Final
5th Five-Year Review Report for Fort Ord Superfund Site Monterey County, California

September 2022

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Signature Sheet for 5th Five-Year Review Report
For the Former Fort Ord

Signature Sheet for the 5th Five-Year Review Report for Fort Ord Superfund Site, Monterey County, California.

William K. Collins — 9/8/2022

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Date

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ACRONYMS AND ABBREVIATIONS

ACL	aquifer cleanup level
AFFF	aqueous film forming foam
Ahtna	Ahtna Environmental, Inc. or Ahtna Global, LLC
AOC	Administrative Order on Consent
ARAR	Applicable or Relevant and Appropriate Requirements
Army	U.S. Department of the Army
AS	air sparge
ASR	Aquifer Storage Recovery
AST	above-ground storage tank
BCT	BRAC Cleanup Team
bgs	below ground surface
BLM	Bureau of Land Management
BRA	Basewide Range Assessment
BRAC	Base Realignment and Closure
BTOC	below top of casing
Cal/EPA	California Environmental Protection Agency
CalAm	California American Water Company
CAMU	Corrective Action Management Unit
CAO	Cleanup and Abatement Order
CB&I	CB&I Federal Services LLC
CBR	chemical, biological, and radiological
CCCVC	California Central Coast Veterans Cemetery
CCR	California Code of Regulations
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
Chenega	Chenega Support Services
CMC	Central Maritime Chaparral
COC	chemical of concern
COPC	contaminant of potential concern
CRUP	Covenant to Restrict Use of Property
CSU	California State University
CSUMB	California State University Monterey Bay
CT	carbon tetrachloride
CTS	California Tiger Salamander
cy	cubic yards
°C	degrees Celsius
-DCA	-dichloroethane
-DCE	-dichloroethene
DERP	Defense Environmental Restoration Program
DGM	digital geophysical mapping
DMM	discarded military munitions
DO	dissolved oxygen
DoD	Department of Defense
DOL	Directorate of Logistics
DPR	California Department of Parks and Recreation
DRO	Del Rey Oaks
DTSC	California Department of Toxic Substances Control

ACRONYMS AND ABBREVIATIONS (Continued)

EIS	Environmental Impact Statement
EISB	enhanced in situ bioremediation
ELAP	Environmental Laboratory Accreditation Program
EP	extraction points
EPA	U.S. Environmental Protection Agency
EPC	exposure point concentration
ERA	Ecological Risk Assessment
ESCA	Environmental Services Cooperative Agreement
ESD	Explanation of Significant Differences
FAAF	Fritzsche Army Airfield
FDA	Fire Drill Area
FFA	Federal Facility Agreement
FFS	Focused Feasibility Study
FONR	Fort Ord Natural Reserve
FORA	Fort Ord Reuse Authority
FOSET	Finding of Suitability for Early Transfer
FOST	Finding of Suitability to Transfer
FO-SVA	Fort Ord-Salinas Valley Aquitard
FS	Feasibility Study
GAC	granular activated carbon
gpm	gallons per minute
GRU	groundwater remedial unit
GWMP	groundwater monitoring program
GWTS	groundwater treatment system
GWTP	groundwater treatment plant
HA	historical area
HE	high explosive
HGL	HydroGeoLogic, Inc.
HGV	Health Guidance Value
HHRA	human health risk assessment
HLA	Harding Lawson Associates
HMP	Habitat Management Plan
HMX	cyclotetramethylene tetranitramine
HRP	habitat restoration plan
HTW	hazardous and toxic waste
IA	Interim Action
IAROD	Interim Action Sites ROD
IC	Institutional Controls
IRP	Installation Restoration Program
ISD	insufficient data
ITSI	Innovative Technical Solutions, Inc.

ACRONYMS AND ABBREVIATIONS (Continued)

lbs/day	pounds per day
LLDPE	linear-low density polyethylene
LOD	limit of detection
LTM	long-term monitoring
LUC	land use controls
LUCI	land use control implementation
LUCIP	Land Use Control Implementation Plan
MACTEC	MACTEC Engineering and Consulting, Inc.
MBARD	Monterey Bay Air Resources District
MCL	maximum contaminant level
MCWD	Marina Coast Water District
MD	munitions debris
MEC	munitions and explosives of concern
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MGSTP	Main Garrison Sewage Treatment Plant
mm	millimeter
MMRP	Military Munitions Response Program
MOA	Memorandum of Agreement
MODFLOW	MODFLOW 2000 Version 1.19.01 Software
MOU	Memorandum of Understanding
MOUT	Military Operations in Urban Terrain
MPC	Monterey Peninsula College
MPWMD	Monterey Peninsula Water Management District
MRA	Munitions Response Area
MRS	Munitions Response Site
MRWPCA	Monterey Regional Water Pollution Control Agency
NCA	non-completed area
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NFA	No Further Action
No.	number
ng/L	nanograms per liter
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NRMA	natural resource management area
NTCRA	non-time-critical removal action
NTU	nephelometric turbidity units
OE	ordnance and explosives
OEHHA	California Office of Environmental Health Hazard Assessment
OF	outfall
O&M	operations and maintenance
OMP	Operations and Maintenance Plan
ORP	oxidation/reduction potential
OU	Operable Unit
OUCTP	Operable Unit Carbon Tetrachloride Plume

ACRONYMS AND ABBREVIATIONS (Continued)

PCE	tetrachloroethene
PFAS	Per- and polyfluoroalkyl substances
PFOA	perfluorooctanoic acid
PFOS	perfluorooctane sulfonate
PG&E	Pacific Gas & Electric
PHA	Preliminary Health Advisories
POM	Presidio of Monterey
PRG	Preliminary Remediation Goal
PRHRA	Post-Remediation Health Risk Assessment
QAPP	Quality Assurance Project Plan
RA	Remedial Action
RACR	Remedial Action Completion Report
RAO	remedial action objective
RAGS	Risk Assessment Guidance for Superfund
RAWP	Remedial Action Work Plan
RCRA	Resource Conservation and Recovery Act
RD/RA	Remedial Design/Remedial Action
RDX	cyclotrimethylene trinitramine
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RORE/ITSI	RORE Innovative Solutions Joint Venture
RP	Remediation Program
RPI	Residential Protocol Implementation
RQA	Residential Quality Assurance
RRD	range-related debris
RSL	regional screening level
RWQCB	California Central Coast Regional Water Quality Control Board
SCA	Special Case Area
SCADA	Supervisory Control and Data Acquisition
SGCL	soil gas cleanup levels
SGMP	soil gas monitoring program
SGRU	soil gas remedial unit
SG-SL	soil gas screening level
SIM	selected ion monitoring
SPRR	Southern Pacific Railroad
SRU	soil remedial unit
SS/GS	SiteStat/GridStat
SSWP	Site-Specific Work Plan
SVE	soil vapor extraction
SVETS	soil vapor extraction and treatment system
SVTU	soil vapor treatment unit
SWMU	Solid Waste Management Unit

ACRONYMS AND ABBREVIATIONS (Continued)

TAMC	Transportation Agency for Monterey County
TCE	trichloroethene
TCRA	time-critical removal action
TM	Technical Memorandum
TNT	trinitrotoluene
TPH	total petroleum hydrocarbons
TPH-d	TPH as diesel
TPH-unknown	TPH as unknown origin
TTU	thermal treatment unit
UCL	upper confidence level
UCSC	University of California Santa Cruz
µg/dL	micrograms per deciliter
µg/L	micrograms per liter
µg/m3	micrograms per cubic meter
uS/cm	microsiemens per centimeter
U.S.	United States
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
UU/UE	unlimited use and unrestricted exposure
UV-Ox	ultraviolet chemical oxidation
UXO	unexploded ordnance
VC	vinyl chloride
VFD	variable frequency drive
VOC	volatile organic compound
WGBA	Watkins Gate Burn Area
WWII	World War II

EXECUTIVE SUMMARY

The United States Department of the Army (Army) has completed this 5th Five-Year Review of all in-place cleanup remedies for the Fort Ord Superfund Site in Monterey County, California. EPA concurrence of the 4th Five-Year Review for Fort Ord (Army, 2017) was completed on September 25, 2017. Five-year reviews are a statutory requirement of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, 42 U.S.C. §9601 et. seq) §121 and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 Code of Federal Regulations (CFR) §300.430(f)(4)(ii) to review and evaluate the protectiveness when contaminants remain above levels that allow for unrestricted use and unrestricted exposure.

Fort Ord served primarily as a training and staging facility for infantry troops beginning in 1917 until its deactivation in 1994. Activities conducted throughout the base, including industrial activities and military munitions training, have resulted in the identification of numerous sites where chemicals have been detected in soil and groundwater and munitions and explosives of concern (MEC) have been found in former munitions training areas.

Since 1986, the Army has been conducting investigation and cleanup actions at Fort Ord. Initially, the studies concentrated on identifying chemical contaminants in soil and groundwater, generally as a result of industrial and waste disposal activities. These sites constitute the Hazardous and Toxic Waste (HTW) sites at the former Fort Ord. In 1990, the former Fort Ord was placed on the EPA's National Priorities List (NPL). In 1993, the Army also began investigating sites where MEC were suspected to be present. These Munitions Response Sites (MRSs) and Munitions Response Areas (MRAs) include approximately 12,000 acres of the former Fort Ord. These sites have been identified through archive searches, interviews, and visual inspections. The types of MEC found include, but are not limited to, artillery projectiles, rockets, hand grenades, practice land mines, pyrotechnics, bombs, and demolition materials. The Military Munitions Response Program (MMRP) sites at Fort Ord are categorized according to MEC-related characteristics to expedite cleanup, reuse, and/or transfer of former Fort Ord property. According to this process, areas are assigned to Tracks 0 through 3.

The soil and groundwater cleanup, or HTW Sites and the MMRP Sites have been grouped into the remedial categories described below; Records of Decision (RODs) have been developed for each site or group to specifically address the hazards. For each of the sites included in this Five-Year Review, the effectiveness of their respective cleanup remedies has been evaluated, or an update on the status of the cleanup process has been provided. A brief summary of the general categories of sites and groups of sites, and definitions of the terms used in this Five-Year Review Report to describe these groupings follows.

- **No Action Sites** are those that require no action, either because no release of contaminants was identified at the site, or because the site activities are excluded under Superfund (e.g., underground storage tank remediation). No Action Sites do not have CERCLA RODs and are therefore not included in the Five-Year Review.
- **Interim Action (IA) Sites** are those that have contaminated soil with a limited volume and extent and, as a result, the soils were excavated as an interim action. Several sites were addressed under the IA Sites ROD. IA Sites ROD remedy has been evaluated and five-year reviews are no longer required.
- **Remedial Investigation (RI) Sites** are those with complex problems that require long-term remediation, development of a risk assessment, and an assessment of the applicable or relevant and appropriate requirements for cleanup. A basewide RI Sites ROD was developed to address these sites.
- **Operable Units (OUs)** are sites with complex cleanup remedial actions. These sites include: OU1, the Fritzsche Army Airfield Fire Drill Area; OU2, the Fort Ord Landfills; and the OU Carbon Tetrachloride Plume (OUCTP), the former vadose zone source area of carbon tetrachloride and associated groundwater plume. These OUs are supported by their own individual RODs.

- **MMRP Sites and ESCA Groups of Sites** have been undergoing munitions response actions designed to minimize the explosive safety risk to the public under designated future uses. Many sites have undergone sufficient evaluations to be released for unrestricted use. Land use controls (LUCs) are required for several sites where MEC removal has been conducted. The MMRP Sites are grouped into Tracks 0 through 3.

