as water bearing. Groundwater is primarily found in the Holocene to late Pleistocene alluvial flood-plain deposits. Yields from the alluvial deposits are generally from 20 gallons to 300 gallons per minute (gpm), and yields from the terrace deposits are generally around 20 gpm (State of California, 2004).

The three water wells at Camp SLO that were historically used for potable water purposes include Well No's 1, 2, and 3 (see **Figure 2-3**). Well No. 1 is 12-inches in diameter and approximately 51 feet bgs. No construction information is available for Wells No. 2 and 3 (Geosystems Consultants, Inc., 1996). According to the Camp SLO Environmental Scientist, the wells are without pumping equipment and are currently managed by San Luis Obispo County, who use the wells to gauge and monitor groundwater basin conditions (i.e., depth to groundwater). According to California Regional Water Quality Control Board (RWQCB), the nearest public water supply well is located approximately 4.1 miles from Camp SLO. Private properties in the Chorro Creek valley rely on private domestic wells for their water supply (RWQCB Comments on AECOM, 2021b).

Depth to water was measured in June 2021 from the newly installed wells that contained water. Only four of the seven wells installed contained water, and water levels ranged from 31.65 to 34.95 feet bgs. Groundwater elevation contours from the SI are presented on **Figure 2-4** and indicate groundwater flow direction is generally to the northwest.

2.2.3 Hydrology

The majority of Camp SLO is within the Morro Bay Watershed, which is located in the central area of coastal San Luis Obispo County and covers an area of approximately 46,598 acres (Morro Bay National Estuary Program [MBNEP], 2013). Surface water features and watersheds are presented in **Figure 2-5**.

The watershed has two major sub-watersheds that drain to Chorro and Los Osos Creeks, both of which drain to the Morro Bay Estuary and then to the Pacific Ocean. The Chorro Creek sub-watershed, within which the majority of Camp SLO is situated, accounts for about 60 percent (%) of the total land area that drains to the Morro Bay Estuary (MBNEP, 2013). Relatively small land surface areas along the southeastern and eastern margins of Camp SLO are situated within the Upper and Lower San Luis Obispo Creek Watersheds, respectively. Water in the Morro Bay

watershed is managed by the City of Morro Bay, Los Osos Community Services District, Golden State Water Company, and S&T Mutual Water Company (MBNEP, 2013).

Regional surface water features include Chorro Creek, which passes through the facility, and Chorro Reservoir, which is located in the northeastern portion of the facility. The Chorro Creek is a 2002 303(d)-listed impaired waterbody that flows into a Marine Protected Area (Morro Bay State Estuary and MBNEP) and is designated as a critical coastal area along the central coast of California (California Coastal Commission, 2016). Sixty (60) % of the Chorro Creek watershed is classified as rangeland, and 20% is brushland.

Chorro Creek is regionally used for domestic and municipal water supply and agricultural supply purposes. Chorro Reservoir was used for hydroelectric power generation and recreation. It is operated by the California Men's Colony (CMC). The reservoir was constructed in 1941 to store runoff water for Camp SLO and was historically used for the facility's water supply along with three base wells.

The potable water supply for Camp SLO is from waters piped to the facility from Chorro Reservoir and Whale Rock Reservoir, which is situated approximately 11 miles to the northwest of the facility. The water is piped to a water treatment facility located at Chorro Reservoir, where after treatment, water is distributed to the Camp SLO, SLO County Facilities, and Cuesta College. The treatment facility is managed by the CMC. The CMC and Cuesta College also receive State Water through the Chorro Valley Turnout. The Turnout conveys State Water from the Coastal Branch of the State Water pipeline to the CMC (MBNEP, 2013). Potable water for the coastal town of Los Osos (4 miles downgradient of Camp SLO) is provided from several groundwater wells.

The main surface water drainage feature for Camp SLO is Chorro Creek, which begins to the north of the facility, passes through the center of the facility in a northeast-southwest direction, and exits the facility on the southwest boundary. Chorro Creek is a fifth order stream and has approximately 14.2 miles of blue line stream (Coastal San Luis Resource Conservation District [CSLRCD], 2001). Tributaries of Chorro Creek at and within the vicinity of Camp SLO are intermittent and flow only when precipitation is sufficient. Chorro Creek flows into the Chorro Reservoir (visible on **Figure 2-2**), after which it passes beneath Highway 1 and flows through all of the cantonment areas of Camp SLO. Downstream of Camp SLO, Chorro Creek converges with the Morro Bay Estuary located approximately 7 miles west of the facility. Chorro Creek is fed by numerous small tributary streams that flow through the facility. These streams include Dairy Creek, which originates just north of the property boundary, cuts across the northwest corner of the facility, and parallels the western property boundary until it converges with Chorro Creek in the southern portion of the facility.

According to the National Wetlands Inventory by the US Fish and Wildlife Service, emergent or forested/shrub wetlands are located at Camp SLO around Chorro Reservoir. **Figure 2-5** depicts the locations of the wetland areas. The wetlands in the reservoir area are generally noncontiguous, each less than about 2 acres in extent. Forested/shrub and emergent wetlands areas exist in nearly all areas adjacent to Chorro Creek and its tributaries, within the various creeks' stream banks.

2.2.4 Climate

The climate at Camp SLO is considered Mediterranean, with a subtropical dry summer, abundant sunshine, and modest precipitation in winter. Camp SLO has seasonally warm summers and mild winters. The average temperature is 60.5 degrees Fahrenheit (°F), with summer highs of 77.9 °F and winter lows of 44 °F (National Oceanic and Atmospheric Administration [NOAA], 2022). Average annual precipitation is 22.42 inches.

2.2.5 Current and Future Land Use

Camp SLO serves as a year-round training facility for the CAARNG. The cantonment area of the facility is developed with numerous buildings and related infrastructure including paved and unpaved roadways and parking areas. The cantonment area occupies a small percentage of the total area controlled by the CAARNG, the other, much larger lands of which are occupied by and used as training ranges. The ranges are generally in vegetated sloping areas, mostly to the north of Highway 1. Access to lands under Camp SLO purview is restricted and inaccessible to the general public in most areas.

The facility's mission is to maintain and allocate training areas, airspace, facilities, and ranges in order to support CAARNG. Additionally, the facility provides quality of life, logistical support to training units, and administrative services. Tenants include CAL FIRE, CAL Trans, California Conservation Corps, and California Specialized Training, Inc. There are no residential areas/buildings in the AOIs. Future land use is not anticipated to change.

2.2.6 Sensitive Habitat and Threatened/ Endangered Species

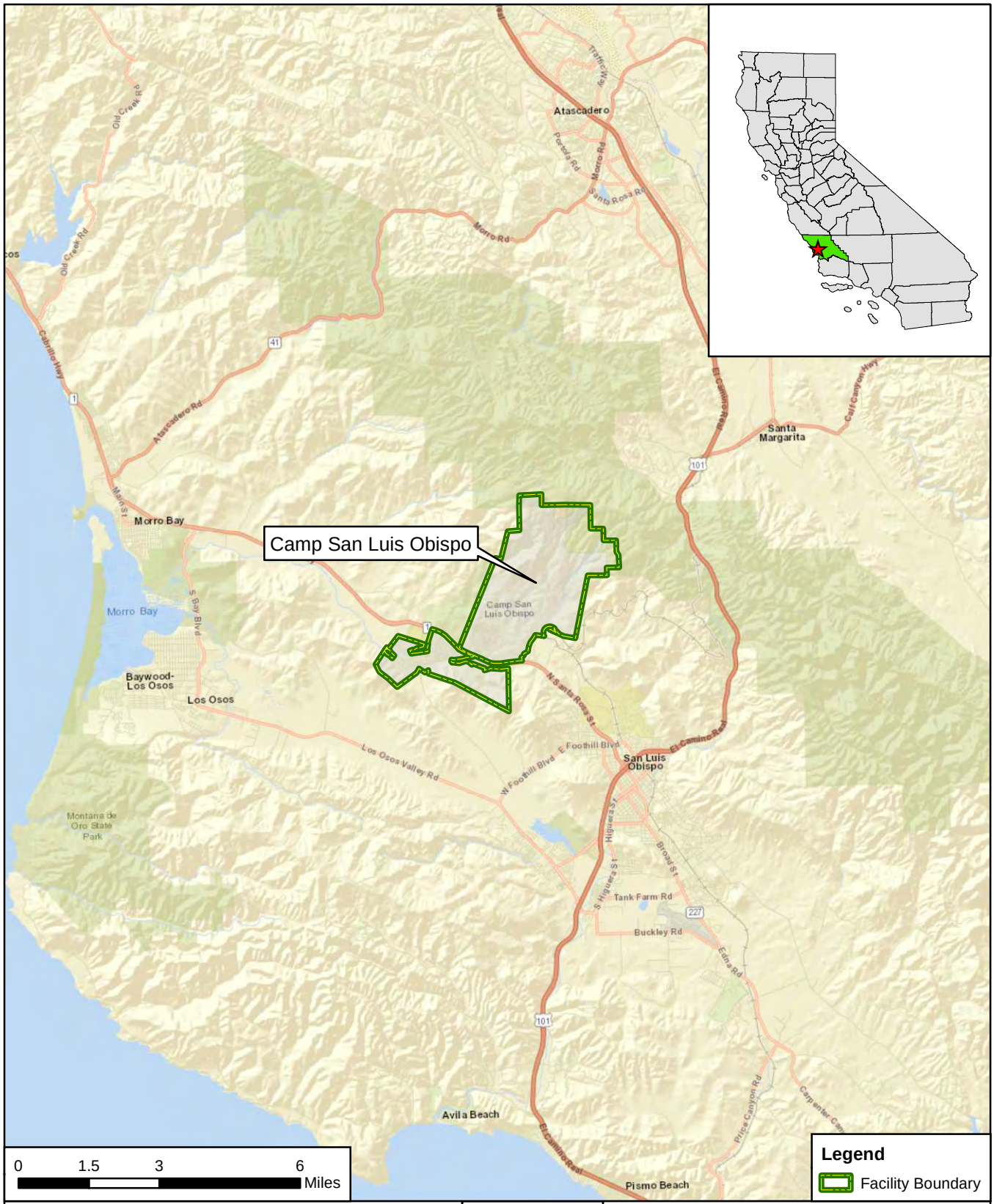
The following amphibians, birds, crustaceans, fishes, plants, insects, mammals, reptiles, and snails are federally endangered, threatened, proposed, and/ or are listed as candidate species in San Luis Obispo County, California (US Fish and Wildlife Service [USFWS], 2022).

- **Amphibians:** California tiger Salamander, *Ambystoma californiense* (endangered); Arroyo (=arroyo southwestern) toad, *Anaxyrus californicus* (endangered); California red-legged frog, *Rana draytonii* (threatened)
- **Birds:** Short-tailed albatross, *Phoebastria (=Diomedea) albatrus* (endangered); No Common Name, *Coccyzus americanus ssp. occidentalis* (species of concern); California condor, *Gymnogyps californianus* (endangered); California clapper rail, *Rallus longirostris obsoletus* (endangered); Southwestern willow flycatcher, *Empidonax traillii extimus* (endangered); Western snowy plover, *Charadrius nivosus nivosus* (threatened); California least tern, *Sterna antillarum browni* (endangered); Marbled murrelet, *Brachyramphus marmoratus* (threatened); Least Bell's vireo, *Vireo bellii pusillus* (endangered); Yellow-billed Cuckoo, *Coccyzus americanus* (threatened)
- **Crustaceans:** Longhorn fairy shrimp, *Branchinecta longiantenna* (endangered); Conservancy fairy shrimp, *Branchinecta conservation* (endangered); Vernal pool fairy shrimp, *Branchinecta lynchi* (threatened)
- **Fishes:** Delta smelt, *Hypomesus transpacificus* (threatened); Tidewater goby, *Eucyclogobius newberryi* (endangered)
- **Flowering Plants:** California jewelflower, *Caulanthus californicus* (endangered); California seablite, *Suaeda californica* (endangered); Spreading navarretia, *Navarretia fossalis* (threatened); Kern mallow, Eremalche kernensis (endangered); Morro manzanita, *Arctostaphylos morroensis* (threatened); Gambel's watercress, *Rorippa gambellii* (endangered); Salt marsh bird's-beak, *Cordylanthus maritimus ssp. maritimus* (endangered); Indian Knob mountainbalm, *Eriodictyon altissimum* (endangered); La Graciosa thistle, *Cirsium loncholepis* (endangered); Monterey spineflower, *Chorizanthe pungens var. pungens* (threatened); Purple amole, *Chlorogalum purpureum* (threatened); Pismo clarkia, *Clarkia speciosa ssp. immaculata* (endangered); Marsh Sandwort, *Arenaria paludicola* (endangered); Chorro Creek bog thistle, *Cirsium fontinale var. obispoense* (endangered); Nipomo Mesa lupine, *Lupinus nipomensis* (endangered); San Joaquin wooly-threads, *Monolopia (=Lembertia) congdonii* (endangered); Gaviota Tarplant, *Deinandra increscens ssp. villosa* (endangered)

- **Insects:** Monarch butterfly, *Danaus plexippus* (candidate); Kern primrose sphinx moth, *Euproserpinus Euterpe* (threatened); Unsilvered fritillary, *Speyeria adiaste* (resolved taxon); Smith's blue butterfly, *Euphilotes enoptes smithi* (endangered)
- **Mammals**: Little brown bat, *Myotis lucifugus* (under review); Southern sea otter, *Enhydra lutris nereis* (threatened); Buena Vista Lake ornate Shrew, *Sorex ornatus relictus* (endangered); Tipton kangaroo rat, *Dipodomys nitratoides nitratoides* (endangered); Giant kangaroo rat, *Dipodomys ingens* (endangered); Swift fox, *Vulpes velox* (resolved taxon); San Joaquin kit fox, *Vulpes macrotis mutica* (endangered); Morro Bay kangaroo rat, *Dipodomys heermanni morroensis* (endangered)
- **Reptiles**: Leatherback sea turtle, *Dermochelys coriacea* (endangered); Blunt-nosed leopard lizard, *Gambelia silus* (endangered); Olive ridley sea turtle, *Lepidochelys olivacea* (threatened); Giant garter snake, *Thamnophis gigas* (threatened)
- **Snails**: Morro shoulderband (=Banded dune) snail, *Helminthoglypta walkeriana* (threatened)

2.3 History of PFAS Use

Seven potential release areas were identified at Camp SLO during the PA where AFFF may have been used or released historically (AECOM, 2020). In 1972, an airplane crashed in Chorro Creek, and it is possible that AFFF was used to extinguish any fires. AFFF may have been released at the facility during fire training activities between 1978 and 2007. In 2013, AFFF may have been released during the flushing of hoses and a tank that contained AFFF. Additionally, storage of AFFF may have resulted in incidental spills. Of the six PFAS compounds presented in the 6 July 2022 OSD memorandum, HFPO-DA (commonly referred to as GenX) was not included as an analyte at the time of this SI, as screening values were established after SI planning and execution. However, ARNG will add HFPO-DA to the list of constituents sampled during the next phase of CERCLA if warranted. The potential release areas were grouped into six AOIs based on proximity to one another and groundwater flow. These AOIs are generally located in the western portion of the facility. A description of each AOI is presented in **Section 3**.