Based on successful munitions and soil cleanup efforts, on May 14, 2021, the EPA published a Federal Register notice announcing the deletion of 11,934 acres of the 27,827 acre Fort Ord Superfund site from the NPL. This partial deletion only includes a part of the cleanup at a portion of the site where cleanup is finished; and only covers cleanup work for military munitions and soil pollution. The Army will continue to clean up the groundwater and soil gas on the 11,934 acres included in this deletion, as well as the remaining 15,893 acres of the site. All land use controls will continue to be implemented and monitored even after the partial deletion. Five-Year Reviews are required when contaminants remain above levels that allow for unrestricted use and unlimited exposure, even if a site has been deleted from the NPL.

A list of the sites and OUs evaluated in the 5th Five-Year Review (with the associated report Section numbers) and a summary of the results of the evaluation are provided below.

OU2 - Fort Ord Landfills (Section 6.0): The OU2 remedy is ongoing. Construction of a new groundwater treatment plant was completed and began operations in November 2018, replacing the old plant. The technical assessment identified a couple areas of loss of plume capture that are not currently affecting the protectiveness of the remedy at OU2 but have the potential to do so. The remedy was deemed **protective in the short-term** of human health and the environment. Actions described in Section 6.7 will need to be taken to ensure long-term protectiveness.

Site 2 – Main Garrison Sewage Treatment Plant and Site 12 - Lower Meadow Disposal Area, Directorate of Logistics Automotive Yard, Cannibalization Yard, and Southern Pacific Railroad Spur (Section 7.1): The groundwater extraction/treatment system is performing as intended. The soil vapor extraction and treatment system remained offline since July 2020 due to PCE and TCE concentrations in soil gas no longer being considered to have an adverse impact on groundwater. The technical assessment identified **no issues** that affect current or future protectiveness of the Sites 2 and 12 remedy. The remedy was deemed **protective** of human health and the environment. The remedial activities that have been completed to date have adequately addressed all exposure pathways that could result in unacceptable risks in these areas.

Site 31 - Former East Garrison Dump Site (Section 7.2): The current remedy includes a land use restriction, which prohibits excavation, exposure of the soil, or residential development of the area. This remedy is functioning as intended. The technical assessment identified **no issues** for Site 31. The remedy at Site 31 was deemed **protective** of human health and the environment.

Site 39 - Inland Ranges (Section 7.3): The Site 39 remedy of excavation and onsite placement of contaminated soils at the OU2 Landfills beneath an engineered cover system is ongoing. This remedy is functioning as intended. The technical assessment identified **no issues** for Site 39. The overall remedy at Site 39 is **protective in the short-term** of human health and the environment, with long term protectiveness pending full implementation of the remedy. While the remedy remains protective and is functioning as intended, the Army and regulatory agencies (EPA, DTSC and RWQCB) are currently working on a revised residential cleanup level for lead for historical areas HA-18D and HA-23D. HA-18D and HA-23D have always been planned for residential reuse, but updated residential lead screening levels from both the EPA and DTSC have prompted a reexamination of the cleanup level specified in the ROD. If a new residential lead cleanup level is agreed upon, it will be specified in an Explanation of Significant Differences (ESD). Currently a deed restriction is in place for HA-18D and HA-23D prohibiting residential use.

Site 33 - Golf Course Maintenance Facility (Section 7.4): The selected remedy for Site 33 is a land use control (LUC) consisting of a deed restriction on the property prohibiting residential use. The technical assessment identified **no issues** for Site 33. The Site 33 remedy was deemed **protective** of human health and the environment; the remedy is consistent with the designated uses for the property. Potential exposure pathways that could result in unacceptable risks are being controlled by the land use controls (LUCs). The landowner at the time, Seaside Resort Development, LLC, completed further cleanup action, sampling and analysis, as documented in the *Final Remedial Action Completion Report Seaside.* As detailed in this report, and summarized below in section 7.4.3, the RAOs established for soil unrestricted land use were achieved, and the remedial action is complete (GEM, 2021). Based on these actions, DTSC terminated the CRUP in 2022. The Army is working with the other agencies to determine if it is acceptable to remove the deed restriction.

Site 3 – Beach Trainfire Ranges (Section 8.0): The Army has completed the remedial action at Site 3 and the area is now a California State Park. The technical assessment identified **no issues** for Site 3. The remedy at Site 3 is **protective** of human health and the environment. Ecological monitoring indicates no adverse ecological impacts at the site. The LUCs and access restrictions in effect for the State Park continue to provide human health protection.

OUCTP (Section 10.0): The selected remedy for OUCTP includes: in-situ enhanced biodegradation (A-Aquifer); groundwater extraction and treatment (Upper 180-Foot Aquifer); and monitored natural attenuation with wellhead treatment contingency (Lower 180-Foot Aquifer). Additional components included in the ROD were institutional controls, such as deed restrictions for all aquifers (to prevent access to or use of the groundwater within the OUCTP area for any purpose until cleanup levels are met and to maintain the integrity of any current or future remedial or monitoring system including monitoring, extraction, and injection wells), and long-term monitoring. The remedy is ongoing and recommendations to improve performance, reduce costs, and increase likelihood of achieving cleanup goals are described in the section. The technical assessment identified **no issues** for OUCTP. The OUCTP remedy is **protective** of human health and the environment. The protectiveness statement has changed from "will be protective" in the 4th Five Year Review to "protective" in this 5th Five Year Review, because the remedy status has changed from "under construction" to "operating" and the remedy is protective of human health and the environment. Ongoing remedial activities and groundwater use prohibitions continue to adequately address all exposure pathways that could result in unacceptable risks. Specific controls include groundwater prohibitions provided by Chapter 15.08 of Title 15, Monterey County Code, deed restrictions, and the CRUP.

Track 2 - Parker Flats Munitions Response Area (Section 13.0): MEC sampling and removal actions have been conducted at the Track 2 Parker Flats MRA. The Final ROD documents the selected the remedy of LUCs to manage the risk to future land users from MEC that might potentially remain at the property. The technical assessment identified **no issues** regarding the protectiveness of the remedy for the Parker Flats MRA. The remedy was deemed **protective** of human health and the environment. Protectiveness is assured by long-term management measures including implementing, monitoring, and enforcing the selected LUCs.

Track 3 - Impact Area Munitions Response Area (Section 15.0): The Impact Area MRA remedy is ongoing. The selected remedy includes: (1) vegetation clearance via prescribed burning or mastication; (2) technology-aided surface MEC removal; (3) subsurface MEC removal in selected areas; (4) a digital geophysical mapping (DGM) survey; and (5) LUCs. The technical assessment identified **no issues** affecting the protectiveness of the Impact Area MRA remedy. The remedy for the Track 3 Impact Area MRA is **protective in the short-term** of human health and the environment, with long term protectiveness pending full implementation. In the interim, ongoing remedial activities, along with access controls, adequately address all exposure pathways that could result in unacceptable risks. Specific controls include: security patrols; munitions recognition and safety training for authorized personnel; fencing, gates, and signage maintenance; and annual monitoring.

Track 2 - Del Rey Oaks Munitions Response Area (Section 16.0): MEC investigation and removal activities have been completed for the Del Rey Oaks (DRO) MRA. The property was transferred to the City of Del Rey Oaks in 2005. Specific components of the selected remedy specified in the ROD included: munitions recognition and safety training; construction support in the 11-Grid Area; site-wide construction support (to be implemented by the City of Del Rey Oaks); and use restrictions. The Army has transferred some of the procedural responsibilities to the City of Del Rey Oaks, but retains ultimate responsibility for remedy integrity. The technical assessment identified **no issues** affecting the protectiveness of the Track 2 DRO MRA. The remedy is **protective** of human health and the environment. Remedial actions have been completed at the MRA. Furthermore, protectiveness is assured by long-term management measures including implementing, monitoring, and enforcing the selected LUCs.

BLM Area B and MRS-16 (Section 18.0): The majority of the property within BLM Area B was transferred to BLM in 1996 as a habitat reserve. MEC at MRS-16 was addressed in accordance with the remedy described in the IA MR ROD. The technical assessment identified **no issues** for BLM Area B and MRS-16. The Army has completed a 30-day public comment period for the Proposed Plan (Army, 2015c) for the proposed remedy, and the final ROD was signed in May 2017. There are **no issues** affecting the protectiveness of the selected remedy. The remedy for BLM Area B and MRS-16 is **protective in the short-term** of human health and the environment. For the remedy to be protective in the long-term, the remedy at Unit A will need to be fully implemented.

ESCA Areas – four groups, defined as Group 1, Group 2, Group 3, Group 4, and Interim Action Ranges (Sections 19.0 through 23.0): The technical assessment identified **no issues** for the ESCA areas, and the remedies for the Group 1, Group 2, Group 3, Group 4, and Interim Action Ranges areas were deemed **protective** of human health and the environment, and exposure pathways that could result in unacceptable risks are being controlled. Protectiveness is assured by long-term management measures including implementing, monitoring, and enforcing the selected LUCs.

Other Investigations (Section 24.0): Generally, it is only appropriate to include discussions of sites with RODs in a Five Year Review, however, for continuity with the 4th Five Year Review, the upcoming per- and polyfluoroalkyl substances (PFAS) Preliminary Assessment (PA) and Site Investigation (SI) are discussed in this report.

FIVE-YEAR REVIEW SUMMARY FORM

SITE IDENTIFICATION		
Site Name: Fort Ord		
EPA ID: CA7210020676		
Region: 9	**State:** CA	**City/County:** Marina / Monterey

SITE STATUS	
NPL Status: Final	
Multiple OUs? Yes	**Has the site achieved construction completion?** No

REVIEW STATUS
Lead agency: Other Federal Agency **If "Other Federal Agency" was selected above, enter Agency name:** U.S. Department of the Army
Author name (Federal or State Project Manager): William K. Collins
Author affiliation: U.S. Department of the Army
Review period: 10/2020 - 9/2022
Date of site inspection: 7/21/2021 through 8/5/2021
Type of review: Statutory
Review number: 5
Triggering action date: 9/25/2017
Due date *(five years after triggering action date)*: 9/25/2022

Five-Year Review Summary Form (Continued)

Issues/Recommendations		Protectiveness Statements
Issues and Recommendations Identified in the Five-Year Review and Sites/Operable Units (OUs) without Issues/Recommendations Identified in the Five-Year Review		
OU(s): Section 6: OU2 – Fort Ord Landfills	The technical assessment identified a loss of plume capture that is not currently affecting the protectiveness of the remedy at OU2 but has the potential to do so. Actions described in Section 6.7 will need to be taken to ensure long-term protectiveness.	*Protectiveness Statement:* **Protective in the Short-term.** The remedy at OU2 currently protects human health and the environment because the ongoing remedial activities continue to adequately address all exposure pathways that could result in unacceptable risks. Areas of the plume that are currently out of capture zones are not currently being used by any potential receptors, and potential exposure pathways are also being controlled by the restrictions of Chapter 15.08 of Title 15, Monterey County Code, and the CRUP. During the remediation process, potential environmental and human health concerns are being addressed by mitigation measures, such as control and treatment of landfill gases. Although the Lower 180-Foot Aquifer is protective in the short-term, TCE needs to be addressed as a COC in the Lower 180-Foot Aquifer. As part of this, ACLs and an appropriate remedy will need to be determined for the Lower 180-foot aquifer and promulgated in an ESD or ROD amendment.
OU(s): Section 7.1: Basewide Remedial Investigation (RI) Sites – Site 2 – Main Garrison Sewage Treatment Plant and Site 12 - Lower Meadow Disposal Area, Directorate of Logistics (DOL) Automotive Yard, Cannibalization Yard, and Southern Pacific Railroad Spur	There are no issues affecting the protectiveness of the remedy at Sites 2 and 12.	*Protectiveness Statement:* **Protective.** Because the remedial actions at Sites 2 and 12 are protective, the site is protective of human health and the environment. Pathways are being controlled by groundwater use restrictions, modifications to the groundwater remedy (including soil vapor extraction and treatment), and the presence of Chapter 15.08 of Title 15, Monterey County Code and the CRUP.
OU(s): Section 7.2: Basewide RI Sites – Site 31 – Former East Garrison Dump Site	There are no issues affecting the protectiveness of the remedy at Site 31.	*Protectiveness Statement:* **Protective**. The remedy at Site 31 is protective of human health and the environment. The successful completion of the remedy establishes that the site is protective of human health and the environment. As long as the land use restriction remains in place, which prohibits excavation, exposure of the soil, or residential development of the area, the site remedy is considered protective.
OU(s): Section 7.3: Basewide RI Sites – Site 39 – Inland Ranges	There are no issues affecting the protectiveness of the remedy at Site 39. The remedy needs to be fully implemented.	*Protectiveness Statement:* **Protective in the short-term.** The remedy at Site 39 currently protects human health and the environment because the LUCS are fully implemented. However, in order for the remedy to be protective in the long-term, the remedy will need to be fully implemented. Concentrations of lead exceeding the 225 mg/kg threshold criterion specified in the Site 39 ROD Amendment were detected in soil in Units 31 and 33. Based on these findings, it was recommended that limited excavation be conducted to remediate impacts to soil and mitigate exposure to ecological receptors. Currently excavation at Units 31 and 33 is planned to commence in fiscal year 2025, after munitions cleanup and BRA evaluation in the remaining units are completed. The Army will continue evaluating data in a timely manner following MEC removal to determine whether characterization sampling is required. If there is evidence of explosives or metals in soils, the June 2016 *Final Quality Assurance Project Plan, Volume 1, Appendix B, Soil Sampling, Basewide Range Assessment, Former Fort Ord, California* (KEMRON, 2016) will be implemented with Agency input and concurrence, and remedial actions subsequently will be planned and implemented, as needed.

Issues/Recommendations		Protectiveness Statements
Issues and Recommendations Identified in the Five-Year Review and Sites/Operable Units (OUs) without Issues/Recommendations Identified in the Five-Year Review		
		The Site 39 remedial actions performed for the development ranges are protective of current and future site users, for all HAs except HA-18D and HA-23D. At this time, sites HA-18D and HA-23D are only protective as long as there is no residential development on these parcels and a deed restriction is in place for these two HA's prohibiting residential use. For purposes of this provision, residential use includes, but is not limited to: single family or multi-family residences; child care facilities; nursing home or assisted living facilities; and any type of educational purpose for children/young adults in grades kindergarten through 12. This deed restriction shall remain in place until an agreement on the lead cleanup level is reached and, if needed, remediation is complete.
OU(s): Section 7.4: Basewide RI Sites – Site 33 - Golf Course Maintenance Area	There are no issues affecting the protectiveness of the remedy at Site 33.	*Protectiveness Statement:* **Protective**. The remedy at Site 33 is protective of human health and the environment. The remedy is protective and is consistent with the designated uses for the property. Potential exposure pathways that could result in unacceptable risks are being controlled by the land use controls (LUCs).
OU(s): Section 8: Site 3 – Beach Trainfire Ranges	There are no issues affecting the protectiveness of the remedy at Site 3.	*Protectiveness Statement:* **Protective**. The remedy at Site 3 is protective of human health and the environment. Past ecological monitoring indicates no adverse ecological impacts at the site. The LUCs and access restrictions in effect for the State Park continue to provide human health protection.
OU(s): Section 10: Operable Unit Carbon Tetrachloride Plume (OUCTP)	There are no issues affecting the protectiveness of the remedy at OUCTP.	*Protectiveness Statement:* **Protective.** The OUCTP remedy is protective of human health and the environment. The protectiveness statement has changed from "will be protective" in the 4th Five Year Review to "protective" in this 5th Five Year Review, because the remedy status has changed from "under construction" to "operating" and the remedy is protective of human health and the environment. Ongoing remedial activities and groundwater use prohibitions continue to adequately address all exposure pathways that could result in unacceptable risks. Specific controls include groundwater prohibitions provided by Chapter 15.08 of Title 15, Monterey County Code, deed restrictions, and the CRUP.
OU(s): Section 13: Track 2 Parker Flats Munitions Response Area (MRA)	Army Parcels: There are no unresolved issues in relation to parcels F2.6, L2.3, and L2.4.1 that have been identified in regard to the protectiveness of human health and the environment. Environmental Services Cooperative Agreement (ESCA) Parcels: No issues affecting the protectiveness of the remedy at Parker Flats MRA Phase I have been identified.	*Protectiveness Statement:* **Protective**. The remedy for the Track 2 Parker Flats MRA is protective of human health and the environment. Remedial actions have been completed at the MRA. Furthermore, protectiveness is assured by long-term management measures including: implementing, monitoring, and enforcing the selected LUCs.

Issues/Recommendations		Protectiveness Statements
Issues and Recommendations Identified in the Five-Year Review and Sites/Operable Units (OUs) without Issues/Recommendations Identified in the Five-Year Review		
Section 15: Track 3 Impact Area MRA	There are no issues affecting the protectiveness of the Track 3 Impact Area MRA remedy. The remedy needs to be fully implemented.	*Protectiveness Statement:* **Protective in the short-term.** The remedy for the Track 3 Impact Area MRA currently protects human health and the environment because ongoing remedial activities, along with access controls, adequately address all exposure pathways that could result in unacceptable risks. However, in order for the remedy to be protective in the long-term, it needs to be fully implemented. Specific controls include: security patrols; munitions and explosives of concern (MEC) recognition and safety training for authorized personnel; fencing, gate, and signage upkeep; and annual monitoring.
OU(s): Section 16: Track 2 Del Rey Oaks (DRO) MRA	There are no issues affecting the protectiveness of the Track 2 DRO remedy.	*Protectiveness Statement:* **Protective**. The remedy at the DRO MRA is protective of human health and the environment. Remedial actions have been completed at the MRA. Furthermore, protectiveness is assured by long-term management measures including: implementing, monitoring, and enforcing the selected LUCs.
Section 18: BLM Area B and MRS-16	There are no issues affecting the protectiveness of the selected remedy. The remedy at Unit A needs to be fully implemented.	*Protectiveness Statement:* **Protective in the short-term**. The remedy for BLM Area B and MRS-16 currently protects human health and the environment because the selected remedy has been conducted at BLM Area B and MRS-16, with the exception of Unit A where completion of remedial action is pending a future prescribed burn. In the areas where the remedy has been implemented, it is functioning as intended. LUCs will be maintained until the Army, EPA, and DTSC concur that the site is protective of human health and the environment from the explosives safety risks posed by MEC that may remain present with a need for LUCs. However, in order for the remedy to be protective in the long-term, the remedy at Unit A will need to be fully implemented.
OU(s): Section 19: ESCA Group 1	There are no issues affecting the protectiveness of the remedy for the ESCA Group 1 areas which include the Seaside MRA and the Parker Flats MRA Phase II.	*Protectiveness Statement:* **Protective.** The remedy at the ESCA Group 1 areas is protective of human health and the environment. Potential exposure pathways that could result in unacceptable risks are being controlled. Institutional Controls (land use controls) are in place and are effectively preventing or reducing the potential for the reuse receptors to come in direct contact with munitions and explosives of concern items potentially remaining in subsurface soil. The residential use restriction is in place and functioning for the designated future non-residential reuse areas.
OU(s): Section 20: ESCA Group 2	There are no issues affecting the protectiveness of the remedy at the ESCA Group 2 California State University Monterey Bay (CSUMB) Off-Campus MRA.	*Protectiveness Statement:* **Protective.** The remedy at the ESCA Group 2 area is protective of human health and the environment. Potential exposure pathways that could result in unacceptable risks are being controlled. Institutional Controls (land use controls) are in place and are effectively preventing or reducing the potential for the reuse receptors to come in direct contact with munitions and explosives of concern items potentially remaining in subsurface soil. The residential use restriction is in place and functioning for the designated future non-residential reuse areas.
OU(s): Section 21: ESCA Group 3	There are no issues affecting the protectiveness of the remedy at the ESCA Group 3 areas which include the Del Rey Oaks/Monterey MRA, Laguna Seca Parking MRA, and Military Operations in Urban Terrain (MOUT) Site MRA.	*Protectiveness Statement:* **Protective.** The remedy at the ESCA Group 3 areas is protective of human health and the environment. Potential exposure pathways that could result in unacceptable risks are being controlled. Institutional Controls (land use controls) are in place and are effectively preventing or reducing the potential for the

Issues/Recommendations		Protectiveness Statements
Issues and Recommendations Identified in the Five-Year Review and Sites/Operable Units (OUs) without Issues/Recommendations Identified in the Five-Year Review		
		reuse receptors to come in direct contact with munitions and explosives of concern items potentially remaining in subsurface soil. The residential use restriction is in place and functioning for the designated future non-residential reuse areas.
OU(s): Section 22: ESCA Group 4	There are no issues affecting the protectiveness of the remedy at the ESCA Group 4 Future East Garrison MRA.	*Protectiveness Statement:* **Protective.** The remedy at the ESCA Group 4 area which includes the Future East Garrison MRA is protective of human health and the environment. Potential exposure pathways that could result in unacceptable risks are being controlled. Institutional Controls (land use controls) are in place and are effectively preventing or reducing the potential for the reuse receptors to come in direct contact with munitions and explosives of concern items potentially remaining in subsurface soil. The residential use restriction is in place and functioning for the designated future non-residential reuse areas.
OU(s): Section 23: ESCA Interim Action Ranges Area MRA	There are no issues affecting the protectiveness of the Interim Action Ranges MRA remedy.	*Protectiveness Statement:* **Protective.** The remedy at the Interim Action Ranges MRA is protective of human health and the environment. Potential exposure pathways that could result in unacceptable risks are being controlled. Institutional Controls (land use controls) are in place and are effectively preventing or reducing the potential for the reuse receptors to come in direct contact with munitions and explosives of concern items potentially remaining in subsurface soil. The residential use restriction is in place and functioning for the designated future non-residential reuse areas.

Acronyms used in Summary Table:

ACL	Aquifer Cleanup Level				
CA	California	ESD	Explanation of Significant Differences	MRA	Munitions Response Area
CRUP	Covenant to Restrict Use of Property	GAC	Granular activated carbon	MRS	Munitions Response Site
CSUMB	California State University Monterey Bay	HA	Historical Area	OU	Operable Unit
DOL	Directorate of Logistics	IA	Interim Action	OUCTP	Operable Unit Carbon Tetrachloride Plume
DRO	Del Rey Oaks	ID	identification	RI	Remedial Investigation
ESCA	Environmental Services Cooperative Agreement	MEC	munitions and explosives of concern	ROD	Record of Decision
EPA	U.S. Environmental Protection Agency	MOUT	Military Operations in Urban Terrain	U.S.	United States

1.0 INTRODUCTION

Five-year reviews are a statutory requirement of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) §121 and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 Code of Federal Regulations (CFR) §300.430(f)(4)(ii). The purpose of a five-year review is to evaluate the implementation and performance of a remedy in order to determine if the remedy is and will continue to be protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in five-year review reports such as this one. In addition, five-year review reports identify issues found during the review, if any, and document recommendations to address them. This Five-Year Review Report was prepared in accordance with the United States (U.S) Environmental Protection Agency (EPA) *Comprehensive Five-Year Review Guidance* (EPA, 2001).