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PROJECT	Site Inspection at Camp San Luis Obispo, CA			
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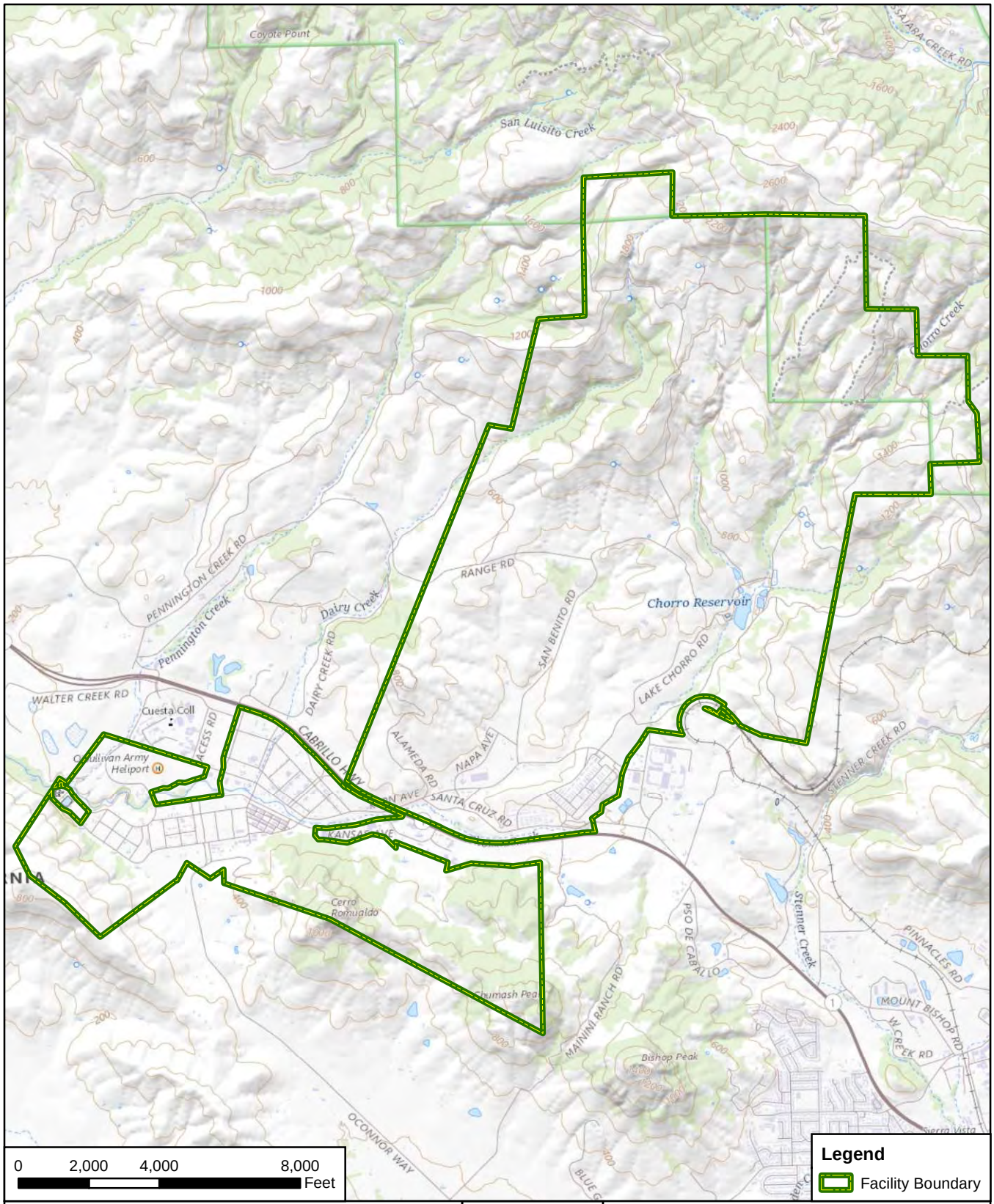
SCALE	1:190,080	CHK BY	MB	8/23/2022
Base Map: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI,		PM	CM	8/23/2022

Facility Location

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 2-1



CLIENT	ARNG			
PROJECT	Site Inspection at Camp San Luis Obispo, CA			
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SCALE	1:48,000	CHK BY	MB	8/23/2022
Base Map: USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program,		PM	CM	8/23/2022

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Facility Topography

AECOM
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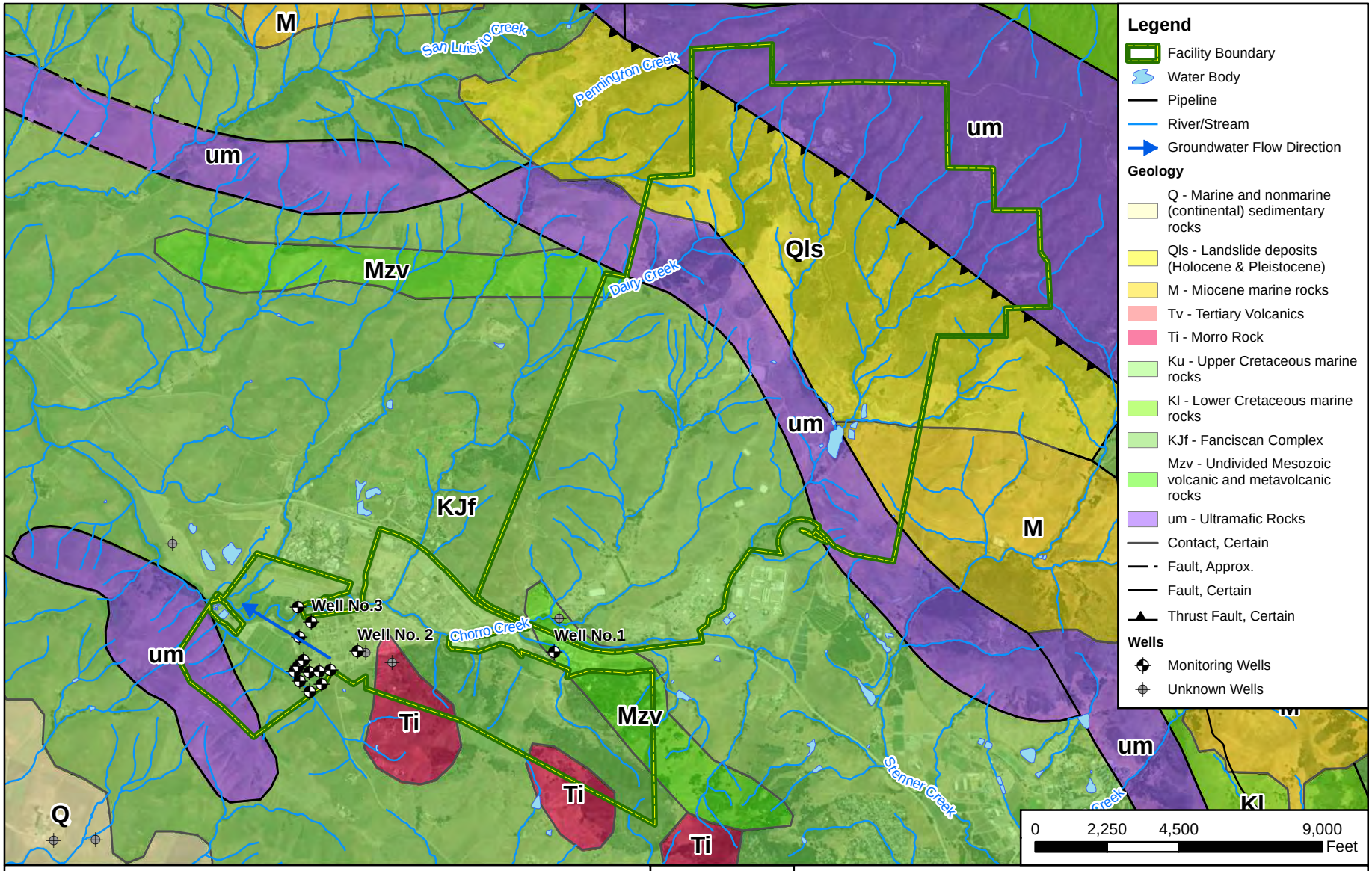
Germantown, MD 20876

Figure 2-2



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SCALE	1:54,000	CHK BY	MB	8/23/2022
Base Map Source: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community		PM	CM	8/23/2022

N

Groundwater Features

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Germantown, MD 20876

Figure 2-3

CLIENT	ARNG			
PROJECT	Site Inspection at Camp San Luis Obispo, CA			
REVISED	10/20/2022	GIS BY	MS	10/20/2022
SCALE	1:6,000	CHK BY	SL	10/20/2022
Base Map: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c)		PM	CM	10/20/2022

Legend

- Soil Boring/Temporary Monitoring Well
- Facility Boundary
- Water Body
- Wetland
- River/Stream
- Groundwater Elevation Contour
- Groundwater Flow Direction

Groundwater elevations in ft NAVD88.

N

Groundwater Elevations, June 2021

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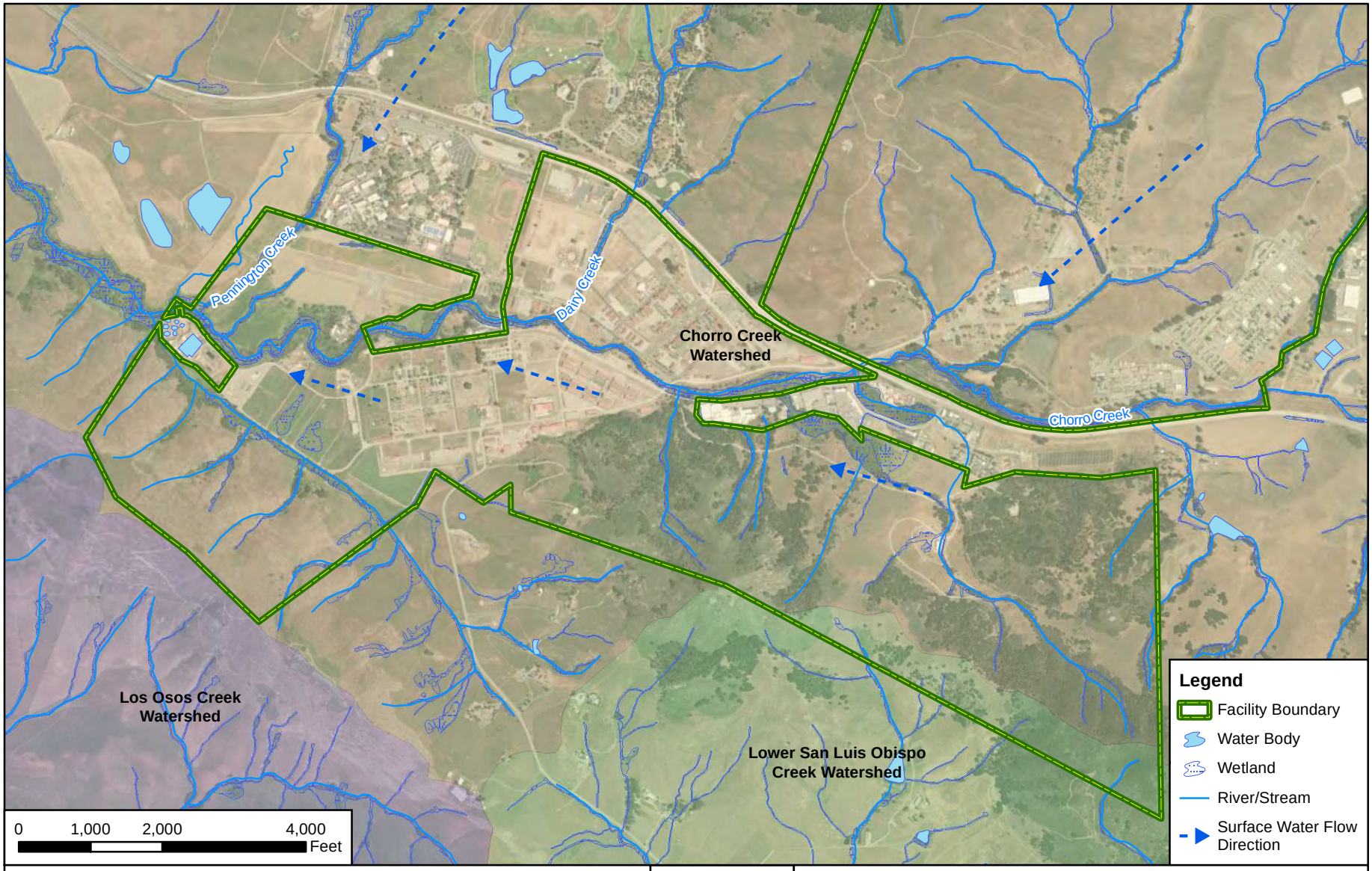
Figure 2-4



CLIENT	ARNG			
PROJECT	Site Inspection at Camp San Luis Obispo, CA			
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SCALE	1:24,000	CHK BY	MB	9/30/2022
Base Map Source: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community		PM	CM	9/30/2022

N

Surface Water Features

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Figure 2-5

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3. Summary of Areas of Interest

The PA evaluated areas where PFAS-containing materials may have been used, stored, disposed, or released historically. Based on the PA findings, six AOIs were identified at Camp SLO and grouped, five of which were investigated during the SI (AECOM, 2020). AOI 5 was determined to be located outside of the facility boundaries and was, therefore, not sampled as part of the SI. The potential release areas are shown on **Figure 3-1**.

3.1 AOI 1 Former Cal FIRE Training Area

AOI 1 is the former CAL FIRE Fire Training Area (FTA), now used by an outside contractor for a once-annual fire training session. Potential releases to soil by CAL FIRE occurred at AOI 1 during fire training activities from 1995/1996 to 2005/2006. Once a year, during these two timeframes, one 5-gallon container of 3% AFFF was reported to have been used to train firefighters on how to apply foam. The foam was directed at various props and a concrete cinder-block structure. AFFF was expelled from equipment nozzles during the training and released to the ground surface, which was observed in aerial photographs and during the PA site visit to be gravel covered.

3.2 AOI 2 Former META Yard Fire Training Area

AOI 2 is a parking lot area that was reportedly used for fire training. Potential releases to the east parking lot area of the Motorized Equipment Training Academy (META) yard occurred as early as 1978 through 2007.

3.3 AOI 3 Cal FIRE Cuesta Camp Tenant

AOI 3 is located in the northeastern portion of Camp SLO, at a fueling facility associated with Cuesta Camp, which is operated by CAL FIRE; the fueling facility is near Building 621. Potential releases to concrete surfaces occurred in 2013 during the flushing out of hoses and a tank that contained AFFF. The precise location, amount, and type of AFFF released to the pavement and the condition of the pavement are not known.

PFAS-containing materials were reportedly released to a concrete surface and potentially migrated to the subsurface through cracks in the concrete or to areas off to the sides of concrete-covered areas.

3.4 AOI 4 O'Sullivan Airfield Shed

AOI 4 is a shed at the O'Sullivan Airfield and was observed during the PA site visit to contain two Tri-Max™ crash carts that typically contain AFFF, three 5-gallon buckets of Chemguard 3% AFFF, and one 5-gallon bucket of FireAide 3% AFFF; the AFFF is stored on a concrete surface. Surface water and groundwater at and within the vicinity of the shed likely flows to the west/southwest, towards Chorro Creek. Although no incidental spills of stored AFFF were reported, AFFF could migrate to the subsurface through cracks in the concrete or to areas off to the sides of concrete covered areas.

3.5 AOI 5 de Havilland Beaver Crash Site

In 1972, a de Havilland Beaver airplane belonging to the US Army crashed and came to rest in Chorro Creek. Interviewees did not recall whether AFFF were used to extinguish any fires. Note that this AOI is located outside of the facility boundaries and was, therefore, not sampled as part of the SI.

3.6 AOI 6 Fuel Point

AOI 6 is located north of Chorro Creek and East of Dairy Creek, at a Fuel Point where a 5-gallon container of AFFF and an applicator were present during fueling operations. The AFFF material was reportedly transported to this site around 2011. The fuel point is situated on a concrete surface. If AFFF were released, it could migrate through cracks in the concrete surface or off the concreate to uncovered areas.

CLIENT	ARNG			
PROJECT	Site Inspection at Camp San Luis Obispo, CA			
REVISED	8/30/2022	GIS BY	MS	8/30/2022
SCALE	1:10,200	CHK BY	MB	8/30/2022
Base Map: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c)		PM	CM	8/30/2022

- Area of Interest
- Potential Release Area
- Facility Boundary
- Water Body
- Wetland
- River/Stream
- Surface Water Flow Direction
- Groundwater Flow Direction
- Monitoring Well

N

Areas of Interest

AECOM 12420 Milestone Center Drive Germantown, MD 20876

Figure 3-1

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4. Project Data Quality Objectives

As identified during the Data Quality Objective (DQO) process and outlined in the SI Quality Assurance Project Plan (QAPP) Addendum (AECOM, 2021b), the objective of the SI is to identify whether there has been a release to the environment at the AOIs identified in the PA. For each AOI, ARNG determines if further investigation is warranted, a removal action is required to address immediate threats, or whether no further action is warranted. This SI evaluated groundwater and soil for presence or absence of relevant compounds at each of the sampled AOIs.

4.1 Problem Statement

ARNG will recommend an AOI for Remedial Investigation (RI) if related soil and groundwater samples have concentrations of the relevant compounds above the OSD risk-based SLs. The SLs are presented in **Section 6.1** of this report.

4.2 Information Inputs

Primary information inputs included:

- The PA for Camp SLO (AECOM, 2020);
- Analytical data from groundwater and soil samples collected as part of this SI in accordance with the site-specific Uniform Federal Policy (UFP)-QAPP Addendum (AECOM, 2021b); and
- Field data collected during the SI, including groundwater elevations.