1.1 Five-Year Review Report Organization

This Five-Year Review Report is organized as follows:

Section 1 – Introduction. Describes the purpose and scope of this Five-Year Review Report and summarizes its organization.

Section 2 – Site Chronology Table. Summarizes the chronology of cleanup-related events at Fort Ord that are reviewed in this report.

Section 3 – Fort Ord Background. Describes the general physical characteristics and land uses, including land transfers, at Fort Ord; presents the history of contamination, including listing and partial delisting of the former Fort Ord on the EPA's NPL; summarizes the initial responses to the presence of contamination; and provides the basis for actions taken to address the contamination.

Section 4 – Five-Year Review Process. Summarizes the components of the 5th Five-Year Review process, including administrative and community involvement components; and describes the data review, site inspection, and interview procedures.

Sections 5 through 23 present background information for each site, or group of sites, or operable unit (OU) below (listed by section number and associated Record of Decision [ROD] document); provide summaries of remedial actions (RAs), technical assessments of the actions taken at the site(s), and progress since the last Five-Year Review Report was issued; identify any issues related to the protectiveness of the remedies based on the review; present recommendations and follow-up actions, if needed, to address any issues identified during the review; and provide protectiveness statements on a site-by-site basis.

Section 5 – OU1 ROD - Fritzsche Army Airfield (FAAF) Fire Drill Area (FDA).

Section 6 – OU2 ROD - Fort Ord Landfills.

Section 7 – Basewide Remedial Investigation (RI) Sites ROD, which includes the following sites:

- **7.1 Site 2 – Main Garrison Sewage Treatment Plant and Site 12 – Four Sub-Areas** (Site 2: Main Garrison Sewage Treatment Plant [MGSTP]; Site 12: Lower Meadow Disposal Area, Directorate of Logistics [DOL] Automotive Yard, Cannibalization Yard and Industrial Area, Southern Pacific Railroad [SPRR] Spur, and Outfall [OF]-31 Area)**.**
- **7.2 Site 31** (Former Dump Site).
- **7.3 Site 39** (Inland Ranges; includes Sites 5 and 9).

- **7.4 Site 33** (Golf Course Maintenance Area).

Section 8 – Site 3 ROD (Beach Trainfire Ranges).

Section 9 – Interim Action (IA) Sites ROD.

Section 10 – Operable Unit Carbon Tetrachloride Plume (OUCTP) ROD.

Section 11 – Track 0 ROD (No Action Munitions Response Areas).

Section 12 – Track 1 ROD (No Further Action [NFA] Munitions Response Areas).

Section 13 – Parker Flats Munitions Response Area (MRA), Track 2 ROD.

Section 14 – IA Sites MR ROD (Ranges 43-48, Range 30A, and Munitions Response Site [MRS]-16).

Section 15 –- Impact Area MRA, Track 3 ROD.

Section 16 –- Del Rey Oaks (DRO) MRA, Track 2 ROD.

Section 17 – MRS-34 ROD.

Section 18 – Bureau of Land Management (BLM) Area B and MRS-16.

Section 19 – ESCA Group 1 ROD.

Section 20 – ESCA Group 2 ROD.

Section 21 – ESCA Group 3 ROD.

Section 22 – ESCA Group 4 ROD.

Section 23 – ESCA Interim Action Ranges MRA ROD

Section 24 – Status of Other Investigations (areas not addressed under one of the RODs above).

-- **24.1 Per- and polyfluoroalkyl substances (PFAS).**

Section 25 – Next Five-Year Review.

2.0 SITE CHRONOLOGY TABLE

The table below presents a summary of the chronology of cleanup-related events at Fort Ord.

Event	Date
Pre-National Priorities List (NPL) Responses	
FAAF FDA Investigation (later referred to as OU1)	1984
Fort Ord Landfills Investigation (later referred to as OU2)	1986
NPL Listing	2/1990
Federal Facility Agreement (FFA)	7/1990
Base Realignment and Closure (BRAC) Listing	7/1991
IA Sites ROD	3/1994
OU2, Fort Ord Landfills, ROD	8/1994
No Action Sites Proposed Plan and ROD	4/1995
OU1 FAAF FDA ROD	9/1995
OU2 Explanation of Significant Differences (ESD) #1	8/1995
Basewide RI/FS Report	10/1995
OU2 ESD #2	8/1996
OU2 ESD #3	1/1997
Interim ROD, Site 3 Beach Trainfire Ranges	1/1997
Basewide RI Sites ROD	1/1997
ROD, Disposal and Reuse Supplemental Environmental Impact Statement	6/1997
Fort Ord Base Reuse Plan	6/1997
Ordnance and Explosives (OE) RI/FS Technical Memorandum (TM), Track 0	1/2000
IA MR RI/FS Report for Ranges 43-48, Range 30A, and MRS-16	3/2002
No Action MR ROD, Track 0	6/2002
IA MR ROD for Ranges 43-48, Range 30A, and MRS-16	9/2002
Site 39 ESD	12/2003
Track 1 MR RI/FS Report	6/2004
NFA ROD for Track 1 Sites and for Site 3 (MRS-22) with monitoring	3/2005
Track 0 ESD	4/2005
OU2 ESD #4	8/2006
Track 2 Parker Flats MRA MR RI/FS Report	8/2006
Comprehensive BRA Report	11/2006
Track 3 Impact Area MRA RI/FS Report	6/2007
Amendment 01 to the 1990 FFA	7/2007
Track 2 MR RI/FS Report DRO MRA	8/2007
OUCTP ROD	2/2008
FS Addendum, Site 39 Ranges	3/2008
Track 3 Impact Area MRA ROD	5/2008
Track 2 Parker Flats MRA ROD	8/2008
Track 2 DRO MRA ROD	11/2008
Comprehensive BRA Report, Revision 1	6/2009
Site 39 ROD Amendment	9/2009
OU1 ESD #1	8/2010
Comprehensive BRA Report, Revision 2	1/17/2012
Memorandum for Record, ROD Remedy Optimization for OU1	3/29/2012
Final RI/FS Report, ESCA Group 3, DRO / Monterey, Laguna Seca Parking, and Military Operations in Urban Terrain (MOUT) Site MRAs	7/31/2012
Final MR RI, Track 2, MRS-34, FAAF Area	9/28/2012
Final RI/FS Report, ESCA Group 2, California State University at Monterey Bay (CSUMB) Off-Campus MRA	2/18/2013

Army Memorandum to document non-significant post-ROD change to selected remedy for OU2	11/13/2014
Final ROD, ESCA Group 3, DRO / Monterey, Laguna Seca Parking, and MOUT Site MRAs	11/25/2014
Final (revised) Remedial Action Completion Report (RACR), Site 39 Inland Ranges Habitat Reserve	12/11/2014
Final ROD, ESCA Group 2, CSUMB Off-Campus MRA	2/26/2015
Final RI/FS Report Addendum, Sites 2 and 12	2/27/2015
Final Revision 2 RI/FS Report, Track 2, BLM Area B and MRS-16	5/6/2015
Final ROD, Track 2 MRS-34, FAAF Area	9/3/2015
Final Focused FS, ESCA IA Ranges MRA	10/23/2015
Final Supplement Number (No.) 1, RI/FS Report Addendum, Sites 2 and 12, Michael's and Recreational Equipment Inc. retail stores Investigation at Site 12	1/29/2016
ESD No. 1 to the Basewide RI Sites ROD	2/16/2016
Letter Regarding Legal Opinion on new Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonate (PFOS) EPA Health Advisory for OU1 from Regional Water Quality Control Board (RWQCB)	8/19/2016
ESCA IA Ranges MRA ROD	1/18/2017
Letter from EPA to the Army regarding concurrence with the recommendation for OU1 site closure without additional sampling or remediation of PFOA and PFOS	2/21/2017
ROD for BLM Area B and MRS-16	3/9/2017
Final RI/FS for ESCA Group 1 MRAs	5/4/2017
Final RI/FS for ESCA Group 4 MRA	6/21/2017
Final Closeout Report, OU1 Groundwater Remediation, FAAF FDA	12/2017
Final ROD for ESCA Group 1 MRA	5/4/2018
Explanation of Significant Differences No. 1 Record of Decision Parker Flats Munitions Response Area, Track 2	5/21/2018
ROD Group 1 Seaside and Parker Flats (Phase II) MRAs	9/19/2018
Final ROD Group 4 Future East Garrison MRA	9/19/2018
Official acceptance and turnover from old OU2 GWTP to new OU2 GWTP	12/2018
Final ESCA site wide remedial action completion letter	4/2020
Partial Deletion from NPL, covering soil and munitions cleanup of 11,934 acres	5/14/2021

3.0 FORT ORD BACKGROUND

This subsection describes the general physical characteristics and land uses at Fort Ord, the history of contamination, initial responses to the presence of contamination, and the basis for actions taken to address the contamination.

3.1 Physical Characteristics

Fort Ord is a former base run by the U.S. Department of Army (Army) adjacent to Monterey Bay in northwestern Monterey County, California, approximately 80 miles south of San Francisco (Plate 1). The base consisted of approximately 28,000 acres adjacent to the cities of Seaside, Sand City, Monterey, and Del Rey Oaks (DRO) to the south, and the city of Marina to the north. State Route 1 passes through the western part of Fort Ord, separating the beachfront portions from the rest of the base. Laguna Seca Recreation Area and Toro Regional Park also border Fort Ord to the south and southeast, respectively, and several small communities are located along State Route 68.

3.1.1 History

In 1917, the Army bought the present day East Garrison and nearby lands on the east side of Fort Ord to use as a maneuver and training ground for field artillery and cavalry troops stationed at the Presidio of Monterey (POM). No permanent improvements were made until the late 1930s, when administrative buildings, barracks, mess halls, tent pads, and a sewage treatment plant were constructed.

In 1938, additional agricultural property was purchased for the development of the Main Garrison. At the same time, the beachfront property was donated to the Army. The Main Garrison was constructed between 1940 and the 1960s, starting in the northwestern corner of the base and expanding southward and eastward. During the 1940s and 1950s, an area within the Main Garrison was utilized as a small airfield. In the early 1960s, construction of the Fritzsche Army Airfield (FAAF) was completed. The smaller Main Garrison airfield was then decommissioned, and its facilities were redeveloped as motor pools and other facilities.

From 1947 to 1974, Fort Ord was a basic training center. The 7th Infantry Division was activated at Fort Ord on 21 October 1974 and converted to a light division in 1983. Light infantry troops operate without heavy tanks, or armor. In 1991, Fort Ord was selected for closure; the post was officially closed in 1994.

3.2 Land Use

Fort Ord consists of both developed and undeveloped land. The three principal developed areas at the time of base closure in 1994 were the East Garrison, the FAAF, and the Main Garrison; these areas collectively comprised approximately 8,000 acres. The remaining 20,000 acres are largely undeveloped. Land uses in both the developed and undeveloped areas are described below.

3.2.1 Developed Land

Developed areas at Fort Ord resembled a medium-sized city during its active history, with family housing, medical facilities, warehouses, office buildings, industrial complexes, and gas stations. In 1991, there were 14,372 active duty military personnel and 3,855 civilian employees (based on the *Final Fort Ord Disposal and Reuse Environmental Impact Statement* [EIS; Army, 1993]). Individual land use categories within developed areas were as follows:

- Residential areas included military housing, such as training and temporary personnel barracks, enlisted housing, and officer housing.