4.3 Study Boundaries

The scope of the SI was bounded by the property limits of the facility (**Figure 2-2**). Off-facility sampling was not included in the scope of this SI. If future off-facility sampling is required, the proper stakeholders will be notified, and necessary rights of entry will be obtained by ARNG with property owner(s). The SI scope was bounded vertically by the observed depths of the surficial groundwater table. Temporal boundaries were limited to the spring and fall, which was the earliest available time field resources were available to complete the study.

4.4 Analytical Approach

Samples were analyzed by Pace Analytical Gulf Coast, accredited under the Department of Defense (DoD) Environmental Laboratory Accreditation Program (ELAP; Accreditation Number 74960) and the National Environmental Laboratory Accreditation Program (NELAP; Certificate Number 01955). Data were compared to applicable SLs within this document and decision rules as defined in the SI QAPP Addendum (AECOM, 2021b).

4.5 Data Usability Assessment

The Data Usability Assessment (DUA), which is provided in **Appendix A**, is an evaluation at the conclusion of data collection activities that uses the results of both data verification and validation in the context of the overall project decisions or objectives. Using both quantitative and qualitative methods, the assessment determines whether project execution and the resulting data have met installation-specific DQOs. Both sampling and analytical activities are considered to assess whether the collected data are of the right type, quality, and quantity to support the decision-making (DoD, 2019a; DoD, 2019b; USEPA, 2017).

Based on the DUA, the environmental data collected during the SI were found to be acceptable and usable for this SI evaluation with the qualifications documented in the DUA and its associated data validation reports. These data are of sufficient quality to meet the objectives and requirements of the SI QAPP Addendum (AECOM, 2021b).

5. Site Inspection Activities

This section describes the environmental investigation and sampling activities that occurred as part of the SI. The SI sampling approach was based on the findings of the PA and implemented in accordance with the following approved documents:

- *Final Site Inspection Programmatic Uniform Federal Policy-Quality Assurance Project Plan (PQAPP)* dated March 2018 (AECOM, 2018a);
- *Final Programmatic Accident Prevention Plan* dated July 2018 (AECOM, 2018b);
- *Final Preliminary Assessment Report, Camp San Luis Obispo, San Luis Obispo, California* dated January 2020 (AECOM, 2020);
- *Final Site Safety and Health Plan, Camp San Luis Obispo, San Luis Obispo, California* dated May 2021 (AECOM, 2021a); and
- *Final Site Inspection Uniform Federal Policy-Quality Assurance Project Plan Addendum, Camp San Luis Obispo, San Luis Obispo, California* dated June 2021 (AECOM, 2021b);

The SI field activities were conducted from 21 June to 25 June 2021 and 1 November to 5 November 2021, which consisted of utility clearance, direct push boring, soil sample collection, temporary monitoring well installation and subsequent abandonment, grab groundwater sample collection, and land surveying. Field activities were conducted in accordance with the SI QAPP Addendum (AECOM, 2021b), except as noted in **Section 5.8**.

The following samples were collected during the SI and analyzed for a subset of 18 compounds by liquid chromatography with tandem mass spectrometry (LC/MS/MS) compliant with Quality Systems Manual (QSM) 5.3 Table B-15 to fulfill the project DQOs:

- Twenty-four (24) soil samples from 11 soil borings;
- Four grab groundwater samples from four temporary wells;
- Fifteen (15) quality assurance (QA)/quality control (QC) samples.

Figure 5-1 provides the sample locations for all media across the facility. **Table 5-1** presents the list of samples collected for each media. Field documentation is provided in **Appendix B**. A Log of Daily Notice of Field Activity was completed throughout the SI field activities, which is provided in **Appendix B1**. Field Change Request Forms are provided in **Appendix B2**, Nonconformance and Corrective Action Reports are provided in **Appendix B3**, and land survey data are provided in **Appendix B4**. Additionally, a photographic log of field activities is provided in **Appendix C**.

5.1 Pre-Investigation Activities

In preparation for the SI field activities, project team members participated in Technical Project Planning (TPP) meetings, performed utility clearance, and sampled decontamination source water. Details for each of these activities are presented below.

5.1.1 Technical Project Planning

The US Army Corps of Engineers (USACE) TPP Process, Engineer Manual (EM) 200-1-2 (USACE, 2016) defines four phases to project planning: 1.) defining the project phase; 2.) determining data needs; 3.) developing data collection strategies; and 4.) finalizing the data collection plan. The process encourages stakeholder involvement in the SI, beginning with

defining overall project objectives, including DQOs, and formulating a sampling approach to address the AOIs identified in the PA.

A combined TPP Meeting 1 and 2 was held on 28 January 2021, prior to SI field activities. The combined TPP Meeting 1 and 2 was conducted in general accordance with EM 200-1-2. The stakeholders for this SI include the ARNG, CAARNG, USACE, and RWQCB. Stakeholders were provided the opportunity to make comments on the technical sampling approach and methods at the combined TPP Meeting 1 and 2. The outcome of the combined TPP Meeting 1 and 2 was memorialized in the SI QAPP Addendum (AECOM, 2021b).

A TPP Meeting 3 will be held after the field event to discuss the results of the SI. Meeting minutes for TPP 3 will be included in **Appendix D** of this report. Future TPP meetings will provide an opportunity to discuss the results and findings, and future actions, where warranted.

5.1.2 Utility Clearance

AECOM's drilling subcontractor, Cascade Technical Services, LLC. placed a ticket with the USA DigAlert, the Northern California utility clearance provider to notify them of intrusive work on 16 April 2021. Additionally, AECOM contracted Ground Penetrating Radar Systems (GPRS), a private utility location service, to perform utility clearance. GPRS performed utility clearance of the proposed boring locations on 21 June 2021 with input from the AECOM field team and Camp SLO facility staff. General locating services and ground-penetrating radar were used to complete the clearance. Additionally, the first 5 feet of each boring were pre-cleared using a hand auger to verify utility clearance in shallow subsurface where utilities would typically be encountered.

5.1.3 Source Water and Sampling Equipment Acceptability

A potable water source at Camp SLO was sampled prior to the field event, on 19 March 2021, to assess usability for decontamination of drilling equipment. Results of the sample collected at the wash rack spigot (SLO-PW-01) confirmed this source to be acceptable for use in this investigation; however, this location was inaccessible during the field event. As a result, an additional sample (SLO-PW-02) was collected on 22 June 2021 from a hose bib at an alternate location. This alternate source was confirmed to be acceptable for use in this investigation; therefore, it was used throughout the field activities. Specifically, the samples were analyzed by LC/MS/MS compliant with QSM 5.3 Table B-15. The results of the decontamination water samples associated with the water sources are provided in **Appendix F**. A discussion of the results is presented in the DUA (**Appendix A**).

Materials that were used within the sampling zone were confirmed as acceptable for use in the sampling environment. The checklist of acceptable materials for use in the sampling environment was provided in the Standard Operating Procedures (SOPs) appendix to the SI QAPP Addendum (AECOM, 2021b). Prior to the start of field work each day, a Sampling Checklist was completed as an additional layer of control. The checklist served as a daily reminder to each field team member regarding the allowable materials within the sampling environment.

5.2 Soil Borings and Soil Sampling

During the first mobilization in June 2021, soil samples were collected via direct push technology (DPT), in accordance with the SI QAPP Addendum (AECOM, 2021b). A GeoProbe® 3126GT dual-tube sampling system was used to collect continuous soil cores to the target depth. Due to rig refusal at two locations, a second mobilization was conducted in November 2021 using a sonic drill rig. During both mobilizations, a hand auger was used to collect soil from the top 5 feet of the boring, in accordance with AECOM utility clearance procedures. The soil boring locations are shown on **Figure 5-1**, and depths are provided **Table 5-1**.

In general, three discrete soil samples were collected from the vadose zone for chemical analysis from each soil boring: one surface soil sample (0 to 2 feet bgs), one subsurface soil sample approximately 2 feet above the groundwater table, and one subsurface soil sample at the mid-point between the surface and the groundwater table. Soil samples collected from SLO-01 in June 2021 were not analyzed because refusal was encountered and SLO-01 was scheduled to be completed during a second mobilization. During the November 2021 mobilization, SLO-01 could not be safely accessed with the sonic rig because recent rains had made the ground too soft. As a result, no soil or groundwater samples were collected from SLO-01. Additionally, groundwater was not encountered at boring locations AOI03-01, AOI04-01, and AOI06-01; however, soil samples were collected at these locations to evaluate presence or absence of the six PFAS compounds in soil.

The soil cores were continuously logged for lithological descriptions by an AECOM field geologist using the Unified Soil Classification System (USCS). A photoionization detector (PID) was used to screen the breathing zone during boring activities as part of personal safety requirements. Observations and measurements were recorded in a non-treated field logbook (i.e., composition notebook). Depth interval, recovery thickness, PID concentrations, moisture, relative density, color (using a Munsell soil color chart), and texture (using the USCS) were recorded. The boring logs are provided in **Appendix E**.

Soil borings completed during the SI found silty sand and lean clay as the dominant lithology of the unconsolidated sediments below Camp SLO and are consistent with the alluvial and flood-plain deposits described in the region. The borings were completed at depths between 30 and 100 feet below ground surface (bgs). In the shallower portions of the borings, isolated layers of silt and gravel were also observed in the boring logs at thicknesses ranging from 0.5 to 9 feet. Many of the logs also reported varying percentages of gravel included in the sand packages. These results and facility observations are consistent with the understood localized use of fill material and the alluvial depositional environment. The original estimated depth to water was assumed to be 30 feet bgs, based on historical information. During the second mobilization, a maximum depth of 100 feet bgs was selected for drilling, given the lack of any moisture observed in the overburden and the challenging drilling conditions. These deeper borings were dominated by fine-grain materials (smectitic clay-dominated) consistent with the volcanic deposits in the region.

Each soil sample was collected into laboratory-supplied PFAS-free high-density polyethylene (HDPE) bottles and labeled using a PFAS-free marker or pen. Samples were packaged on ice and transported via Federal Express (FedEx) under standard chain of custody (CoC) procedures to the laboratory and analyzed by LC/MS/MS compliant with QSM 5.3 Table B-15, total organic carbon (TOC) (USEPA Method 9060A), and pH (USEPA Method 9045D) in accordance with the SI QAPP Addendum (AECOM, 2021b).

Field duplicate samples were collected at a rate of 10% and analyzed for the same parameters as the accompanying samples. Matrix spike (MS)/MS duplicates (MSDs) were collected at a rate of 5% and analyzed for the same parameters as the accompanying samples. In instances when non-dedicated sampling equipment was used, such as a hand auger for the shallow soil samples, equipment rinsate blanks were collected at a rate of 5% and analyzed for the same parameters as the soil samples. A temperature blank was placed in each cooler to ensure that samples were preserved at or below 6 degrees Celsius (°C) during shipment.

DPT borings were converted to temporary wells and were installed in grass areas to avoid disturbing concrete or asphalt surfaces where possible. No groundwater was encountered during the second mobilization using sonic drilling methods; thus, no wells were installed at that phase of work.

5.3 Temporary Well Installation and Groundwater Grab Sampling

Temporary wells were installed using a GeoProbe® 3126GT dual-tube sampling system. Once the borehole was advanced to the desired depth, wherever conditions allowed, a temporary well was constructed of a 5-foot section of 1-inch Schedule 40 poly-vinyl chloride (PVC) screen with sufficient casing to reach ground surface. New PVC pipe and screen were used to avoid cross contamination between locations. The screen intervals for the temporary wells are provided in **Table 5-2**.

Groundwater samples were collected after a period of time following well installation to allow groundwater to infiltrate and recharge the temporary well screen intervals. After the recharge period, groundwater samples were collected using a low-flow pump with PFAS-free HDPE tubing and bladders. The temporary wells were purged at a rate determined in the field to reduce turbidity and draw down prior to sampling. Additionally, a subsample of each groundwater sample was collected in a separate container, and a shaker test was completed to identify if there were any foaming. No foaming was noted in any of the groundwater samples.

Each sample was collected into laboratory-supplied PFAS-free HDPE bottles and labeled using a PFAS-free marker or pen. Samples were packaged on ice and transported via FedEx under standard CoC procedures to the laboratory and analyzed by LC/MS/MS compliant with QSM 5.3 Table B-15 in accordance with the SI QAPP Addendum (AECOM, 2021b).

Field duplicate samples were collected at a rate of 10% and analyzed for the same parameters as the accompanying samples. MS/MSDs were collected at a rate of 5% and analyzed for the same parameters as the accompanying samples. One field reagent blank was collected in accordance with the PQAPP (AECOM, 2018a). A temperature blank was placed in each cooler to ensure that samples were preserved at or below 6 °C during shipment.

Following well surveying (described below in **Section 5.5**), temporary wells were abandoned in accordance with the SI QAPP Addendum (AECOM, 2021b) by removing the PVC and backfilling the hole with bentonite chips. Upon completion of well abandonment, the ground surface at each location was patched to match existing surrounding conditions.

5.4 Synoptic Water Level Measurements

A synoptic groundwater gauging event was performed on 25 June 2021. Groundwater level measurements were collected from the four new temporary monitoring wells. Water level measurements were taken from the northern side of the well casing. Depth to water was measured in June 2021 from the newly installed wells that contained water. Only four of the seven wells installed contained water, and water levels ranged from 31.65 to 34.95 feet bgs. A groundwater flow contour map is provided in **Figure 2-4**. Groundwater elevation data are provided in **Table 5-2**.

5.5 Surveying

The northern side of each well casing was surveyed by California-licensed land surveyors following guidelines provided in the SOPs provided in the SI QAPP Addendum (AECOM, 2021b). Survey data from the newly installed wells on the facility were collected on 25 June 2021 in the applicable Universal Transverse Mercator zone projection with World Geodetic System 84 datum (horizontal) and North American Vertical Datum 1988 (vertical). The surveyed well data are provided in **Appendix B4**.

5.6 Investigation-Derived Waste

As of the date of this report, the disposal of investigation-derived waste (IDW) is not regulated federally. IDW generated during the SI is considered non-hazardous waste and was managed in accordance with the SI QAPP Addendum (AECOM, 2021b) and with the DA Guidance for Addressing Releases of PFAS, Q18 (DA, 2018).

Soil IDW (i.e., soil cuttings) generated during the SI activities was containerized in properly labeled 55-gallon drums. The IDW was stored at a location designated by CAARNG. ARNG will coordinate waste profiling, transportation, and disposal of the solid IDW. The soil IDW was not sampled and assumes the characteristics of the associated soil samples collected from that source location.

Liquid IDW (i.e., purge water and decontamination fluids) generated during SI activities was containerized in properly labeled 55-gallon drums. The containerized IDW is being temporarily stored onsite, at a location designated by CAARNG. The liquid IDW will not be sampled and will assume the characteristics of the associated groundwater samples collected from the source locations. Based on laboratory results, containerized liquid IDW will be managed and disposed by ARNG (either by offsite disposal or onsite disposal with treatment, as appropriate) under a separate contract in accordance with SOP No. 042A for Treating Liquid Investigation-Derived Material (Purge water, drilling water, and decontamination fluids) (EA Engineering, Science, and Technology, Inc., 2021). ARNG will further coordinate in advance with the RWQCB to ensure proper disposal in accordance with state requirements and the Army Guidance for Addressing Releases of PFAS, Q18 (DA, 2018).

Other solids such as spent personal protective equipment, plastic sheeting, tubing, rope, unused monitoring well construction materials, and other environmental media generated during the field activities were disposed of at a licensed solid waste landfill.

5.7 Laboratory Analytical Methods

Samples were analyzed by LC/MS/MS compliant with QSM 5.3 Table B-15 at Pace Analytical Gulf Coast in Baton Rouge, Louisiana, a DoD ELAP and NELAP certified laboratory. Soil samples were also analyzed for TOC using USEPA Method 9060A and pH by USEPA Method 9045D.