- Local services/commercial areas provided retail or other commercial services, such as gas stations, mini-markets, post exchange, commissary, and fast food facilities.
- Military support/industrial areas included industrial operations, such as motor pools, machine shops, a cannibalization yard (where serviceable parts are removed from damaged vehicles), and the FAAF.
- Mixed land use areas combined residential, local services/commercial, and military support operations.
- Schools included the Thomas Hayes Elementary, Roger S. Fitch Junior High, General George S. Patton Elementary, and Gladys Stone schools. High school students attended Seaside High, just outside Fort Ord's southwestern boundary.
- Hospital facilities included the Silas B. Hayes Army Hospital, medical and dental facilities, and a helipad.
- Training areas included a central running track and athletic field, firing ranges, and obstacle courses.
- Recreational areas included a golf course and club house, baseball diamonds, tennis courts, gymnasiums, and playgrounds.

The three principal developed areas are described below.

East Garrison: The East Garrison is in the northeastern side of the base, adjacent to undeveloped former training areas. Military/industrial support areas at the East Garrison included tactical vehicle storage facilities, defense recycling and disposal areas, a sewage treatment plant, and a small arms range. The East Garrison also contained recreational open space, including primitive camping facilities, baseball diamonds, a trap and skeet range, and tennis courts. Recreational open space comprised 25 of the approximately 350 acres of the East Garrison. The East Garrison area properties have been transferred. Reuse includes residential development.

Fritzsche Army Airfield: The former FAAF is in the northern portion of Fort Ord, on the north side of Reservation Road and adjacent to the city limits of Marina. The primary land use was for military/industrial support operations. Facilities included runways, a motor park, aircraft fuel facilities, a sewage treatment plant, aircraft maintenance facilities, an air traffic control tower, a fire and rescue station, and aircraft hangars. The FAAF area properties have been transferred or in the process of being transferred. Reuse includes municipal airport, and office, commercial and light industrial uses.

Main Garrison: State Route 1 separates Fort Ord's Main Garrison from the coastal zone. The Main Garrison consisted of a combination of the various land use categories. Facilities included schools; a hospital; housing; commercial facilities, including a dry cleaner and a gasoline service station; and industrial operations, including motor pools and machine shops; military services, military units, offices, and barracks. The Main Garrison area includes property retained by the Army (e.g., Ord Military Community) and the OU2 Landfills. Other parcels have been transferred or in the process of being transferred. Reuse includes schools, universities, hospitals, residential development, office and commercial uses, a hotel and a golf course.

3.2.2 Undeveloped Land

The undeveloped portions of the Former Fort Ord are primarily in their natural state. Two undeveloped areas include:

Coastal Zone: A system of sand dunes lies between State Route 1 and the shoreline. There is an abrupt drop in elevation of 40 to 70 feet at the western edge of the dunes. On the gentler, eastern slopes, the dunes reach an elevation of 140 feet above mean sea level. The dunes provide a buffer zone that isolated the Beach Trainfire Ranges (RI Site 3) from the shoreline to the west. The Main Garrison Sewage Treatment Plant (Site 2) and the

former Stilwell Hall NCO club were located in the coastal zone. In some areas, spent ammunition accumulated on the dune slopes as the result of years of range operation. Based on the presence of rare, threatened, and/or endangered species and because of its visual attributes, Monterey County has designated Fort Ord's coastal zone an environmentally sensitive area. In accordance with its planned reuse, the area of the former Beach Trainfire Ranges is now a State Park called Fort Ord Dunes State Park. The park consists of hiking trails and ancillary facilities.

Inland Areas: Undeveloped land in the inland portions of Fort Ord included infantry training areas and open areas used for livestock grazing and recreational activities, such as hunting, fishing, and camping. Approximately 7,200 acres of habitat reserve has been transferred to BLM and is open to public recreational uses. A large portion of the adjacent undeveloped land is occupied by the former Inland Trainfire Ranges (part of Site 39); this area was used for advanced military training operations. The proposed future use of most of the Inland Ranges will be as a natural resource management area (NRMA) and as habitat reserve areas. Public access will be restricted in this area, which will be managed by the U.S. Department of the Interior, Bureau of Land Management (BLM). The Fort Ord National Monument is located in the inland areas. In 2012, all current and future BLM properties at the former Fort Ord were designated as the Fort Ord National Monument.

3.2.3 Transferred Land

Over 19,000 acres of former Fort Ord property have been transferred. Parcel sizes ranged from 0.03 acre to over 4,900 acres (see Plate 9, Property Transfer Status Map). The major property recipients have been the BLM, California State Parks, CSUMB, City of Monterey, County of Monterey, City of Del Rey Oaks, Monterey Peninsula College, the University of California, the City of Marina, and the City of Seaside. Table 1 lists parcels transferred as of September 30th, 2021.

3.3 History of Contamination

As required under CERCLA Section 120 when a Federal Facility is list on the National Priorities List, the Army, the EPA, the DTSC, and the California Central Coast Regional Water Quality Control Board (RWQCB) entered into a Federal Facility Agreement (FFA), which became effective on November 19, 1990. Under the FFA (Army et al., 1990), the Army was designated as the lead agency, and the EPA, the DTSC, and the RWQCB were established as regulatory agencies for the Superfund process at Fort Ord. The Army executes its authority to implement CERCLA response actions in accordance with the Defense Environmental Restoration Program (DERP, 10 U.S.C. §2701 et. seq.). Amendment No. 1 to the FFA effective July 26, 2007 (Army et al., 2007) reflects FORA's assumption of the Army's cleanup responsibilities for the ESCA parcels, except for those responsibilities which the Army has retained. The FFA Amendment No. 1 also provides that the Army and/or EPA will continue to be responsible for the selection of response actions for the Early Transfer Property in accordance with CERCLA Section 120(e)(4)(A). In the event the EPA, in consultation with the DTSC, determines FORA (or its ESCA successor) is in default, the Army will complete the response actions in accordance with the terms and conditions of the FFA and the FFA Amendment No. 1.

The Army began conducting investigation and cleanup actions at Fort Ord in 1986. Initially, the studies concentrated on identifying chemical contaminants in soil and groundwater which resulted from industrial and waste disposal activities. In February of 1990, the former Fort Ord was placed on the US EPA's National Priority List (NPL). In 1993, the Army also began investigating sites where munitions and explosives of concern (MEC) were suspected to be present by performing archive searches, interviews, and visual inspections. Based on successful munitions and soil cleanup efforts, on May 14, 2021, the EPA, in consultation with DTSC and RWQCB, determined these portions met the criteria for site deletion and published a Federal Register notice announcing the deletion of 11,934 acres of the 27,827 acre Fort Ord Superfund site from the NPL. This partial deletion only includes a part of the cleanup at a portion of the site

where cleanup is finished; and only covers cleanup work for military munitions and soil pollution. The Army will continue to clean up the groundwater and soil gas on the 11,934 acres included in this deletion, as well as the remaining 15,893 acres of the site, and all land use controls such as land use restrictions and groundwater well prohibition zones, will continue to be implemented and monitored, as these areas are still on the NPL. Five Year Reviews are required when contaminants remain above levels that allow for unrestricted use and unlimited exposure, even if a site has been deleted from the NPL.

The Army has recently begun investigating whether Per- and Polyfluoroalkyl Substances (PFAS) are contaminants of concern at the Former Fort Ord, in response to new evidence regarding health risks from exposure to these chemicals. In May 2022, the EPA issued RSLs for five new PFAS chemicals, bringing the total number of PFAS chemicals with RSLs to six (EPA, 2022a). In June of 2022, the EPA issued 2 new and 2 updated health advisories for PFAS chemicals or chemical groups (EPA, 2022b). No federal or State of California MCLs for PFAS in drinking water have been established. The primary mechanism for releases of PFAS at Army installations is through the historical use of aqueous film forming foam (AFFF), a product applied during firefighting and firefighting-related training associated with fuel- or petroleum based fires after 1972. AFFF for firefighting was generally used in areas where fuel- or petroleum-based fires may have occurred, such as in the vicinity of aviation assets, fuel farms, or aircraft crash sites. The Army has started a Preliminary Assessment and Site Inspection under CERCLA law to look for possible locations where PFAS may have been released on the Former Fort Ord. Previously, limited sampling for PFAS was done at OU1 in 2015 and OU2 in 2019, and the results are discussed in the *Draft Final Preliminary Assessment Narrative Report Per- and Polyfluoroalkyl Substances Former Fort Ord, California* (Ahtna, 2022r). Additional details are provided in Section 24.1.

The history of contamination is discussed on a site-by-site basis in Sections 5.0 through 24.0.

3.4 Initial Responses

After completion of the initial phase of Remedial Investigation (RI) field work, the 43 Installation Restoration Program (IRP) sites at Fort Ord were categorized by the level and complexity of the contamination associated with each site. Sites were identified as Interim Action (IA) sites if they had a limited volume and extent of contaminated soil and, as a result, could be easily excavated as an IA; sites were identified as RI Sites if they had sufficient contamination to warrant a full RI, Baseline Risk Assessment, Ecological Risk Assessment (ERA), and FS. In addition, two Operable Units (OUs) at Fort Ord (OU1, the FAAF Fire Drill Area [FDA], and OU2, the Fort Ord Landfills) were supported by their own Record of Decisions (RODs). Individual RODs were also generated for Operable Unit Carbon Tetrachloride Plume (OUCTP), Site 3, and Site 39. Locations of the sites and OUs are shown on Plate 2.

3.5 Munitions Response

The Army has been investigating and cleaning up Munitions Response Sites (MRSs) at Fort Ord since 1993. Identified MRSs were categorized into Tracks 0 through 3 based on similar MEC-related characteristics to expedite cleanup, reuse, and/or transfer of the property. A No Action Munitions Response (MR) ROD was signed in September 2002 for the Track 0 areas. Also in 2002, an IA MR ROD was signed for Ranges 43-48, Range 30A, and MRS-16 (formerly known as Site OE-16). A No Further Action (NFA) ROD for Track 1 sites and ecological monitoring at Site 3 (MRS-22) was signed in April 2005. Three RODs were prepared for Track 2 Areas: the Track 2 Parker Flats Munitions Response Area (MRA) ROD was signed in August 2008, the Track 2 DRO MRA ROD was signed in November 2008, and the Track 2 MRS-34, FAAF MR ROD was signed in September 2015. The Track 3 Impact Area MRA ROD was signed in May 2008. The Track 2 ROD for BLM Area B and MRS-16 was signed in May 2017. Appendix D provides a glossary of Military Munitions Response Program (MMRP) terms.

3.5.1 Environmental Services Cooperative Agreement

In a letter dated May 18th, 2005, FORA requested the early transfer of a portion of the Former Fort Ord Army Base, pursuant to CERCLA Section 120(h)(3)(C). Under CERCLA Section 120(h)(3), the United States is required to provide a covenant in the deed conveying the property warranting that all RAs necessary to protect human health and the environment has been taken before the date of transfer. CERCLA Section 120(h)(3)(C) authorizes the U.S. EPA Administrator, with the concurrence of the Governor of the State in which the Federal facility is located, to defer the CERCLA Covenant that requires all necessary RA to be completed before Federal property at facilities listed on the NPL is transferred. The Covenant Deferral and Early Transfer are allowed per CERCLA Section 120(h)(3)(C) if the transferred property is suitable for the intended use and the intended use is consistent with protection of human health and the environment. The United States would provide the warranty after transfer of the property when all of the response actions necessary to protect human health and the environment have been completed.

The Army and FORA entered into an Environmental Services Cooperative Agreement (ESCA) (Army, 2007a) in 2007, under which the Army provided funds for FORA to conduct all response actions (except for those responsibilities the Army has retained) and to obtain regulatory closure for the ESCA properties. Subsequently, an Administrative Order on Consent (AOC) was entered into by FORA, the EPA, and the California Department of Toxic Substances Control (DTSC). The effective date for the AOC was July 25, 2008 (EPA, 2008). The AOC concerns the preparation and performance by FORA of potential removal actions, RIs and FSs, and remedial designs and Remedial Actions (RAs) for MEC present on portions of the former Fort Ord, and the reimbursement for future response costs incurred by the EPA and the DTSC in connection with such CERCLA response actions. Under the AOC, FORA also became responsible for providing information to the public explaining activities at the former Fort Ord being performed under the AOC. Effective July 26, 2007, the Ft. Ord FFA was amended to reflect FORA's assumption of munitions responses in the ESCA parcels.