5.8 Deviations from SI QAPP Addendum

Five deviations from the SI QAPP Addendum were identified during review of the field documentation. The deviations are noted below and documented in Field Change Request Forms (**Appendix B2**) and Nonconformance and Corrective Action Reports (**Appendix B3**):

- During the June 2021 mobilization, the proposed location for temporary well SLO-01 was located approximately 90 feet into dense, tall grasses. For both access and health and safety reasons, the well location was moved approximately 80 feet to the northwest of the originally proposed location to minimize the amount of required weed abatement required to access the drilling location. This action was documented in a Field Change Request Form in **Appendix B2**.
- During the June 2021 mobilization, the direct push drill rig was unable to drill to groundwater due to a hard clay layer that was encountered at location SLO-01. During the November 2021 mobilization, recent rains made the ground too soft to allow the sonic drill rig to safely access the location. Given that the field team was able to successfully sample the second downgradient drilling location, SLO-02, and the inability of the drill rig to safely access the

location, drilling and sampling at SLO-01 were not completed. This action was documented in a Field Change Request Form in **Appendix B2**.

- During the November 2021 mobilization, the proposed drilling depth was up to 80 bgs and used sonic drilling to allow collection of groundwater samples from AOI 3, AOI 4, and AOI 6. However, at approximately 27 feet bgs, the field team encountered completely dry clay that was difficult to drill through. This clay material was consistent to a depth of 100 feet bgs, 20 feet below the planned total depth. Given the approximately 70 feet of dry clay encountered, migration to groundwater through this layer seems unlikely. Therefore, the boring was terminated at 100 feet bgs and a groundwater sample was not collected. This action was documented in a Field Change Request Form in **Appendix B2**.
- Upon review of field documentation, it was discovered that well sampling forms were not completed, and field parameters were not collected during grab groundwater sampling. This action was documented in a nonconformance and corrective action report provided in **Appendix B3**.
- Upon review of field documentation and laboratory analytical data, it was discovered that the following QC samples were not collected as specified in the SI QAPP Addendum: groundwater field duplicate and groundwater MS/MSD. This action was documented in a nonconformance and corrective action report provided in **Appendix B3**.

Table 5-1
Site Inspection Samples by Medium
Site Inspection Report, Camp San Luis Obispo, California

Sample Identification	Sample Collection Date/Time	Sample Depth (feet bgs)	LC/MS/MS compliant with QSM 5.3 Table B-15	TOC (USEPA Method 9060A)	pH (USEPA Method 9045D)	Comments
Soil Samples						
AOI01-01-SB-00-02	6/22/2021 9:00	0 - 2	x	x	x	
AOI01-01-SB-00-02D	6/22/2021 9:00	0 - 2	x			FD
AOI01-01-SB-13-15	6/22/2021 9:50	13 - 15	x			
AOI01-01-SB-36-38	6/22/2021 11:30	36 - 38	x			
AOI01-02-SB-00-02	6/22/2021 12:10	0 - 2	x			
AOI01-03-SB-00-02	6/22/2021 13:30	0 - 2	x			
AOI02-01-SB-00-02	6/24/2021 8:00	0 - 2	x	x	x	
AOI02-01-SB-00-02-MS	6/24/2021 8:00	0 - 2	x	x		MS
AOI02-01-SB-00-02-MSD	6/24/2021 8:00	0 - 2	x	x		MSD
AOI02-01-SB-13-15	6/24/2021 8:30	13 - 15	x			
AOI02-01-SB-48-50	6/24/2021 9:45	48 - 50	x			
AOI02-02-SB-00-02	6/24/2021 13:00	0 - 2	x			
AOI02-02-SB-13-15	6/24/2021 13:30	13 - 15	x			
AOI02-02-SB-41-43	6/24/2021 14:30	41 - 43	x			
AOI03-01-SB-0-2	11/3/2021 15:40	0 - 2	x			
AOI03-01-SB-00-02-D	11/3/2021 15:40	0 - 2	x			FD
AOI03-01-SB-13-15	11/3/2021 16:20	13 - 15	x			
AOI03-01-SB-79-80	11/4/2021 11:40	79 - 80	x			
AOI03-02-SB-00-02	11/4/2021 13:00	0 - 2	x			
AOI04-01-SB-00-02	11/4/2021 15:00	0 - 2	x	x	x	
AOI04-01-SB-13-15	11/4/2021 15:20	13 - 15	x			
AOI04-01-SB-79-80	11/5/2021 10:30	79 - 80	x			
AOI06-01-SB-00-02	11/1/2021 10:25	0 - 2	x			
AOI06-01-SB-13-15	11/1/2021 11:15	13 - 15	x			
AOI06-01-SB-80-81	11/3/2021 8:45	80 - 81	x			
SLO-02-SB-00-02	6/23/2021 8:30	0 - 2	x			
SLO-02-SB-00-02D	6/23/2021 8:30	0 - 2	x			FD
SLO-02-SB-13-15	6/23/2021 8:50	13 - 15	x			
SLO-02-SB-35-37	6/23/2021 9:50	35 - 37	x			
Groundwater Samples						
AOI01-01-GW	6/25/2021 9:00	NA	x			
AOI02-01-GW	6/25/2021 12:20	NA	x			
AOI02-02-GW	6/25/2021 13:30	NA	x			
SLO-02-GW	6/25/2021 11:05	NA	x			

Table 5-1
Site Inspection Samples by Medium
Site Inspection Report, Camp San Luis Obispo, California

Sample Identification	Sample Collection Date/Time	Sample Depth (feet bgs)	LC/MS/MS compliant with QSM 5.3 Table B-15	TOC (USEPA Method 9060A)	pH (USEPA Method 9045D)	Comments
Quality Control Samples						
SLO-PW-01	3/19/2021 8:30	NA	x			Decon Source
SLO-PW-02	6/22/2021 7:30	NA	x			Decon Source
SLO-FRB-01	6/25/2021 11:30	NA	x			
SLO-FRB-02	11/5/2021 10:50	NA	x			
SLO-ERB-02	6/24/2021 12:45	NA	x			Drill Shoe
SLO-ERB-03	6/25/2021 7:15	NA	x			Hand Auger
SLO-ERB-03	11/1/2021 14:00	NA	x			Hand Auger
SLO-ERB-04	6/25/2021 7:20	NA	x			Stainless-Steel Bowl
SLO-ERB-04	11/5/2021 10:45	NA	x			Stainless-Steel Bowl
SLO-ERB-05	6/25/2021 13:00	NA	x			Pump

Notes:
AOI = area of interest
ASTM = American Society for Testing and Materials
bgs = below ground surface
Decon = decontamination
ERB = equipment rinsate blank
FD = field duplicate
FRB = field reagent blank
GW = groundwater
LC/MS/MS = Liquid Chromatography Mass Spectrometry
MS/MSD = matrix spike/ matrix spike duplicate
PW = potable water
QSM = Quality Systems Manual
SB = soil boring
SLO = San Luis Obispo
TOC = total organic carbon
USEPA = United States Environmental Protection Agency

Table 5-2
Soil Boring Depths, Temporary Well Screen Intervals, and Groundwater Elevations
Site Inspection Report, Camp San Luis Obispo, California

Area of Interest	Boring Location	Soil Boring Depth (feet bgs)	Temporary Well Screen Interval (feet bgs)	Top of Casing Elevation (feet NAVD88)	Ground Surface Elevation (feet NAVD88)	Depth to Water (feet btoc)	Depth to Water (feet bgs)	Groundwater Elevation (feet NAVD88)
1	AOI01-01	43	32.5 - 37.5 [1]	225.74	225.72	33.81	33.79	191.93
	AOI01-02	2	NA	NA	NA	NA	NA	NA
	AOI01-03	2	NA	NA	NA	NA	NA	NA
2	AOI02-01	57	50.41 - 55.41 [1]	238.85	239.05	34.75	34.95	204.1
	AOI02-02	50	45 - 50	237.27	237.22	33.64	33.59	203.63
3	AOI03-01	80	NA	NA	NA	NA	NA	NA
	AOI03-02	2	NA	NA	NA	NA	NA	NA
4	AOI04-01	80	NA	NA	NA	NA	NA	NA
6	AOI06-01	100	NA	NA	NA	NA	NA	NA
Facility Boundary	SLO-01	30	NA	NA	NA	NA	NA	NA
	SLO-02	43	37.5 - 42.5 [1]	213.90	211.41	34.14	31.65	179.76

Notes:

[1] Temporary well screen set above total depth to capture groundwater interface

AOI = area of interest
bgs = below ground surface
btoc = below top of casing
NA = not applicable
NAVD88 = North American Vertical Datum 1988
SLO = San Luis Obispo

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CLIENT	ARNG			
PROJECT	Site Inspection at Camp San Luis Obispo, CA			
REVISED	8/23/2022	GIS BY	MS	8/23/2022
SCALE	1:6,000	CHK BY	SL	8/23/2022
Base Map: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c)		PM	CM	8/23/2022

Legend

- Soil Boring/Temporary Monitoring Well
- Surface Soil Sampling
- Facility Boundary
- Water Body
- Wetland
- River/Stream
- Surface Water Flow Direction
- Groundwater Flow Direction

N

Site Inspection Sample Locations

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 5-1

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6. Site Inspection Results

This section presents the analytical results of the SI. The SLs used in this evaluation are presented in **Section 6.1**. A discussion of the results for each AOI is provided in **Section 6.3** through **Section 6.7**. **Table 6-2** through **Table 6-5** present results in soil or groundwater for the relevant compounds. Tables that contain all results are provided in **Appendix F**, and the laboratory reports are provided in **Appendix G**.

6.1 Screening Levels

The DoD has adopted a policy to retain facilities in the CERCLA process based on risk-based SLs for soil and groundwater, as described in a memorandum from the OSD dated 6 July 2022 (Assistant Secretary of Defense, 2022). The ARNG program under which this SI was performed follows this DoD policy. Should the maximum site concentration for sampled media exceed the SLs established in the OSD memorandum, the AOI will proceed to the next phase under CERCLA. The SLs established in the OSD memorandum apply to the five compounds presented on **Table 6-1** below.

Table 6-1: Screening Levels (Soil and Groundwater)

Analyte[b]	Residential (Soil) (µg/kg)[a] 0-2 feet bgs	Industrial/ Commercial Composite Worker (Soil) (µg/kg)[a] 2-15 feet bgs	Tap Water (Groundwater) (ng/L)[a]
PFOA	19	250	6
PFOS	13	160	4
PFBS	1,900	25,000	601
PFHxS	130	1,600	39
PFNA	19	250	6

Notes:
bgs = below ground surface; µg/kg = micrograms per kilogram; ng/L = nanograms per liter

a.) Assistant Secretary of Defense, 2022. Risk Based Screening Levels in Groundwater and Soil using United States Environmental Protection Agency's (USEPA's) Regional Screening Level Calculator. Hazard Quotient (HQ) = 0.1. 6 July 2022.

b.) Of the six PFAS compounds presented in the 6 July 2022 OSD memorandum, HFPO-DA (commonly referred to as GenX) was not included as an analyte at the time of this SI. Based on the CSM developed during the PA and revised based on SI findings, the presence of HFPO-DA is not anticipated at the facility because HFPO-DA is generally not a component of MIL-SPEC AFFF and based on its history including distribution limitations that restricted use of GenX, it is generally not a component of other products the military used. In addition, it is unlikely that GenX would be an individual chemical of concern in the absence of other PFAS.

The data in the subsequent sections are compared to the SLs presented in **Table 6-1**. The SLs for groundwater are based on direct ingestion. The SLs for soil are based on incidental ingestion and are applied to the depth intervals reasonably anticipated to be encountered by the receptors identified at the facility: the residential scenario is applied to surface soil results (0 to 2 feet bgs) and the industrial/commercial worker scenario is applied to shallow subsurface soil results (2 to 15 feet bgs). The SLs are not applied to deep subsurface soil results (>15 feet bgs) because 15 feet is the anticipated limit of construction activities.

6.2 Soil Physicochemical Analyses

To provide basic soil parameter information, soil samples were analyzed for TOC and pH, which are important for evaluating transport through the soil medium. **Appendix F** contains the results of the TOC and pH sampling.

The data collected in this investigation will be used in subsequent investigations, where appropriate, to assess fate and transport. According to the Interstate Technology Regulatory Council (ITRC), several important partitioning mechanisms include hydrophobic and lipophobic effects, electrostatic interactions, and interfacial behaviors. At relevant environmental pH values, certain PFAS are present as organic anions and are therefore relatively mobile in groundwater (Xiao et al., 2015), but tend to associate with the organic carbon fraction that may be present in soil or sediment (Higgins and Luthy, 2006; Guelfo and Higgins, 2013). When sufficient organic carbon is present, organic carbon normalized distribution coefficients (K_{oc} values) can help in evaluating transport potential, though other geochemical factors (for example, pH and presence of polyvalent cations) may also affect PFAS sorption to solid phases (ITRC, 2018).

6.3 AOI 1

This section presents the analytical results for soil and groundwater in comparison to SLs for AOI 1: Former Cal FIRE Training Area. The soil and groundwater results are summarized on **Table 6-2** through **Table 6-5**. Soil and groundwater results are presented on **Figure 6-1** through **Figure 6-7**.

6.3.1 AOI 1 Soil Analytical Results

Soil was sampled from surface soil (0 to 2 feet bgs) from boring locations AOI01-01 and AOI01-02. Soil was also sampled from shallow subsurface soil (13 to 15 feet bgs) and deep subsurface soil (36 to 38 feet bgs) from boring location AOI01-01. **Figure 6-1** through **Figure 6-5** present the ranges of detections in soil. **Table 6-2** through **Table 6-4** summarize the soil results.

PFOS was detected above the SL of 13 micrograms per kilogram (µg/kg) in surface soil at AOI01-01, with a concentration of 71.9 µg/kg. PFOA, PFHxS, PFNA, and PFBS were detected below the SLs in surface soil, with the following maximum concentrations: PFOA at 5.76 µg/kg, PFHxS at 12.7 µg/kg, PFNA at 13.6 µg/kg, and PFBS at 0.656 J µg/kg.

PFOA, PFOS, PFHxS, PFBS, and PFNA were not detected in shallow subsurface soil. PFOA, PFOS, PFHxS, PFNA, and PFBS were detected in deep subsurface soil at AOI01-01, with the following concentrations: PFOA at 0.159 J µg/kg, PFOS at 0.401 J µg/kg, PFHxS at 0.376 J µg/kg, PFNA at 0.088 J µg/kg, and PFBS at 0.077 J µg/kg.

Soil was also sampled from surface soil (0 to 2 feet bgs), shallow subsurface soil (13 to 15 feet bgs), and deep subsurface soil (35 to 37 feet bgs) from boring location SLO-02, downgradient of AOI 1 and near the facility boundary. PFOA, PFOS, PFHxS, PFNA, and PFBS were not detected in any soil interval at SLO-02.

6.3.2 AOI 1 Groundwater Analytical Results

Groundwater was sampled from temporary monitoring well AOI01-01. **Figure 6-6** and **Figure 6-7** present the ranges of detections in groundwater. **Table 6-5** summarizes the groundwater results.

The following detections were measured with regards to the SLs:

- PFOA was detected above the SL of 6 nanograms per liter (ng/L), at a concentration of 291 ng/L.
- PFOS was detected above the SL of 4 ng/L, at a concentration of 182 ng/L.
- PFHxS was detected above the SL of 39 ng/L, at a concentration of 908 ng/L.
- PFNA was detected above the SL of 6 ng/L, at a concentration of 69.9 ng/L.
- PFBS was detected below the SL of 601 ng/L, at a concentration of 427 ng/L.

Groundwater was also sampled from temporary monitoring well SLO-02, downgradient of AOI 1 and near the facility boundary. PFOA, PFOS, and PFBS were detected below their respective SLs, with concentrations of 2.27 J ng/L, 2.67 J ng/L, and 1.20 J ng/L, respectively. PFHxS and PFNA were not detected in groundwater at SLO-02.

6.3.3 AOI 1 Conclusions

Based on the results of the SI, PFOS was detected in surface soil at a concentration above the SL. PFOA, PFOS, PFHxS, and PFNA were detected in groundwater above their SLs. Based on the exceedances of the SLs in soil and groundwater, further evaluation at AOI 1 is warranted.

6.4 AOI 2

This section presents the analytical results for soil and groundwater in comparison to SLs for AOI 2: Former META Yard Fire Training Area. The results in soil and groundwater are summarized on **Table 6-2** through **Table 6-5**. Soil and groundwater results are presented on **Figure 6-1** through **Figure 6-7**.

6.4.1 AOI 2 Soil Analytical Results

Soil was sampled from surface soil (0 to 2 feet bgs), shallow subsurface soil (13 to 15 feet bgs), and deep subsurface soil (48 to 50 feet bgs and 41 to 43 feet bgs) from boring locations AOI02-01 and AOI02-02. **Figure 6-1** through **Figure 6-5** present the ranges of detections in soil. **Table 6-2** through **Table 6-4** summarize the soil results.