The ESCA Remediation Program (RP) encompasses munitions responses at the ESCA parcels, covering approximately 3,300 acres. The underlying property was transferred to FORA in May 2009 under the early-transfer process. The primary objective of the ESCA RP is to complete a timely cleanup of the property in accordance with the ESCA and the AOC, while promoting and enhancing the public health and safety of current and future users of the property. The EPA is the lead regulatory agency (Army et al., 2007) for FORA's ESCA Remediation Program, which is subject to the AOC.

In accordance with the ESCA and the AOC, FORA was responsible for completion of the Army's CERCLA response actions on approximately 3,300 acres of the former Fort Ord with funding provided by the Army, except for those responsibilities retained by the Army. The underlying property was transferred to FORA in May 2009. Initial implementation of selected remedies (land use controls) was completed by FORA, and in April 2020 the EPA provided a site-wide remedial action completion letter for the ESCA project. The Army provided the CERCLA warranty, and the underlying properties have been transferred from FORA to the designated recipients. In June 2020 FORA ceased to exist, and the City of Seaside became the ESCA successor. Modification No. P00009 to the ESCA, effective December 2017 (ESCA-0031A), reduced the period of performance from March 20, 2037 to June 30, 2028. Due to the scheduled expiration of FORA on June 30, 2020, the ESCA was transferred from FORA to City of Seaside via Modification No. P00014 effective June 16, 2020 (ESCA-0031C). After receiving "Additional Task to be Added to the Administrative Order on Consent (AOC) Statement of Work for Cleanup of Portions of the Former Fort Ord, CERCLA Docket R9-2007-03", the City of Seaside signed the AOC on March 3, 2021 (ESCA-0387.5) and became FORA's successor under the AOC. As the successor, the City of Seaside coordinates and manages the long-term implementation of the land use controls on the ESCA properties.

3.6 Basis for Action

The basis for the action is discussed on a site-by-site basis in Sections 5.0 through 23.0.

4.0 FIVE-YEAR REVIEW PROCESS

This section summarizes the components of the five-year review process, including administrative and community involvement components, document and data review, site inspections, land use controls (LUC), incidental military munitions discoveries, and interview procedures.

4.1 Administrative Component

The Army is preparing this Five-Year Review Report pursuant to CERCLA Section 121, consistent with the 40 CFR Section 300.430(f)(4)(ii)) and considering EPA policy.

This is the 5th Five-Year Review for the Fort Ord Superfund Site located in Monterey County, California (see Plate 1). The initial triggering action for this statutory review is the start of the RA at the OU2 Landfills on May 17, 1997. The 1st Five-Year Review Report was submitted in 2002, the 2nd Five-Year Review Report was finalized in September 2007, the 3rd Five-Year Review Report was finalized in September 2012, and the 4th Five-Year Review Report was finalized in September 2017. This 5th Five-Year Review Report has been prepared due to the fact that hazardous substances, pollutants, or contaminants remain at the site above levels that allow for unlimited use and unrestricted exposure (UU/UE).

This report documents the results of the review of remedies implemented as specified in the respective RODs for the Fort Ord sites, groups of sites, and OUs. The sites discussed in this report are shown on Plate 2 and listed in Section 1.1.

Sites that are no longer included in five-year reviews because the completed remedies allow for unrestricted use, as documented in previous five-year reviews, include:

- Basewide RI Sites ROD
  - Sites 16 and 17 (Site 16: DOL Maintenance Yard, Pete's Pond, Pete's Pond Extension; Site 17: Disposal Area, and Other Areas)
  - Surface Water OFs (OF-1 through OF-14; OF-16 through OF-30; OF-32; OF-33)
  - Site 25 (Equipment Storage Area)
- No Action Sites ROD (multiple sites)
- Interim Action Sites ROD (multiple sites)
- OU1 ROD - Fritzsche Army Airfield Fire Drill Area
- Track 0 No Action ROD
- Track 1 NFA MR ROD
- Interim Action MR ROD (superseded by final selected remedies)
- MRS-34

The Fort Ord Superfund Site Five-Year Review was led by the Army and began in winter 2020-2021. The review team includes members from the U.S. Army Corps of Engineers, Sacramento District with expertise in engineering, hydrogeology, geology, treatment system operations, risk assessment, and munition responses.

4.2 Community Involvement

A public announcement was made in August 2021 by providing a Five-Year Review announcement on the Fort Ord Cleanup web site (www.fortordcleanup.com). The Five-Year Review was also included in the Fort

Ord Annual Report (issued October 2021) which was mailed to over 67,000 addresses in and around the former Fort Ord. A Fact Sheet explaining the Five-Year Review process was distributed in August 2021 via U.S Mail and email to a list of several thousand local community members who have expressed interest in Fort Ord activities. The Fact Sheet was made available on the Fort Ord public website: *www.fortordcleanup.com* and was accompanied by an on-line community survey. The Fact Sheet and web site posting stated that the Army was initiating a five-year review and invited the public to submit any comments to the Army community relations representative (contact information was provided in the flyer and fact sheet). The community survey was collected from August 2021 to September 30, 2021.

The results of the review and the report will be made available in the Administrative Record and via the Fort Ord website. Fort Ord information repositories are located at the Seaside Library, Monterey Library and the CSUMB Library. The public may review the documents contained in the Administrative Record on-site or on-line. The Administrative Record documents are physically located in the BRAC Office, Building 4463 Gigling Road, Ord Military Community (former Fort Ord). In addition, the Fort Ord BRAC Office administers the Fort Ord environmental cleanup website (www.fortordcleanup.com). This public website provides background information, a description of current activities, documents available for public comment, maps, notices, Community Involvement Workshop agendas and summaries, the Administrative Record index, and documents and references for further cleanup and environmental information through Army, EPA, DTSC, RWQCB, and related agency websites.

4.3 Document Review

Relevant documents contained in the Fort Ord Administrative Record were reviewed for basewide considerations, and on a site-specific basis, for each individual site. Site-specific document review discussions are provided within each site subsection. Appendix A provides a comprehensive list of reference documents organized into specific lists for each section.

4.4 Data Review

This 5th Five-Year Review consisted of a review of relevant data presented in a variety of documents, including operations and maintenance (O&M) records; quarterly and annual monitoring reports; RODs; ESDs to the RODs, where applicable; confirmation reports; closure reports; and other reports referenced herein, and listed in Appendix A. Table 2 presents a summary of the current status of the Fort Ord Hazardous and Toxic Waste (HTW) sites relative to their inclusion in this Five-Year Review.

Site RI/FS and ROD documents describe how human health and environmental risk were assessed and what criteria were developed for evaluating cleanup actions implemented to reduce those risks. In this Five-Year Review Report, a comparison of current site conditions and trends with previous site conditions, particularly over the last five years, were the basis for evaluating remedial progress at reducing human health and environmental risk.

In addition, a comparison of the criteria established in the RODs, work plans, and other pertinent decision documents, with current regulatory criteria is performed to help determine the continued protectiveness of the site remedies. The remedy is considered currently protective when the regulatory criteria continue to be met, unless the criteria or other Applicable or Relevant and Appropriate Requirements (ARAR) have changed, making the site remedial objectives potentially no longer compliant.

4.5 Site Inspections

Inspections at the sites were conducted between July 21 and August 5, 2021 for the purpose of assessing the protectiveness of the remedies. USACE, Sacramento District conducted the site inspections. Site inspections

focusing on the treatment facilities were performed at sites undergoing active groundwater treatment (OU2, OUCTP, and Sites 2 and 12). The remaining sites and/or areas were visually inspected to confirm compliance with their respective deed or access restrictions, access management measures, or in-place remedies (Sites 3, 31, 33, 39, Parker Flats MRA, the Impact Area MRA, BLM Area B and MRS-16, and ESCA Group 1, Group 3, Group 4, and Interim Action Ranges MRAs). Documentation of the inspections is included as Appendix B and a summary of the observations noted during each inspection is included within the relevant site subsections. No site inspections were necessary or performed for closed No Action or the non-munitions IA Sites.

4.6 Land Use Controls

LUCs, including Federal deed restrictions and State Covenants to Restrict Use of Property (CRUPs), are required on some former Fort Ord property to ensure protection of human health and the environment. These restrictions are based on environmental evaluations of the property. Deed restrictions run with the land and apply to the property in perpetuity. CRUPs are executed by DTSC and the landowner and are recorded with the county, which is provided to the property recipient at the time of property transfer. Implementation and enforcement of Fort Ord CRUPs is in accordance with *the Memorandum of Agreement (MOA) Among the FORA, Monterey County, and Cities of Seaside, Monterey, Del Rey Oaks, and Marina, CSUMB, University of California Santa Cruz (UCSC), MPC, and the DTSC Concerning Monitoring and Reporting on Environmental Restrictions on the Former Fort Ord* (DTSC, 2008).

As part of this Five-Year Review, deeds associated with transferred property were reviewed, and any deed restrictions were identified. The Army verified that the restrictions required by the remedies are still in place. Deed restrictions and CRUPs have been modified or updated to reflect additional response actions that have been completed after the restrictions were initially established. Deed restrictions and CRUPs for the ESCA parcels have been updated after the completion of the remedial actions in the ESCA areas. Table 1 includes a list of all Fort Ord property that has been transferred as of September 30, 2021, listed by USACE parcel number, and including USACE deed tracking number, a reference to the Finding of Suitability to Transfer (FOST) document or the FOSET document that included the particular parcel (if applicable), and any applicable Federal deed notices/restrictions that were determined to be necessary. Table 3 lists which HTW sites have deed restrictions. Land use restrictions that may be applicable to transferred former Fort Ord property include prohibitions on the installation of groundwater wells, restrictions on residential use, restrictions on soil excavation and disturbance, and other parcel-specific reuse restrictions.

4.7 Incidental Military Munitions

Records documenting the discovery of incidental military munitions at Fort Ord were reviewed to determine if any of the discoveries had occurred on transferred property. The incident reports are compiled by the Fort Ord BRAC Office as part of the MRS Security Program in response to discoveries by private citizens, contractors, BLM employees, and Army personnel. The reports contain a description and location of each item found, as well as the date of the discovery, who made the discovery, status of the item (e.g., MEC, munitions debris [MD], etc.), results of any inspection of the surrounding area, and the final disposition of the item. Historical incidental military munitions incident data is analyzed annually in accordance with the Fort Ord MRS Security Program to determine if the locations, frequencies, or types of incidents indicate a need for changes in security procedures. If a change is deemed appropriate, a notice is provided to regulatory agencies to include the recommended change.

A total of 65 discoveries of incidental military munitions items were reported on transferred or non-transferred property over the five-year period from 2016 through 2020, as documented in the Fort Ord Military MRS Security Program Annual Report for each year. These items are discussed in the following paragraphs and listed in Table 5.

Twenty incidents of discovery of MEC or related items were reported in 2016, as documented in the *Fort Ord Munitions Response Site Security Program Annual Report 2016* (Fort Ord BRAC, 2017). The reports involved: three unexploded ordnance (UXO) items and 10 discarded military munitions (DMM) items. The 11 remaining incidents were of items classified as MD.