PFOS was detected below the SL in surface soil at location AOI02-01, with a concentration of 0.110 J µg/kg. PFOA, PFHxS, PFNA, and PFBS were not detected in surface soil. PFOA, PFOS, PFHxS, PFNA, and PFBS were not detected in shallow and deep subsurface soil.

6.4.2 AOI 2 Groundwater Analytical Results

Groundwater was sampled from temporary monitoring wells AOI02-01 and AOI02-02. **Figure 6-6** and **Figure 6-7** present the ranges of detections in groundwater. **Table 6-5** summarizes the groundwater results.

PFOS was detected above the SL of 4 ng/L at AOI 02-01, at a concentration of 6.12 ng/L. PFOS was detected below the SL at AOI02-02, with a concentration of 1.09 J. PFOA, PFHxS, PFNA, and PFBS were detected below their SLs in groundwater at both locations, with the following maximum concentrations: PFOA at 5.15 ng/L, PFHxS at 4.37 ng/L, and PFBS at 1.07 J ng/L. PFNA was not detected in groundwater at either location.

6.4.3 AOI 2 Conclusions

Based on the results of the SI, PFOS was detected in soil at a concentration below the SL. PFOS was detected at a concentration above the SL in groundwater. Based on the exceedance of the SL in groundwater, further evaluation at AOI 2 is warranted.

6.5 AOI 3

This section presents the analytical results for soil in comparison to SLs for AOI 3: Cal FIRE Cuesta Camp Tenant. The results in soil are presented in **Table 6-2** through **Table 6-4**. Soil results are presented on **Figure 6-1** through **Figure 6-5**. Groundwater was not encountered during field activities at AOI 3.

6.5.1 AOI 3 Soil Analytical Results

Soil was sampled from surface soil (0 to 2 feet bgs) from boring locations AOI03-01 and AOI03-02. Soil was also sampled from shallow subsurface soil (13 to 15 feet bgs) and deep subsurface soil (79 to 80 feet bgs) from boring location AOI3-01. PFOS, PFHxS, and PFBS were detected below the SLs in surface soil, at maximum concentrations of 0.999 J µg/kg, 0.050 J µg/kg, and 0.075 J µg/kg, respectively. PFOA and PFNA were not detected in surface soil. PFOA, PFOS, PFHxS, PFNA, and PFBS were not detected in shallow and deep subsurface soil.

6.5.2 AOI 3 Conclusions

Based on the results of the SI, PFOS, PFHxS, and PFBS were detected in soil below their SLs. Therefore, further evaluation is not warranted at AOI 3.

6.6 AOI 4

This section presents the analytical results for soil in comparison to SLs for AOI 4: O'Sullivan Airfield Shed. The results in soil are presented in **Table 6-2** through **Table 6-4**. Soil results are presented on **Figure 6-1** through **Figure 6-5**. Groundwater was not encountered during field activities at AOI 4.

6.6.1 AOI 4 Soil Analytical Results

Soil was sampled from surface soil (0 to 2 feet bgs), shallow subsurface soil (13 to 15 feet bgs), and deep subsurface soil (79 to 80 feet bgs) from boring location AOI04-01. PFOA, PFOS, PFHxS, PFNA, and PFBS were not detected in surface, shallow subsurface, and deep subsurface soil.

6.6.2 AOI 4 Conclusions

Based on the results of the SI, PFOA, PFOS, PFHxS, PFNA, and PFBS were not detected in soil. Therefore, further evaluation is not warranted at AOI 4.

6.7 AOI 6

This section presents the analytical results for soil in comparison to SLs for AOI 6: Fuel Point. The results in soil are presented in **Table 6-2** through **Table 6-4**. Soil results are presented on **Figure 6-1** through **Figure 6-5**. Groundwater was not encountered during field activities at AOI 6.

6.7.1 AOI 6 Soil Analytical Results

Soil was sampled from surface soil (0 to 2 feet bgs), shallow subsurface soil (13 to 15 feet bgs), and deep subsurface soil (80 to 81 feet bgs) from boring location AOI06-01. PFOA and PFOS were detected below their SLs in surface soil, with concentrations of 0.102 J µg/kg and 0.292 J µg/kg, respectively. PFHxS, PFNA, and PFBS were not detected in surface soil. PFOA, PFOS, PFHxS, PFNA, and PFBS were not detected in shallow and deep subsurface soil.

6.7.2 AOI 6 Conclusions

Based on the results of the SI, PFOS and PFBS were detected in soil below their SLs. Therefore, further evaluation is not warranted at AOI 6.

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Table 6-2
PFOA, PFOS, PFBS, PFNA, and PFHxS Results in Surface Soil
Site Inspection Report, Camp San Luis Obispo

Area of Interest		AOI01						AOI02				AOI03						AOI04		AOI06	
Sample ID		AOI01-01-SB-00-02		AOI01-01-SB-00-02D		AOI01-02-SB-00-02		AOI02-01-SB-00-02		AOI02-02-SB-00-02		AOI03-01-SB-00-02		AOI03-01-SB-00-02-D		AOI03-02-SB-00-02		AOI04-01-SB-00-02		AOI06-01-SB-00-02	
Sample Date		06/22/2021		06/22/2021		06/22/2021		06/24/2021		06/24/2021		11/03/2021		11/03/2021		11/04/2021		11/04/2021		11/01/2021	
Depth		0-2 ft		0-2 ft		0-2 ft		0-2 ft		0-2 ft		0-2 ft		0-2 ft		0-2 ft		0-2 ft		0-2 ft	
Analyte	OSD Screening Level [a]	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Soil, LCMSMS compliant with QSM 5.3 Table B-15 (µg/kg)																					
PFBS	1900	0.189	J	0.345	J	0.656	J	ND	U	ND	U	ND	UJ	0.075	J	ND	U	ND	U	ND	U
PFHxS	130	7.26		12.7		1.52		ND	U	ND	U	ND	UJ	0.049	J	0.050	J	ND	U	ND	U
PFNA	19	7.60		13.6		ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
PFOA	19	3.69	J	5.76		0.602	J	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	0.102	J
PFOS	13	71.9	J	41.0	J	ND	U	0.110	J	ND	U	ND	UJ	0.999	J	0.177	J	ND	U	0.292	J

Grey Fill — Detected concentration exceeded OSD Screening Levels

References

a. Assistant Secretary of Defense, July 2022. Risk Based Screening Levels Calculated for PFOA, PFOS, PFBS, PFHxS, and PFNA in Groundwater or Soil using USEPA's Regional Screening Level Calculator. HQ=0.1, May 2022. Soil screening levels based on residential scenario for incidental ingestion of contaminated soil.

Interpreted Qualifiers

J = Estimated concentration

U = The analyte was not detected at a level greater than or equal to the adjusted DL

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.

Chemical Abbreviations

PFBS	perfluorobutanesulfonic acid
PFHxS	perfluorohexanesulfonic acid
PFNA	perfluorononanoic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid

Acronyms and Abbreviations

AOI	Area of Interest
D	duplicate
DL	detection limit
ft	feet
HQ	hazard quotient
ID	identification
LCMSMS	liquid chromatography with tandem mass spectrometry
LOD	limit of detection
ND	analyte not detected above the LOD
OSD	Office of the Secretary of Defense
QSM	Quality Systems Manual
Qual	interpreted qualifier
SLO	San Luis Obispo
SB	soil boring
USEPA	United States Environmental Protection Agency
µg/kg	micrograms per kilogram

Table 6-2
PFOA, PFOS, PFBS, PFNA, and PFHxS Results in Surface Soil
Site Inspection Report, Camp San Luis Obispo

	Area of Interest	SLO-02			
	Sample ID	SLO-02-SB-00-02		SLO-02-SB-00-02D	
	Sample Date	06/23/2021		06/23/2021	
	Depth	0-2 ft		0-2 ft	
Analyte	OSD Screening Level [a]	Result	Qual	Result	Qual
Soil, LCMSMS compliant with QSM 5.3 Table B-15 (µg/kg)					
PFBS	1900	ND	U	ND	U
PFHxS	130	ND	U	ND	U
PFNA	19	ND	U	ND	U
PFOA	19	ND	U	ND	U
PFOS	13	ND	U	ND	U

Grey Fill — Detected concentration exceeded OSD Screening Levels

References

a. Assistant Secretary of Defense, July 2022. Risk Based Screening Levels Calculated for PFOA, PFOS, PFBS, PFHxS, and PFNA in Groundwater or Soil using USEPA's Regional Screening Level Calculator. HQ=0.1, May 2022. Soil screening levels based on residential scenario for incidental ingestion of contaminated soil.

Interpreted Qualifiers

J = Estimated concentration

U = The analyte was not detected at a level greater than or equal to the adjusted DL

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.

Chemical Abbreviations

PFBS	perfluorobutanesulfonic acid
PFHxS	perfluorohexanesulfonic acid
PFNA	perfluorononanoic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid

Acronyms and Abbreviations

AOI	Area of Interest
D	duplicate
DL	detection limit
ft	feet
HQ	hazard quotient
ID	identification
LCMSMS	liquid chromatography with tandem mass spectrometry
LOD	limit of detection
ND	analyte not detected above the LOD
OSD	Office of the Secretary of Defense
QSM	Quality Systems Manual
Qual	interpreted qualifier
SLO	San Luis Obispo
SB	soil boring
USEPA	United States Environmental Protection Agency
µg/kg	micrograms per kilogram

Table 6-3
PFOA, PFOS, PFBS, PFNA, and PFHxS Results in Shallow Subsurface Soil
Site Inspection Report, Camp San Luis Obispo

Area of Interest		AOI01		AOI02				AOI03		AOI04		AOI06		SLO-02	
Sample ID		AOI01-01-SB-13-15		AOI02-01-SB-13-15		AOI02-02-SB-13-15		AOI03-01-SB-13-15		AOI04-01-SB-13-15		AOI06-01-SB-13-15		SLO-02-SB-13-15	
Sample Date		06/22/2021		06/24/2021		06/24/2021		11/03/2021		11/04/2021		11/01/2021		06/23/2021	
Depth		13-15 ft		13-15 ft		13-15 ft		13-15 ft		13-15 ft		13-15 ft		13-15 ft	
Analyte	**OSD Screening Level [a]**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**
Soil, LCMSMS compliant with QSM 5.3 Table B-15 (µg/kg)															
PFBS	25000	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
PFHxS	1600	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
PFNA	250	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
PFOA	250	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
PFOS	160	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U

Grey Fill — Detected concentration exceeded OSD Screening Levels

References

a. Assistant Secretary of Defense, July 2022. Risk Based Screening Levels Calculated for PFOA, PFOS, PFBS, PFHxS, and PFNA in Groundwater or Soil using USEPA's Regional Screening Level Calculator. HQ=0.1, May 2022. Soil screening levels based on industrial/commercial composite worker scenario for incidental ingestion of contaminated soil.

Interpreted Qualifiers

U = The analyte was not detected at a level greater than or equal to the adjusted DL

Chemical Abbreviations

PFBS	perfluorobutanesulfonic acid
PFHxS	perfluorohexanesulfonic acid
PFNA	perfluorononanoic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid

Acronyms and Abbreviations

AOI	Area of Interest
D	duplicate
DL	detection limit
ft	feet
HQ	hazard quotient
ID	identification
LCMSMS	liquid chromatography with tandem mass spectrometry
LOD	limit of detection
ND	analyte not detected above the LOD
OSD	Office of the Secretary of Defense
QSM	Quality Systems Manual
Qual	interpreted qualifier
SLO	San Luis Obispo
SB	soil boring
USEPA	United States Environmental Protection Agency
µg/kg	micrograms per kilogram

Table 6-4
PFOA, PFOS, PFBS, PFNA, and PFHxS Results in Deep Subsurface Soil
Site Inspection Report, Camp San Luis Obispo

Area of Interest	AOI01		AOI02				AOI03		AOI04		AOI06		SLO-02	
Sample ID	AOI01-01-SB-36-38		AOI02-01-SB-48-50		AOI02-02-SB-41-43		AOI03-01-SB-79-80		AOI04-01-SB-79-80		AOI06-01-SB-80-81		SLO-02-SB-35-37	
Sample Date	06/22/2021		06/24/2021		06/24/2021		11/04/2021		11/05/2021		11/03/2021		06/23/2021	
Depth	36-38 ft		48-50 ft		41-43 ft		79-80 ft		79-80 ft		80-81 ft		35-37 ft	
Analyte	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**
Soil, LCMSMS compliant with QSM 5.3 Table B-15 (µg/kg)														
PFBS	0.077	J	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
PFHxS	0.376	J	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
PFNA	0.088	J	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
PFOA	0.159	J	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
PFOS	0.401	J	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U

Interpreted Qualifiers

J = Estimated concentration

U = The analyte was not detected at a level greater than or equal to the adjusted DL

Chemical Abbreviations

PFBS	perfluorobutanesulfonic acid
PFHxS	perfluorohexanesulfonic acid
PFNA	perfluorononanoic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid

Acronyms and Abbreviations

AOI	Area of Interest
D	duplicate
DL	detection limit
ft	feet
ID	identification
LCMSMS	liquid chromatography with tandem mass spectrometry
LOD	limit of detection
ND	analyte not detected above the LOD
QSM	Quality Systems Manual
Qual	interpreted qualifier
SLO	San Luis Obispo
SB	soil boring
µg/kg	micrograms per kilogram

Table 6-5
PFOA, PFOS, PFBS, PFNA, and PFHxS Results in Groundwater
Site Inspection Report, Camp San Luis Obispo

Area of Interest		AOI01		AOI02				SLO-02	
Sample ID		AOI01-01-GW		AOI02-01-GW		AOI02-02-GW		SLO-02-GW	
Sample Date		06/25/2021		06/25/2021		06/25/2021		06/25/2021	
Analyte	OSD Screening Level [a]	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Water, LCMSMS compliant with QSM 5.3 Table B-15 (ng/l)									
PFBS	601	427		1.07	J	0.823	J	1.20	J
PFHxS	39	908		4.37		2.00	J	ND	U
PFNA	6	69.9		ND	U	ND	U	ND	U
PFOA	6	291		5.15		0.840	J	2.27	J
PFOS	4	182		6.12		1.09	J	2.67	J

Grey Fill — Detected concentration exceeded OSD Screening Levels

References

a. Assistant Secretary of Defense, July 2022. Risk Based Screening Levels Calculated for PFOA, PFOS, PFBS, PFHxS, and PFNA in Groundwater or Soil using USEPA's Regional Screening Level Calculator. HQ=0.1, May 2022 Groundwater screening levels based on residential scenario for incidental ingestion of groundwater.