Nineteen incidents of discovery of MEC or related items were reported in 2017, as documented in the *Fort Ord Munitions Response Site Security Program Annual Report 2017* (Fort Ord BRAC, 2018). The reports involved: eight items classified as DMM and 60 items classified as MD. Two of the 19 munitions incidents involved multiple items and included both MD and DMM.

Nine incidents of discovery of MEC or related items were reported in 2018, as documented in the *Fort Ord Munitions Response Site Security Program Annual Report 2018* (Fort Ord BRAC, 2019). The reports involved: six DMM items in one discovery and 8 discoveries in which items were classified as MD.

Nine incidents of discovery of MEC or related items were reported in 2019, as documented in the *Fort Ord Munitions Response Site Security Program Annual Report 2019* (Fort Ord BRAC, 2020). The reports involved: one DMM item, one range related debris (RDD) item, and seven discoveries in which items were classified as MD.

Eight incidents of discovery of MEC or related items were reported in 2020, as documented in the *Fort Ord Munitions Response Site Security Program Annual Report 2020* (Fort Ord BRAC, 2021). The reports involved: two suspected UXO items and six discoveries in which items were classified as MD.

All incidents were reported using appropriate reporting systems, and the items were disposed of in accordance with explosives safety standards and MRS Security Program guidance.

4.8 Community Surveys

During this Five-Year Review process, community surveys and interviews were conducted to document any perceived problems or successes with the remedy that has been implemented to date. The results of these surveys are summarized below.

On August 3, 2021, a notification was announced on the Fort Ord Cleanup web site that the 5th Five-Year Review process was underway, with an invitation to the public to participate in the Five-Year Review survey and interview. On August 6, 2021, a survey questionnaire and an invitation to interview was mailed (approximately 960 addresses) and emailed (approximately 2,200 addresses) to local officials, community leaders, and other community members. Individuals participating in the survey were given three options for responding: (1) returning the questionnaire by mail, (2) participating in an interview by phone, or (3) providing responses to the survey using the Fort Ord Cleanup web site, FortOrdCleanup.com. It should be noted that this survey was being conducted during a pandemic, so steps to minimize physical contact were encouraged. Surveys were structured using EPA guidance, allowing participants to discuss their interests and concerns fully and openly. Survey participants were encouraged to express their perspective and knowledge of community interests and concerns, environmental issues, and the needs of the community in relation to the cleanup. As a result of this outreach effort, 18 survey questionnaires were returned by mail (one via email), two telephone interviews were conducted, and 16 surveys were returned using the on-line feature of the Fort Ord web site. The breakdown of interviews is as follows: 6 jurisdiction officials (Bureau of Land Management, City of Marina, City of Monterey, King City, Monterey County and California State University Monterey Bay), and 30 community group representatives/individuals. The survey responses are included in Appendix C.

Information gathered through the surveys and interviews indicates that the majority of community members are comfortable with their level of participation in the cleanup decision process and that they were confident

that the cleanup was being conducted thoroughly. Of the 36 surveys, 25 expressed they felt well-informed, and 6 did not feel well-informed about the site's activities and progress. Six comments complimented the existing outreach programs; and 16 comments specifically mentioned that the tours of and routine communications from Fort Ord were particularly informative and helpful for them. Trespassing, abandoned buildings, building graffiti, homeless encampments and dumping were mentioned in 12 surveys. Three comments associated with cleanup activities were related to the prescribed burn events and their impact on the surrounding communities. Four comments concerned groundwater cleanup and continued access to drinking water. Two expressed a desire to see the Army accelerate the cleanup process to expedite reuse and/or redevelopment of the area. Ongoing outreach efforts have noted similar community concerns and have addressed and continue to address these concerns.

5.0 OU1 ROD - FRITZSCHE ARMY AIRFIELD FIRE DRILL AREA

The Fritzsche Army Airfield Fire Drill Area (FAAF FDA) was established in 1962 as a training area for the Fort Ord Fire Department (see Plate 2). As part of training activities, waste fuel (primarily composed of outdated or water-contaminated military jet fuel JP-4) was discharged from an on-site storage tank into a pit, ignited, and then extinguished. Other fuels included hydraulic and lubrication oils, gasoline, diesel, and solvents. Training activities at the FDA were discontinued in 1985 and the associated structures (pipeline and storage tank) were removed. These training activities are believed to have resulted in the release of contaminants to soil and groundwater.

Studies conducted at OU1, Fort Ord's first site investigation, concluded that soil and groundwater cleanups were required. About 4,000 cubic yards of contaminated soil were excavated and treated, and the area was backfilled with clean soil. In addition to the soil cleanup, the site's first groundwater treatment facility was constructed in 1988 to remediate trichloroethene (TCE) and other related groundwater contaminants. In 2006, additional groundwater contamination was detected outside of the area of the original treatment system and resulted in a significant expansion of the OU1 groundwater treatment system. In addition, quarterly groundwater monitoring in 2005 and investigation in 2006 indicated that the additional contamination extended beyond the northwest property boundary of the former Fort Ord. In August 2008, operation of an off-site groundwater treatment system began and continued until February 2009 when monitoring data indicated that the remediation goals for the off-site area had been attained. In 2014, the original GWTP and the off-site groundwater treatment system were demolished. The Northwest Treatment System was operated until late 2014.

The 4th Five Year Review Report (Army, 2017), found that the remedy at OU1 is protective of human health and the environment and that the remedial action objectives stipulated in the 1995 ROD (Army, 1995) and 2010 ESD (Army, 2010) have been achieved, and stated that, after acceptance of the final Close-out Report, OU1 could be eliminated from future five-year reviews. Since then, completion of the Closure Plan, including demolition of the remaining OU1 wells, decommissioning of the treatment plant and acceptance of a Closure Report (HGL, 2017) have been completed, thus OU1 will not be included in the 5th Five Year Review.

6.0 OU2 ROD – FORT ORD LANDFILLS

This section presents background information on OU2, the Fort Ord Landfills and associated groundwater plume; provides a summary of remedial activities and a technical assessment of remedial actions taken at the site; identifies any issues related to the protectiveness of the remedies based on the review; presents recommendations and follow-up actions, if needed, to address any issues identified during the review; and provides a statement regarding the protectiveness of the site remedies.

6.1 OU2 Background

OU2, the Fort Ord Landfills, consist of landfill cells historically covering approximately 150 acres (see Plates 2 and 5), the immediate surrounding area, and the underlying contaminated groundwater.

The Fort Ord Landfills were used from 1950 to 1987 for disposal of residential and commercial waste generated at Fort Ord. There were six landfill cells, referred to as Areas A through F. Area A was located north of Imjin Parkway and Areas B through F are located south of Imjin Parkway (Plate 6). Area A operated from 1956 to 1966. Areas B through F operated from 1960 until interim closure of the facility in May 1987. In addition to household and commercial refuse, Area B through F also may have received a small amount of chemical waste (Army, 1994). Current land use around area A includes residential use.

As a result of detections of VOCs in Fort Ord and Marina Coast Water District water supply wells, the RWQCB issued Cleanup and Abatement Order (CAO) 86-87 that required the initiation of soil and groundwater studies to assess the potential impact of the Fort Ord Landfills on underground water resources. The RWQCB also issued CAO 86-317 and CAO 88-139 requiring the investigation and cleanup of groundwater contamination caused by the Landfill and Waste Discharge Requirements No. 87-153 requiring landfill closure by 1989. The Army initiated studies, as documented in the April 1990 *Fort Ord Landfills: Preliminary Hydrogeologic Investigation, Fort Ord, California* (HLA, 1990) to evaluate whether chemicals from the Fort Ord Landfills had affected the underlying soil or the quality of groundwater beneath the Fort Ord Landfills.

The June 1993 *Final Remedial Investigation Report, Remedial Investigation/Feasibility Study, Fort Ord Landfills, Fort Ord, California* (Dames & Moore, 1993) indicated the presence of VOCs in groundwater samples collected from both the A-Aquifer and the 180-Foot Aquifer. TCE was the most frequently detected chemical in groundwater with a maximum concentration of 80 ug/L. Other VOCs detected in groundwater samples during this time period included: tetrachloroethene (PCE), benzene, cis-1,2-DCE, and methylene chloride.

The primary indicator chemical for the distribution of COCs is TCE. The 2016 footprint of the OU2 TCE plume is shown on Plate 3 and the 2021 footprint is shown on Plate 4. The distribution of COCs within the aquifers is summarized below. The Federal and State MCLs for TCE in drinking water are 5.0 ug/L, which has been identified as the aquifer cleanup level (ACL).

Conceptual Site Model

The following text is an excerpt from the June 2021 *Draft Operable Unit 2 Groundwater Treatment System Evaluation and Optimization Report, Former Fort Ord, California* (Ahtna 2021a). The Army used two areas at the former Fort Ord for disposal of residential and commercial wastes: the north landfill (referred to as Area A) was located north of Imjin Parkway and operated from 1956 to 1966. The main landfill, located south of Imjin Parkway (Areas B, C, D, E, and F), operated from 1960 to 1987 (Plates 2 and 5). Waste was placed in parallel trenches 10 to 30 feet deep and then covered over with the native dune sand excavated during trenching operations. Detailed disposal records are not available; however, information gathered during field activities and from other sources indicates household and on-base commercial refuse, dried sewage sludge,

construction debris, and small amounts of chemical waste (paint, oil, pesticides, electrical equipment, ink, and epoxy adhesive) were placed in the Fort Ord Landfills. These activities led to the release of contaminants to underlying groundwater.

There are two impacted water-bearing zones at OU2: the A-Aquifer and the Upper 180-foot Aquifer. The Fort Ord Landfills and the associated impacted groundwater became OU2, as described in the *Record of Decision, Operable Unit 2, Fort Ord Landfills* (OU2 ROD; Army, 1994).

Depth to groundwater in the unconfined A-Aquifer is between 24 feet to 180 feet below ground surface (bgs) across the northern part of the former Fort Ord and between 65 and 180 feet bgs in the OU2 area. Groundwater in the A-Aquifer flows radially from the south to the north and deviates to the west and east along a north to northeast-trending groundwater divide, which extends from the eastern portion of the Fort Ord Landfills to the former Fritzsche Army Airfield (now the Marina Municipal Airport). Groundwater west of the A-Aquifer divide flows toward the western edge of the Fort Ord-Salinas Valley Aquitard (FO-SVA) where it enters the unconfined portion of the Upper 180-Foot Aquifer. Groundwater flowing east of the A-Aquifer divide eventually discharges to the Salinas River.

Depth to the groundwater in the Upper 180-Foot Aquifer is between 45 feet and 265 feet bgs across the northern part of the former Fort Ord and between 60 and 265 feet bgs in the OU2 area. To the west where the FO-SVA pinches out, the unconfined A-Aquifer and confined Upper 180-Foot Aquifer combine to form a continuous, unconfined hydrostratigraphic unit (identified as the unconfined Upper 180-Foot Aquifer). A north-trending groundwater divide in the unconfined Upper 180-Foot Aquifer exists midway between the FO-SVA and Monterey Bay. Groundwater in the unconfined Upper 180-Aquifer west of the divide flows west and discharges to the Monterey Bay. Groundwater in the unconfined Upper 180-Foot Aquifer east of the divide flows under the FO-SVA (becoming confined) towards the Salinas Valley.

The OU2 plume, identified by eleven chemicals of concern (COCs), migrated west of to the edge of the FO-SVA where it entered the Upper 180-Foot Aquifer and migrated east and then down into the Lower 180-Foot Aquifer through a natural discontinuity in the intermediate 180-Foot Aquitard. Low concentrations of COCs associated with OU2 co-mingle in the Lower 180-Foot Aquifer with the Operable Unit Carbon Tetrachloride Plume (OUCTP)-associated plume west of Reservation Road (see Ahtna, 2021a and Ahtna, 2020 for more information). There are no ACLs for OU2 in the Lower 180-Foot Aquifer and there is no active remediation occurring in this aquifer (Ahtna, 2021a).