Interpreted Qualifiers

J = Estimated concentration

U = The analyte was not detected at a level greater than or equal to the adjusted DL

Chemical Abbreviations

PFBS	perfluorobutanesulfonic acid
PFHxS	perfluorohexanesulfonic acid
PFNA	perfluorononanoic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid

Acronyms and Abbreviations

AOI	Area of Interest
D	duplicate
DL	detection limit
GW	groundwater
HQ	hazard quotient
ID	identification
LCMSMS	liquid chromatography with tandem mass spectrometry
LOD	limit of detection
ND	analyte not detected above the LOD
OSD	Office of the Secretary of Defense
QSM	Quality Systems Manual
Qual	interpreted qualifier
SLO	San Luis Obispo
USEPA	United States Environmental Protection Agency
ng/l	nanogram per liter

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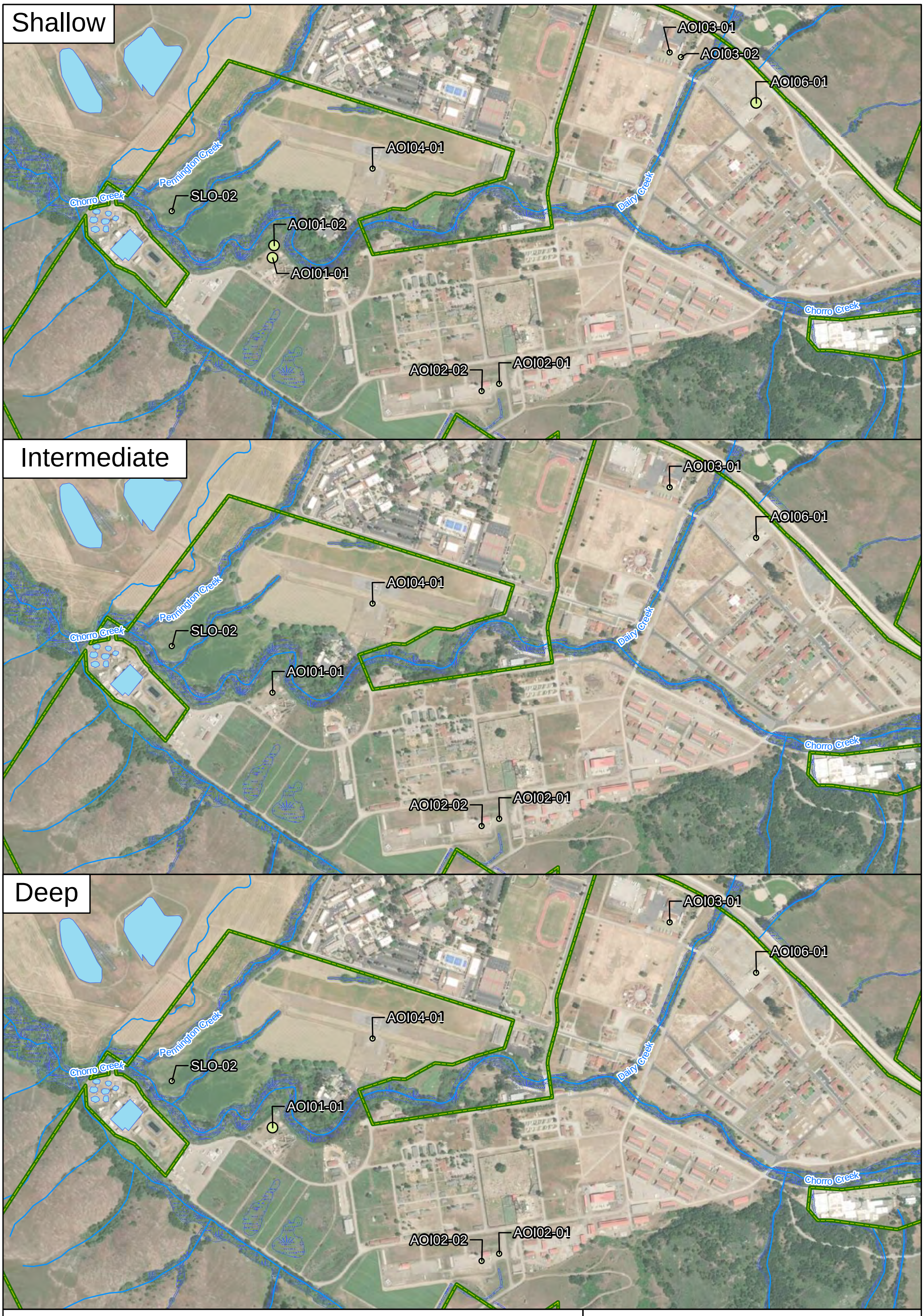

Exceedances of the OSD SL are depicted with a yellow halo.
Depth intervals shown represent respective sampling position within a given soil boring location.

PFOA Detections in Soil

CLIENT	ARNG			
PROJECT	Site Inspection at Camp San Luis Obispo, CA			
REVISED	8/23/2022	GIS BY	MS	8/23/2022
SCALE	1:12,000	CHK BY	SL	8/23/2022
Base Map: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community		PM	CM	8/23/2022

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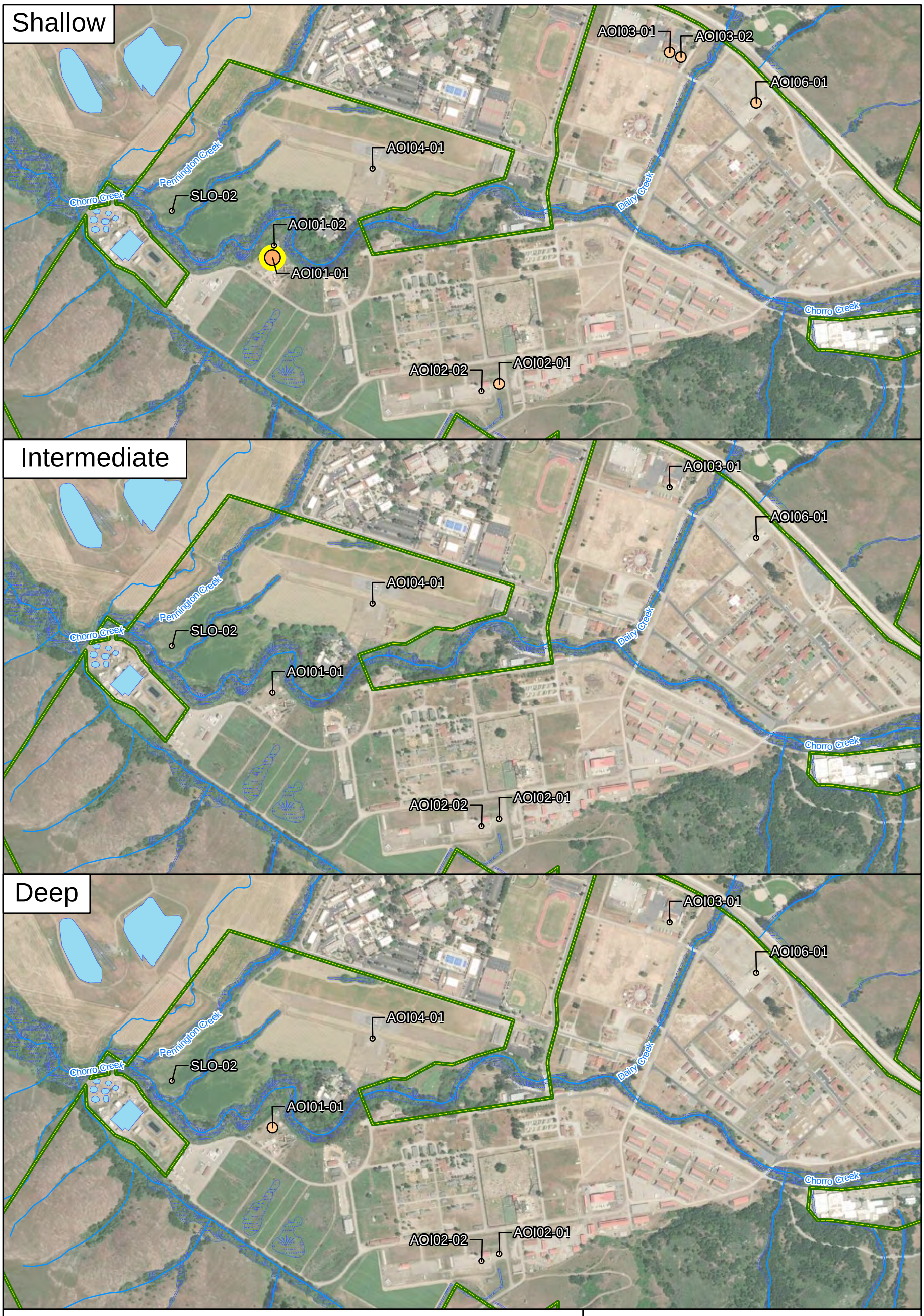
Figure 6-1



Exceedances of the OSD SL are depicted with a yellow halo.
Depth intervals shown represent respective sampling position within a given soil boring location.

PFOS Detections in Soil

CLIENT	ARNG			
PROJECT	Site Inspection at Camp San Luis Obispo, CA			
REVISED	8/23/2022	GIS BY	MS	8/23/2022
SCALE	1:12,000	CHK BY	SL	8/23/2022
Base Map: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community		PM	CM	8/23/2022

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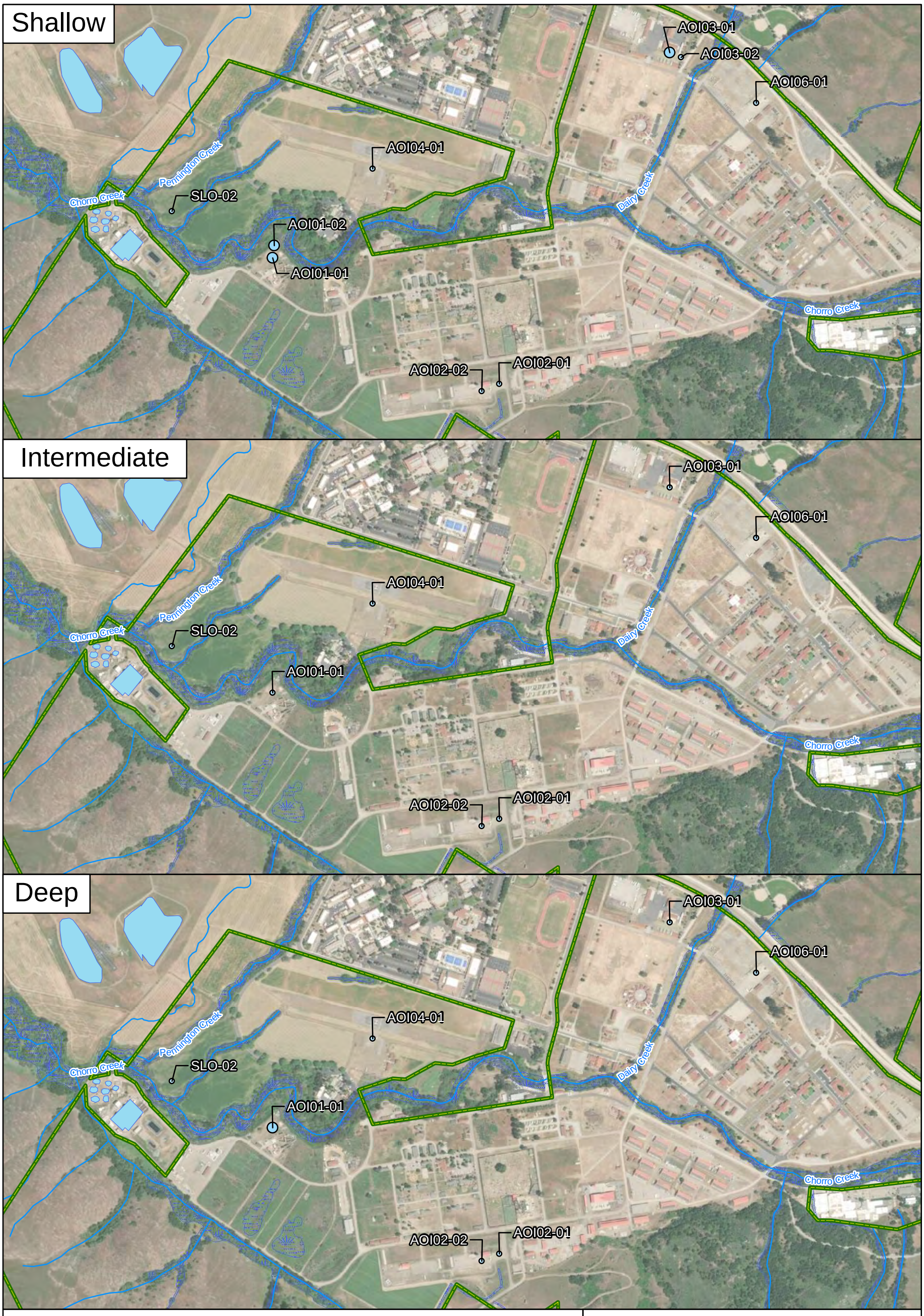
Figure 6-2



Exceedances of the OSD SL are depicted with a yellow halo.
Depth intervals shown represent respective sampling position within a given soil boring location.

PFBS Detections in Soil

CLIENT	ARNG			
PROJECT	Site Inspection at Camp San Luis Obispo, CA			
REVISED	8/23/2022	GIS BY	MS	8/23/2022
SCALE	1:12,000	CHK BY	SL	8/23/2022
Base Map: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community		PM	CM	8/23/2022

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Figure 6-3

Shallow

Intermediate

Deep

AOI03-01
AOI03-02
AOI06-01
AOI04-01
SLO-02
AOI01-02
AOI01-01
AOI02-02
AOI02-01
Pennington Creek
Chorro Creek
Dairy Creek

Facility Boundary
Water Body
Wetland
River/Stream

PFHxS Results (µg/Kg)

ND
>ND - 10
>10 - 130
>130 - 1,600
>1,600

N

0 500 1,000 2,000 Feet

Exceedances of the OSD SL are depicted with a yellow halo.
Depth intervals shown represent respective sampling position within a given soil boring location.

PFHxS Detections in Soil

CLIENT	ARNG			
PROJECT	Site Inspection at Camp San Luis Obispo, CA			
REVISED	8/23/2022	GIS BY	MS	8/23/2022
SCALE	1:12,000	CHK BY	SL	8/23/2022
Base Map: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community		PM	CM	8/23/2022

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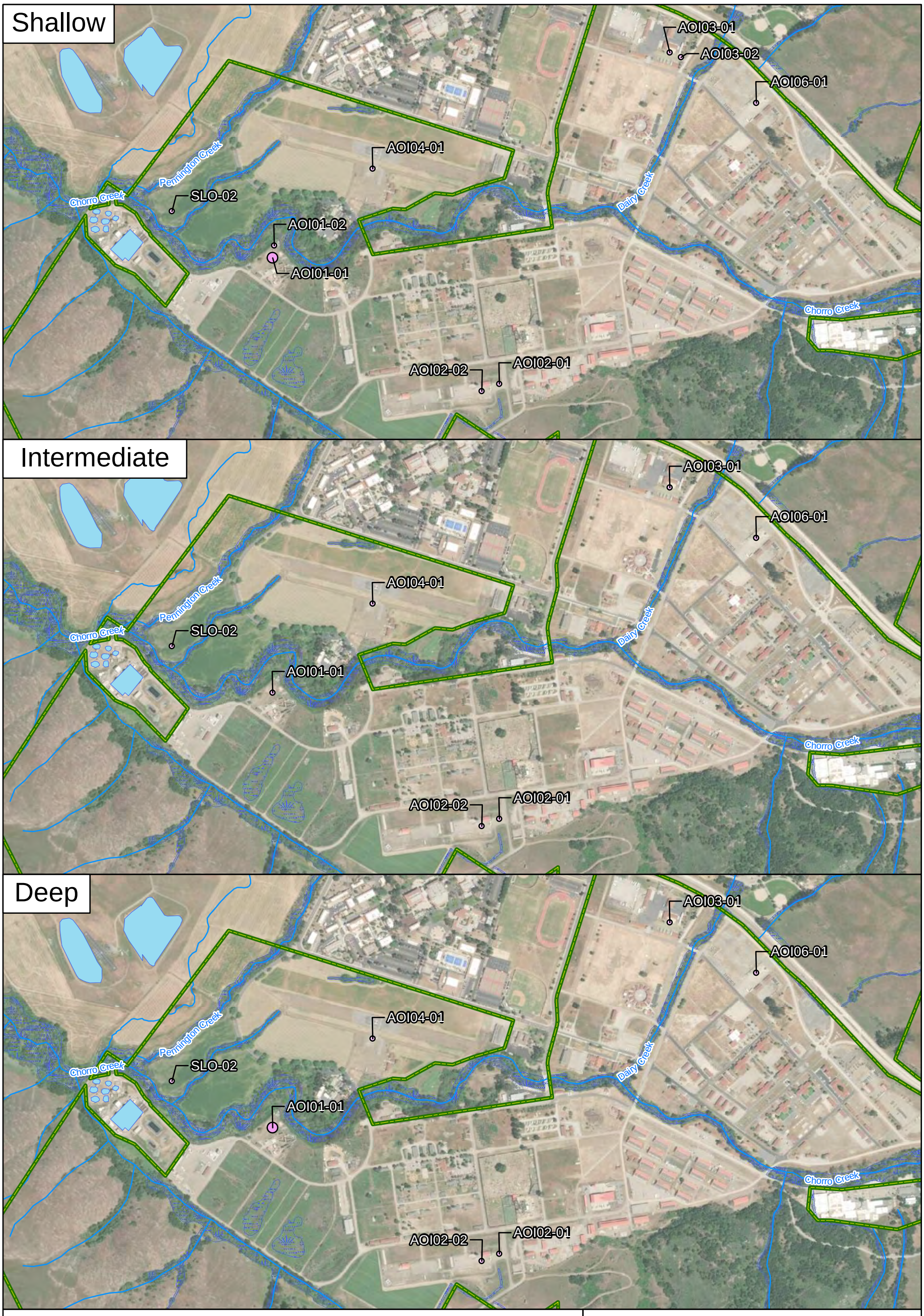
Figure 6-4



Exceedances of the OSD SL are depicted with a yellow halo.
Depth intervals shown represent respective sampling position within a given soil boring location.

PFNA Detections in Soil

CLIENT	ARNG			
PROJECT	Site Inspection at Camp San Luis Obispo, CA			
REVISED	8/23/2022	GIS BY	MS	8/23/2022
SCALE	1:12,000	CHK BY	SL	8/23/2022
Base Map: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community		PM	CM	8/23/2022

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Figure 6-5

PFOA

PFOS

PFBS

Facility Boundary
Water Body
Wetland
River/Stream
Groundwater Flow Direction

N

0 500 1,000 2,000
Feet

Exceedances of the OSD SL are depicted with a yellow halo.

PFOA, PFOS, and PFBS Detections in Groundwater

CLIENT	ARNG			
PROJECT	Site Inspection at Camp San Luis Obispo, CA			
REVISED	10/5/2022	GIS BY	MS	10/5/2022
SCALE	1:12,000	CHK BY	SL	10/5/2022
Base Map: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community		PM	CM	10/5/2022

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Figure 6-6

PFHxS

PFNA

Facility Boundary
Water Body
Wetland
River/Stream
Groundwater Flow Direction

N

0 500 1,000 2,000
Feet

Exceedances of the OSD SL are depicted with a yellow halo.

PFHxS and PFNA Detections in Groundwater

CLIENT	ARNG			
PROJECT	Site Inspection at Camp San Luis Obispo, CA			
REVISED	8/23/2022	GIS BY	MS	8/23/2022
SCALE	1:12,000	CHK BY	SL	8/23/2022
Base Map: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community		PM	CM	8/23/2022

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Figure 6-7

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7. Exposure Pathways

The CSMs for each AOI, revised based on the SI findings, are presented on **Figure 7-1** through **Figure 7-4**. Please note that while the CSM discussion assists in determining if a receptor may be impacted, the decision to move from SI to Remedial Investigation (RI) or interim action is determined based upon exceedances of the SLs for the relevant compounds and whether the release is more than likely attributable to the DoD. A CSM presents the current understanding of the site conditions with respect to known and suspected sources, potential transport mechanisms and migration pathways, and potentially exposed human receptors. A human exposure pathway is considered potentially complete when the following conditions are present:

1. Contaminant source;
2. Environmental fate and transport;
3. Exposure point;
4. Exposure route; and
5. Potentially exposed populations.

If any of these elements are missing, the pathway is incomplete. The CSM figures use an empty circle symbol to represent an incomplete exposure pathway. Areas with an incomplete pathway generally warrant no further action. However, the pathway is considered potentially complete if the relevant compounds are detected, in which case the CSM figure uses a half-filled circle symbol to represent a potentially complete exposure pathway. Additionally, a completely filled circle symbol is used to indicate when a potentially complete exposure pathway has detections of relevant compounds above the SLs. Areas with an identified potentially complete pathway that have detections of the relevant compounds above the SLs may warrant further investigation. Although the CSMs indicate whether potentially complete exposure pathways may exist, the recommendation for future study in an RI or no action at this time is based on the comparison of the SI analytical results for the relevant compounds to the SLs.

In general, the potential routes of exposure to the relevant compounds are ingestion and inhalation. Human exposure via the dermal contact pathway may occur, and current risk practice suggests it is an insignificant pathway compared to ingestion; however, exposure data for dermal pathways are sparse and continue to be the subject of toxicological study. The receptors evaluated are consistent with those listed in USEPA guidance for risk screening (USEPA, 2001). Receptors at the facility include site workers (e.g., facility staff and visiting soldiers), construction workers, trespassers, residents outside the facility boundary, and recreational users outside of the facility boundary.

7.1 Soil Exposure Pathway

The SI results in soil were used to determine whether a potentially complete pathway exists between the source and potential receptors at AOI 1, AOI 2, AOI 3, AOI 4, and AOI 6 based on the aforementioned criteria.

7.1.1 AOI 1

Between 1995 and 2006, AFFF may have been released at AOI 1 during fire training activities where AFFF was used to train firefighters on how to apply foam. PFOA, PFOS, PFHxS, PFNA and PFBS were detected in surface soil at AOI 1, and PFOS exceeded the SL. Site workers and construction workers could contact constituents in surface soil via incidental ingestion and inhalation of dust. Therefore, the surface soil exposure pathway for site workers and future

construction workers are potentially complete. The pathways for current construction workers are considered incomplete because no active construction was observed at the facility during the time of SI field work.

PFOA, PFOS, PFHxS, PFNA, and PFBS were detected in deep subsurface soil collected from 36 to 38 feet bgs feet bgs. Construction workers are not reasonably expected to encounter soil greater than 15 feet bgs; therefore, the exposure pathway for subsurface soil is considered incomplete. The CSM for AOI 1 is presented on **Figure 7-1**.

7.1.2 AOI 2

As early as 1978 through 2007, AFFF may have been released at AOI 2 during fire training activities. PFOS was detected below the SL in surface soil at AOI 2. Site workers and construction workers could contact constituents in surface soil via incidental ingestion and inhalation of dust. Therefore, the surface soil exposure pathway for site workers and future construction workers are potentially complete. PFOA, PFOS, PFHxS, PFNA, and PFBS were not detected in subsurface soil at AOI 2; therefore, all exposure pathways are considered incomplete. The CSM for AOI 2 is presented on **Figure 7-2**.

7.1.3 AOI 3

In 2013, AFFF was potentially released to concrete surfaces at AOI 3 during the flushing out of hoses and a tank that contained AFFF. PFOS, PFHxS, and PFBS were detected below their SLs in surface soil at AOI 3. Site workers and construction workers could contact constituents in surface soil via incidental ingestion and inhalation of dust. Therefore, the surface soil exposure pathway for site workers and future construction workers are potentially complete. PFOA, PFOS, PFHxS, PFNA, and PFBS were not detected in subsurface soil at AOI 3; therefore, all exposure pathways are considered incomplete. The CSM for AOI 3 is presented on **Figure 7-3**.

7.1.4 AOI 4

AFFF may have potentially been released to soil at AOI 4 due to incidental spills related to AFFF storage at the O'Sullivan Airfield Shed. PFOA, PFOS, PFHxS, PFNA, and PFBS were not detected in surface or subsurface soil at AOI 4; therefore, the soil exposure pathways are incomplete. The CSM for AOI 4 is presented on **Figure 7-4**.

7.1.5 AOI 6

AFFF may have potentially been released at AOI 6 due to incidental spills related to AFFF storage at the Fuel Point. PFOA and PFOS were detected below their SLs in surface soil at AOI 6. Site workers and construction workers could contact constituents in surface soil via incidental ingestion and inhalation of dust. Therefore, the surface soil exposure pathway for site workers and future construction workers are potentially complete. PFOA, PFOS, PFHxS, PFNA, and PFBS were not detected in subsurface soil; therefore, the subsurface soil exposure pathway for all receptors is considered incomplete. The CSM for AOI 6 is presented on **Figure 7-3**.

7.2 Groundwater Exposure Pathway

The SI results in groundwater were used to determine whether a potentially complete pathway exists between the source and potential receptors based on the aforementioned criteria.

7.2.1 AOI 1

PFOA, PFOS, PFHxS, and PFNA in groundwater exceeded their SLs in one temporary monitoring well at AOI 1. Depth to water measured at this well in June 2021 during the SI was 33.79 feet bgs. Therefore, groundwater is unlikely to be encountered during construction activities, and the ingestion exposure pathway for construction workers is considered incomplete. Camp SLO drinking water is sourced from a location upgradient of the facility. As such, the exposure pathway for site worker ingestion of groundwater is considered incomplete. Downgradient potable wells supply water to the City of Morro Bay, which is about 4 miles downgradient of the facility. There could also be private wells associated with farming operations downgradient of the facility and positioned between the facility and the City of Morro Bay. Conservatively, these wells could be a potentially complete pathway in groundwater. Therefore, the ingestion exposure pathway for groundwater is potentially complete for off-facility residents. The CSM for AOI 1 is presented on **Figure 7-1**.

7.2.2 AOI 2

PFOA, PFOS, PFHxS, and PFBS were detected in groundwater at AOI 2; and PFOS exceeded the SL. Depth to water measured at these wells in June 2021 during the SI ranged from 33.59 to 34.95 feet bgs. Therefore, groundwater is unlikely to be encountered during construction activities and the ingestion exposure pathway for construction workers is considered incomplete. As discussed in **Section 7.2.1** above, the ingestion exposure pathway for groundwater is considered potentially complete for off-facility residents but incomplete for site workers. The CSM for AOI 2 is presented on **Figure 7-2**.

7.3 Surface Water and Sediment Exposure Pathway

The SI results in soil and groundwater, in combination with knowledge of the fate and transport properties of PFAS, were used to determine whether a potentially complete pathway exists between the source and potential receptors.

7.3.1 AOI 1, AOI 2, AOI 3, and AOI 6

PFAS are water soluble and can migrate readily from soil to surface water via leaching and run-off. Because PFOA, PFOS, PFHxS, PFNA, and PFBS were detected in soil and/or groundwater at the AOIs, it is possible that those compounds may have migrated from soil and groundwater to Chorro Creek. Therefore, the surface water and sediment ingestion exposure pathways for site workers and future construction workers are considered potentially complete. Chorro Creek and its tributaries converge with the Morrow Bay Estuary downstream of the facility. Therefore, the surface water and sediment ingestion exposure pathway for the off-facility recreational user is considered potentially complete. The CSMs for each AOI are presented on **Figure 7-1** through **Figure 7-3**.

7.3.2 AOI 4

PFOA, PFOS, PFHxS, PFNA, and PFBS were not detected in soil at AOI 4. Therefore, the surface water and sediment ingestion exposure pathway are considered incomplete for all receptors. The CSM for AOI 4 is presented on **Figure 7-4**.

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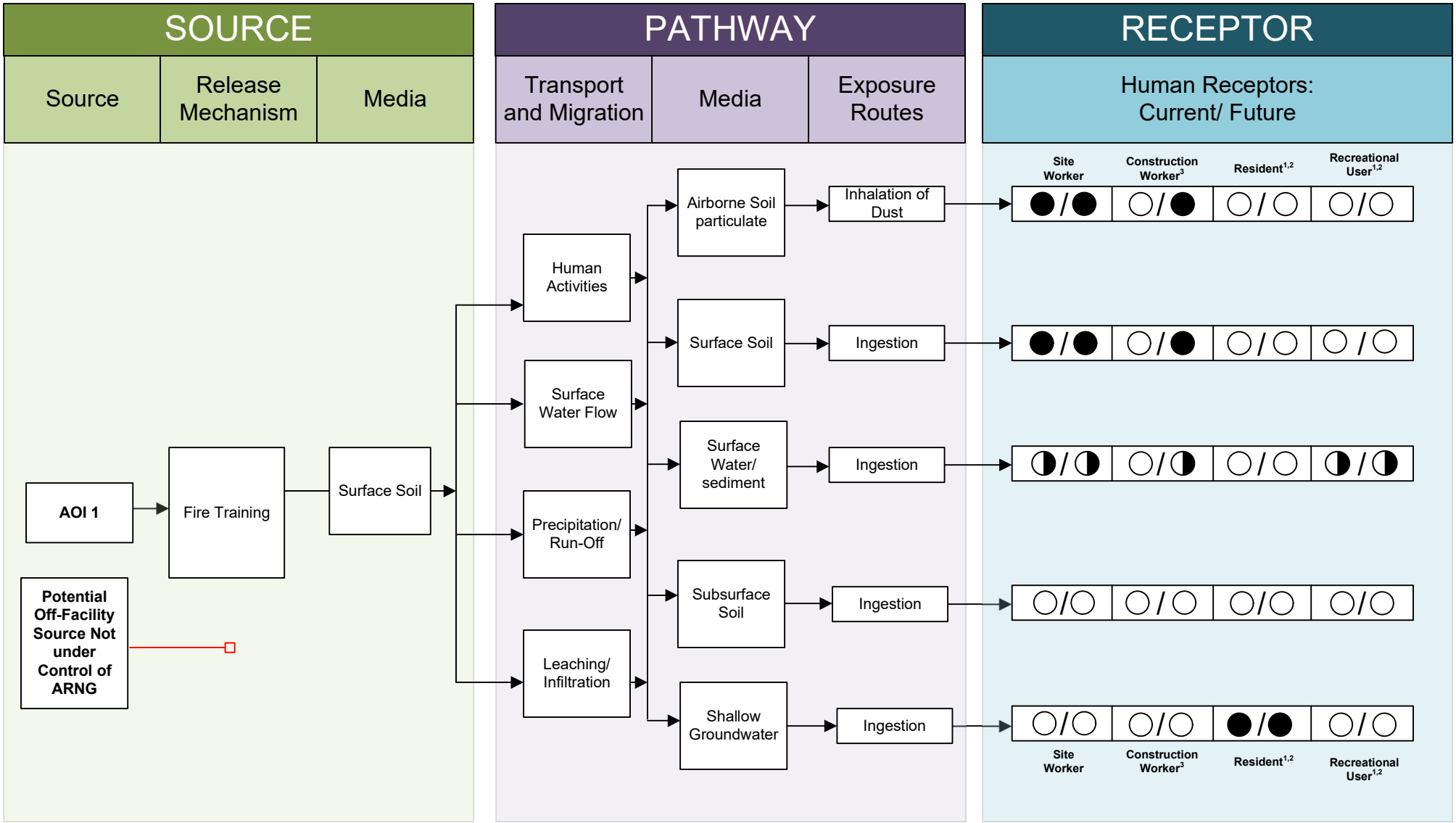


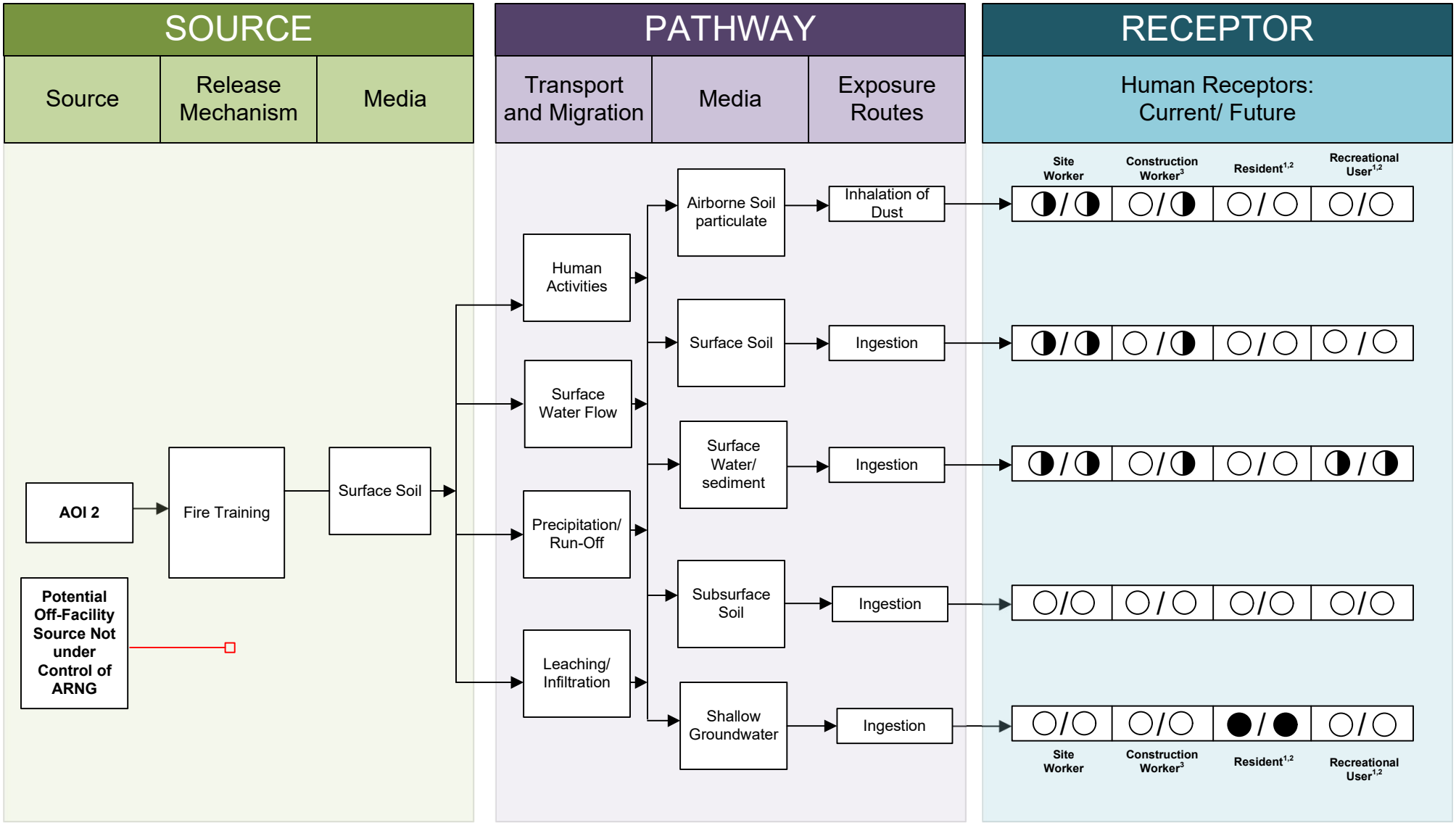
LEGEND

- Flow-Chart Stops
- Flow-Chart Continues
- Partial / Possible Flow
- Incomplete Pathway
- Potentially Complete Pathway
- Potentially Complete Pathway with Exceedance of SL

NOTES

1. The resident and recreational users refer to off-site receptors.
2. Inhalation of dust for off-site receptors is likely insignificant.
3. No current active construction at the facility.

Figure 7-1
Conceptual Site Model, AOI 1
Camp San Luis Obispo



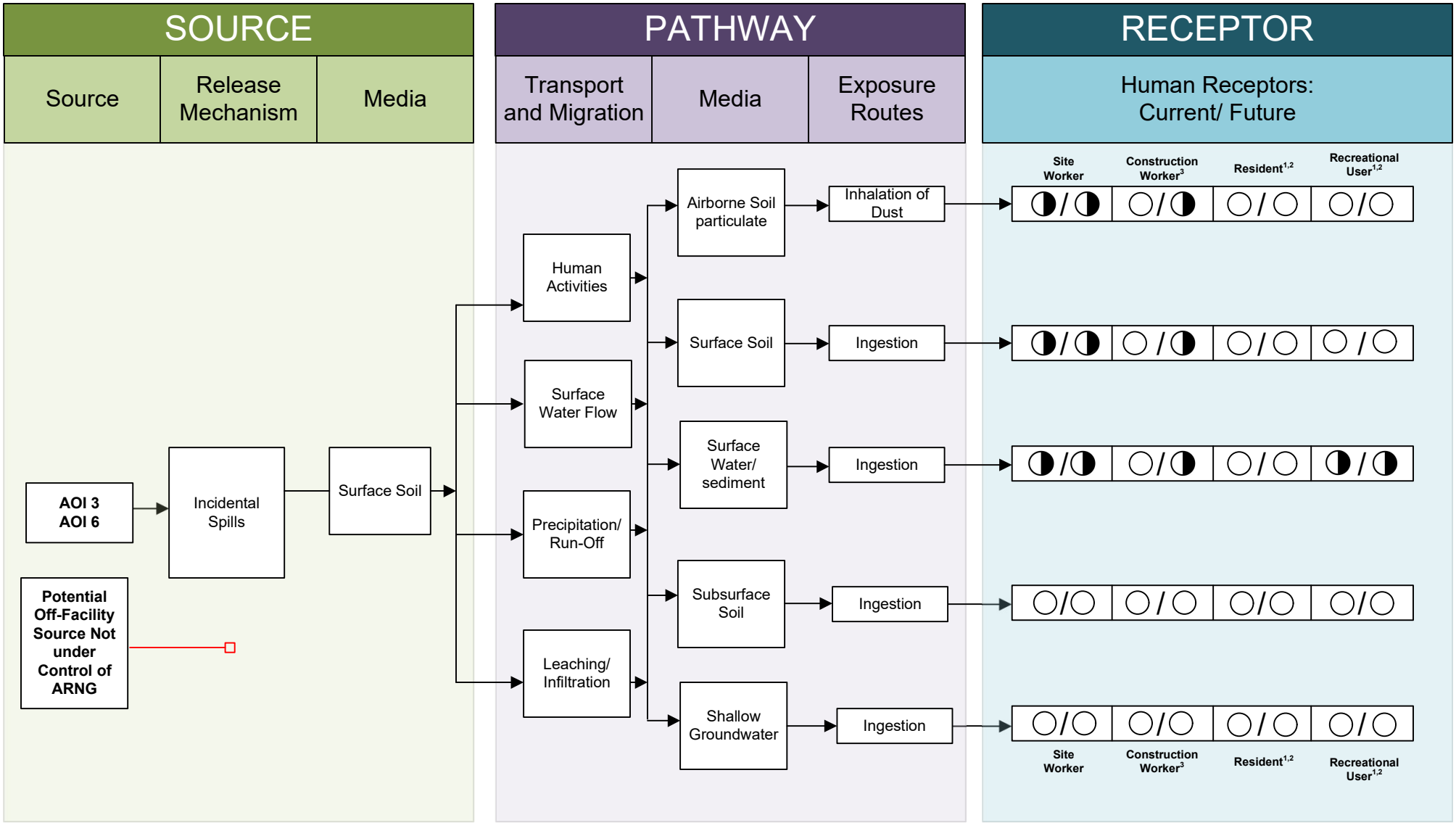
LEGEND

- Flow-Chart Stops
- Flow-Chart Continues
- Partial / Possible Flow
- Incomplete Pathway
- Potentially Complete Pathway
- Potentially Complete Pathway with Exceedance of SL

NOTES

1. The resident and recreational users refer to off-site receptors.
2. Inhalation of dust for off-site receptors is likely insignificant.
3. No current active construction at the facility.

Figure 7-2
Conceptual Site Model, AOI 2
Camp San Luis Obispo



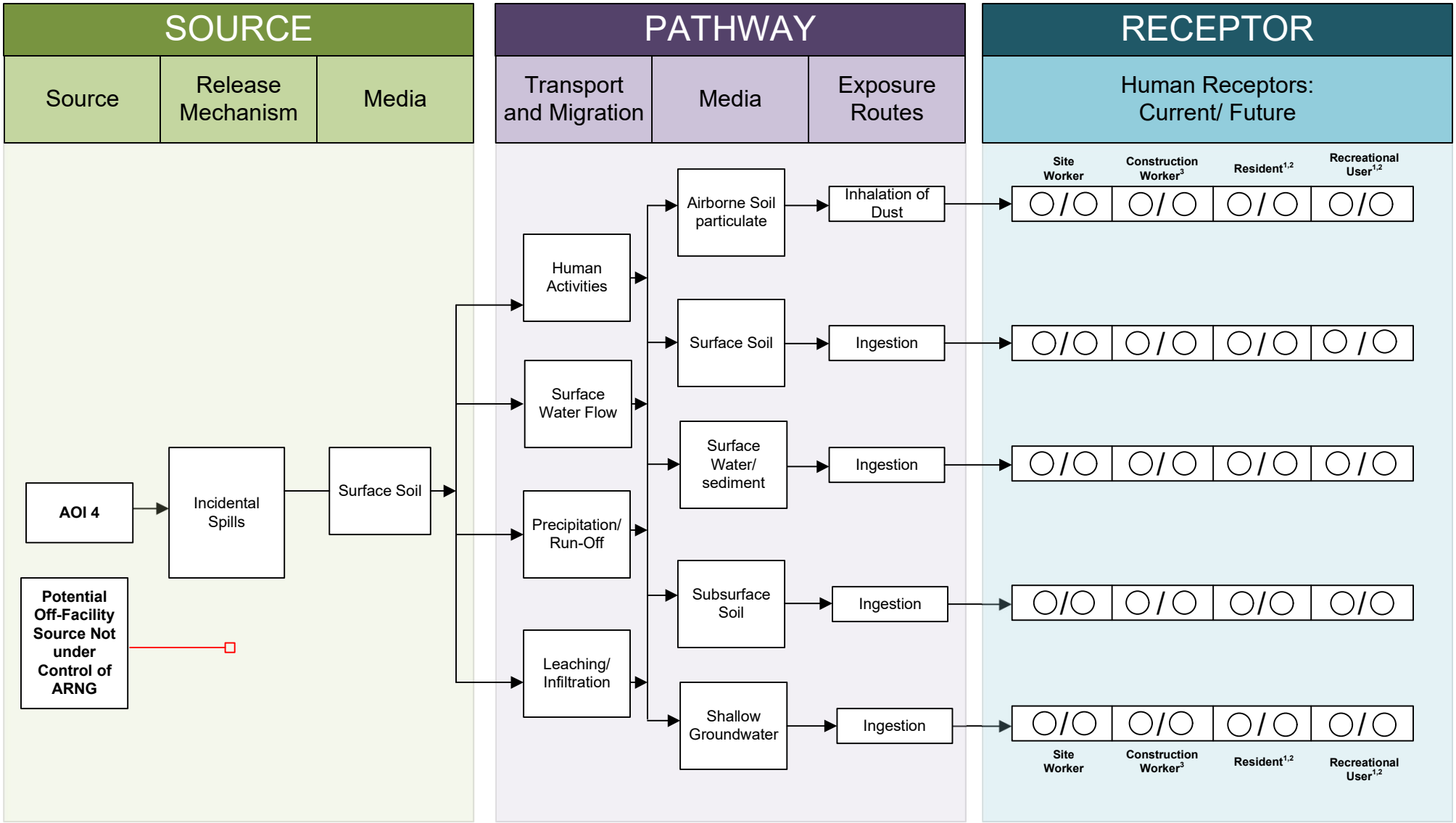
LEGEND

- Flow-Chart Stops
- Flow-Chart Continues
- Partial / Possible Flow
- Incomplete Pathway
- Potentially Complete Pathway
- Potentially Complete Pathway with Exceedance of SL

NOTES

1. The resident and recreational users refer to off-site receptors.
2. Inhalation of dust for off-site receptors is likely insignificant.
3. No current active construction at the facility.

Figure 7-3
Conceptual Site Model, AOI 3 and AOI 6
Camp San Luis Obispo



LEGEND

- Flow-Chart Stops
- Flow-Chart Continues
- Partial / Possible Flow
- Incomplete Pathway
- Potentially Complete Pathway
- Potentially Complete Pathway with Exceedance of SL

NOTES

1. The resident and recreational users refer to off-site receptors.
2. Inhalation of dust for off-site receptors is likely insignificant.
3. No current active construction at the facility.

Figure 7-4
Conceptual Site Model, AOI 4
Camp San Luis Obispo

8. Summary and Outcome

This section summarizes SI activities and findings. The most significant findings are summarized in this section and are reproduced directly or abstracted from information contained in this report. The outcome provides general and comparative interpretations of the findings relative to the SLs.

8.1 SI Activities

The SI field activities were conducted from 21 June to 25 June 2021 and 1 November to 5 November 2021, which consisted of utility clearance, direct push boring, and sonic boring soil sample collection, temporary monitoring well installation and subsequent abandonment, grab groundwater sample collection, and land surveying. Field activities were conducted in accordance with the SI QAPP Addendum (AECOM, 2021b), except as previously noted in **Section 5.8**.

To fulfill the project DQOs set forth in the approved SI QAPP Addendum (AECOM, 2021b), samples were collected and analyzed for a subset of 18 compounds by LC/MS/MS compliant with QSM 5.3 Table B-15 as follows.

- Twenty-four (24) soil samples from 11 soil borings;
- Four grab groundwater samples from four temporary wells;
- Fifteen (15) QA/QC samples.

An SI is conducted when the PA determines an AOI exists based on probable use, storage, and/or disposal of PFAS-containing materials. The SI includes multi-media sampling at AOIs to determine whether or not a release has occurred. The SI may conclude further investigation is warranted, a removal action is required to address immediate threats, or no further action is required. Additionally, the CSMs were refined to assess whether a potentially complete pathway exists between the source and potential receptors for potential exposure at the AOIs, which are described in **Section 7**.

8.2 Outcome

Based on the results of this SI, further evaluation is warranted in an RI for AOI 1: Former Cal FIRE FTA and AOI 2: Former META Yard FTA; no further evaluation is warranted for AOI 3, AOI 4, and AOI 6 at this time. AOI 5 was not evaluated during this investigation. Based on the CSMs developed and revised in light of the SI findings, there is potential for exposure to drinking water receptors from AOI 1 and AOI 2 from sources on the facility resulting from historical DoD activities. Sample analytical concentrations collected during the SI were compared to the project SLs in soil and groundwater, as described in **Table 6-1**. A summary of the results of the SI data relative to the SLs is as follows:

- At AOI 1:
    - PFOA, PFOS, PFHxS, and PFNA in groundwater exceeded their SLs at AOI01-01, with the following maximum concentrations: PFOA at 291 ng/L, PFOS at 182 ng/L, PFHxS at 908 ng/L, and PFNA at 69.9 ng/L. PFBS was detected below the SL in groundwater at AOI01-01. Additionally, PFOA, PFOS, and PFBS were detected below their SLs in groundwater at SL-02, downgradient of AOI 1.
    - PFOS in surface soil exceeded the SL of 13 µg/kg at AOI01-01, with a concentration of 71.9 J µg/kg. All other detected concentrations of PFOA, PFOS, PFHxS, PFNA

and PFBS in soil at AOI 1 were below their SLs. Additionally, PFOA, PFOS, PFHxS, PFNA, and PFBS were not detected in soil at SL-02, downgradient of AOI 1.

- Based on the exceedances of the SLs in soil and groundwater, further evaluation of AOI 1 is warranted in an RI.

- At AOI 2:
  - PFOS in groundwater exceeded the SL of 4 ng/L at AOI02-01, with a concentration of 6.12 ng/L. PFOA, PFHxS, and PFBS were detected below their SLs in groundwater. PFNA was not detected in groundwater at AOI 2.
  - The detected concentration of PFOS in soil at AOI 2 was below the SL. PFOA, PFHxS, PFNA, and PFBS were not detected in soil at AOI 2.
  - Based on the exceedances of the SL in groundwater, further evaluation of AOI 2 is warranted in an RI.
- At AOI 3:
  - The detected concentrations of PFOS, PFHxS, and PFBS in soil were below their SLs. PFOA and PFNA were not detected in soil. Therefore, no further evaluation is warranted at AOI 3.
- At AOI 4:
  - PFOA, PFOS, PFHxS, PFNA, and PFBS were not detected in soil. Therefore, no further evaluation is warranted at AOI 4.
- At AOI 6:
  - The detected concentrations of PFOA and PFOS in soil were below their SLs. PFHxS, PFNA, and PFBS were not detected in soil. Therefore, no further evaluation is warranted at AOI 6.

Due to the inability to collect groundwater at AOI 3, AOI 4 and AOI 6, there is some uncertainty regarding groundwater flow directions in the vicinity of these AOIs.

Of the six PFAS compounds presented in the 6 July 2022 OSD memorandum, HFPO-DA (commonly referred to as GenX) was not included as an analyte at the time of this SI. Based on the CSM developed during the PA and revised based on SI findings, the presence of HFPO-DA is not anticipated at the facility because HFPO-DA is generally not a component of MIL-SPEC AFFF and based on its history including distribution limitations that restricted use of GenX, it is generally not a component of other products the military used. In addition, it is unlikely that GenX would be an individual chemical of concern in the absence of other PFAS.

Table 8-1 summarizes the SI results for soil and groundwater used to determine if an AOI should be considered for further investigation under CERCLA and undergo an RI.

Table 8-1: Summary of Site Inspection Findings and Recommendations

AOI	Potential Release Area	Soil – Source Area	Groundwater – Source Area	Groundwater – Facility Boundary	Future Action
1	Former CAL FIRE FTA	●	●	◑	Proceed to RI
2	Former META Yard FTA	◑	●	◑	Proceed to RI
3	CAL FIRE Cuesta Camp Tenant	◑	N/A	N/A	No further action
4	O'Sullivan Airfield Shed	○	N/A	N/A	No further action
6	Fuel Point	◑	N/A	N/A	No further action

Legend:
N/A = not applicable
● = detected; exceedance of the screening levels
◑ = detected; no exceedance of the screening levels
○ = not detected

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9. References

AECOM. 2018a. *Final Site Inspection Programmatic Uniform Federal Policy-Quality Assurance Project Plan, Perfluorooctane Sulfonic Acid (PFOS) and Perfluorooctanoic Acid (PFOA) Impacted Sites ARNG Installations, Nationwide Contract No. W912DR-12-D-0014/ W912DR17F0192*. 9 March.

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