Additional information on the A-Aquifer, and the Upper and Lower 180-foot Aquifers is provided in the October 1995 *Final Remedial Investigation/Feasibility Study, Fort Ord, California Volume II - Remedial Investigation Introduction and Basewide Hydrogeologic Characterization* (HLA, 1995).

Groundwater at OU2 is designated as drinking water, industrial water, and agricultural water source under the RWQCB Basin Plan, but is not currently used for these purposes. Achievement of the RAOs will restore the uses of groundwater within and adjacent to OU2. Currently, property overlying and surrounding OU2 is within the "Prohibition Zone" of the "Special Groundwater Protection Zone." County Ordinance No. 04011 (Monterey County Code Title 15, Chapter 15.08.140) prohibits construction of water wells within the Prohibition Zone. See Plates 2 and 3 for the current (last updated in July 2016) Prohibition and Consultation Zones.

6.2 Remedial Actions

The RAOs and the remedy for OU2 are described in the ROD for the Fort Ord Landfills (Army, 1994) and by the statement of remedy goals in the *Operable Unit 2 Remedy Monitoring and Operations and Maintenance, Fourth Quarter 2019 through Third Quarter 2020 Former Fort Ord, California* (Ahtna, 2021b).

The RAOs for the shallow soils and waste materials are to restrict rainfall infiltration and prevent leaching to underlying groundwater of VOCs remaining in waste materials and soil, prevent potential exposure of VOCs to the environment or people who use the site in the future, collect and remove LFG, if necessary, and prevent exposure of sanitary waste in the Fort Ord Landfills to the surrounding environment. The LFG monitoring program at the Fort Ord Landfills was established in accordance with 27CCR Section 20921(a)(2), which states the concentration of methane migrating from the landfill must not exceed 5 percent by volume (%v) in air at the facility property boundary or alternative boundary approved in accordance with 27CCR Section 20925 (27CCR Section 20925(a)(1) also requires monitoring probes be spaced a maximum of 1,000 feet apart) and trace gases shall be controlled to prevent adverse acute and chronic exposure to toxic and/or carcinogenic compounds.

The RAOs for groundwater are to remediate COCs in the A-Aquifer and Upper 180-Foot Aquifer to Federal or State drinking water Maximum Contaminant Levels (MCLs), whichever is lower, and risk-based levels that are lower than MCLs for chloroform, 1,2-dichloropropane (1,2-DCPA), tetrachloroethene (PCE), and vinyl chloride (VC) (Army, 1994). The ROD also states the provisional goals for the Upper 180-Foot Aquifer are to clean groundwater to these same levels. Five remedial alternatives for OU2 were evaluated in the FS (Dames & Moore, 1993):

- Alternative 1: No Action
- Alternative 2: Containment
- Alternative 3: A-Aquifer Cleanup and Landfill Capping.
- Alternative 4: A-Aquifer Cleanup and Landfill Capping - Interim Action on the 180-Foot Aquifer
- Alternative 5: A-Aquifer Cleanup and Removal, Treatment, and Disposal of Landfill Waste - Interim Action on 180-Foot Aquifer

6.2.1 Remedy Selection

Alternative 4, A-Aquifer Cleanup and Landfill Capping - Interim Action on the 180-Foot Aquifer, was selected as the appropriate site remedy and the ROD was issued for OU2 (Army, 1994). This selected alternative includes use of groundwater extraction wells screened in the A-Aquifer; a treatment system designed to meet the remedial action objective of achieving groundwater and chemical removal as well as contaminant plume containment in the A-Aquifer; and reuse or recharge of treated groundwater to the subsurface. This alternative also includes a landfill engineered cover system to minimize rainwater infiltration and migration of contaminants to the underlying groundwater aquifers and to protect the surrounding environment from exposure to landfill waste.

In addition, this alternative includes removal and treatment of groundwater and COCs (see Table 4) from the 180-Foot Aquifer. Groundwater extraction from the 180-Foot Aquifer was considered an interim measure in the OU2 ROD with the final remedy for the 180-Foot Aquifer to be addressed in a subsequent decision document.

The following four ESD documents identified additional remediation criteria that were not specified in the original OU2 ROD:

ESD 1

In August 1995, the *Explanation of Significant Differences, Operable Unit 2, Fort Ord Landfills* (Army, 1995a) was signed. This ESD finalized the 180-Foot Aquifer cleanup goals consistent with those established for the A-Aquifer in the OU2 ROD, and clarified that there is an Upper and Lower 180-foot aquifer, and only the Upper 180-Foot aquifer required remediation.

ESD 2

In August 1996, the *Explanation of Significant Differences, Area A, Operable Unit 2, Fort Ord Landfills* (Army, 1996) was signed. This ESD specified soil cleanup criteria for the Fort Ord Landfills at which excavation was to be used to achieve closure. Planned excavation areas included Area A, and some areas on the perimeter of the main landfill (Areas B through F). Excavated materials were consolidated within the main landfill.

ESD 3

In January 1997, the *Explanation of Significant Differences, Consolidation of Remediation Waste in a Corrective Action Management Unit (CAMU), Operable Unit 2 Landfill* (Army, 1997) was signed. This ESD addressed the reuse of remediation waste (soil and debris with residual lead excavated from remediation areas at Fort Ord), and consolidation of the waste within the main landfill (Areas B through F) as a foundation layer rather than using clean soil for the same purpose.

ESD 4

In August through October 2006, the *Explanation of Significant Differences, No Further Action for Munitions and Explosives of Concern, Landfill Gas Control, Reuse of Treated Groundwater, Designation of Corrective Action Management Unit (CAMU) Requirements as Applicable or Relevant and Appropriate Requirements (ARARs), Operable Unit 2, Fort Ord Landfills, Former Fort Ord, California* (Army, 2006) was signed. This ESD concludes that no further action regarding MEC within the Fort Ord Landfills is required, clarifies landfill gas control measures; documents the decision to reuse treated groundwater for non-potable construction purposes (including dust control and soil compaction); clarifies that the intent and purpose of ESD 3 (Army, 1997) was not to formally designate the Fort Ord Landfills as a CAMU, as suggested by ESD 3, but to state that the substantive CAMU requirements of California Code of Regulations (CCR) Title 22 and Resource Conservation and Recovery Act (RCRA) are applicable to the Fort Ord Landfills.

6.2.2 Remedy Implementation

Fort Ord Landfills Engineered Cover System

From 1996 to 1998, debris from Area A (see Plate 5), an approximately 33-acre area of the Fort Ord Landfills complex located north of Imjin Parkway, was excavated and transferred to the main portion of the landfill to consolidate the debris into one area. The consolidation of approximately 1,000,000 cy of refuse and soil impacted by the refuse allowed for clean closure of Area A, which now is available for unrestricted use (IT, 2001). The remaining areas of the Fort Ord Landfills (Areas B, C, D, E, and F) have been covered by a landfill engineered cover system constructed after consolidation activities were completed. A seven-acre portion of Area E (Interim Area E) was kept open to allow the placement of additional waste from other Fort Ord remediation sites (Army, 1997a). Construction of the engineered cover over Interim Area E was completed in December 2002. In addition to three perimeter legs, piping previously installed to connect the treatment system to a landfill gas collector trench in Area E was incorporated into the extraction system. This collector pipe is intended to provide additional landfill gas, if needed or desired for future applications. The horizontal gas collection pipe was installed just below the liner.

The Army completed construction of the engineered cover over Areas B through F from 1997 to 2002 (Shaw, 2005). The engineered cover system generally consists of a 2-foot foundation layer (general fill on top of refuse), a linear-low density polyethylene (LLDPE) membrane, completed by a 2-foot vegetated cover.

Area E Vertical Expansion

To accommodate the remediation at the Site 39 Inland Ranges, additional capacity in the form of a vertical expansion was required at the Fort Ord Landfills. Additional capacity was available by placing remediation waste within the confines of the existing Area E footprint. Construction of the vertical expansion involved placing additional remediation waste above the existing geomembrane and providing a new cover consisting of

a foundation layer, geomembrane, and vegetative layer over the remediation waste. The additional remediation waste is sealed above and below by a geomembrane. The vertical expansion allows for placing about 200,000 cy of remediation waste in at least two phases. Phase 1 was completed in 2013 with approximately 150,000 cy placed in the vertical expansion at Area E.

Remediation of Site 39 and placement of soil in the Area E vertical expansion may continue in future years; therefore, the vertical expansion was designed to accept another 50,000 cy of remediation waste in the Phase 2 area. During Site 39 remediation activities in 2013, approximately 8,300 cy of remediation waste were placed in the Phase 2 area on top of approximately 12 inches of the pre-existing vegetative soil layer that covered the original Area E geomembrane. The remediation waste was then temporarily covered with approximately 12 inches of clean soil, which was obtained from the Fort Ord Landfills borrow source area, in 2015. Until the vertical expansion is complete, the remediation waste in the Phase 2 area will remain sealed below by a geomembrane and covered by 12 inches of clean soil, which is being managed to prevent exposure of remediation waste to the environment. Details of the Area E vertical expansion design are provided in the August 2012 *Final Design Report, Revised OU2 Landfill Area E Expansion Construction, Former Fort Ord, California* (Innovative Technical Solutions, Inc. [ITSI]/Gilbane, 2012). Details of the Area E Phase 1 vertical expansion construction are provided in the October 2014 *Final Construction Quality Control and Quality Assurance Report, Area E, Phase 1, Operable Unit 2 Landfills, Former Fort Ord, California* (Gilbane, 2014).

Groundwater Treatment

A groundwater treatment system (GWTS) was constructed in 1995 to remediate groundwater contaminated by discharges from the Fort Ord Landfills. The system was updated and expanded in 2001 and 2006-2007, and then expanded further and the treatment facility replaced in 2018. The treatment facility is connected to a network of extraction and injection wells as described in Section 6.3. During operation of the treatment system, groundwater is sampled periodically to confirm the effectiveness of treatment system operation. Since 1995, water samples and water levels from groundwater MWs have been collected every three months. This information has been compiled into quarterly and annual reports to show the long-term trends of system operation. The general subsurface extent of the groundwater contaminant plume as of 2021 is shown on Plate 4.

The OU2 groundwater treatment system originally consisted of carbon adsorption followed by polishing via catalyzed ultraviolet chemical oxidation (UV-Ox). The UV-Ox was included in the treatment chain because vinyl chloride and methylene chloride were predicted to be the initial GAC breakthrough compounds and UV-Ox would be a cost effective secondary treatment. It was later shown that 1,1-dichloroethane (-DCA) and chloroform were the initial breakthrough compounds. Carbon adsorption originally was accomplished using two 20,000-pound GAC connected in series. The original system extracted water from two Upper 180-Foot Aquifer extraction wells and 13 A-Aquifer extraction wells to produce a total flow of approximately 765 gpm. Following treatment, the extracted water was injected back into its source aquifer (either the A-Aquifer or Upper 180-Foot Aquifer). The OU2 groundwater remedy was formally recognized as "Operating Properly and Successfully" by the EPA in January 1996 (EPA, 1996).

Expansion of the OU2 treatment system was initiated following discovery that capture of the contaminant plume was incomplete and that the plume area exceeding ACLs extended farther than previously identified during design of the remediation system. In response, a system expansion was designed and implemented to enable complete hydraulic capture of the plume in accordance with the OU2 ROD remediation objectives. The system modifications were completed in April 2001, as described in the September 2001 *Construction Completion Report Operable Unit 2 Groundwater Remedy Expansion* (IT, 2001). Modifications included removal of the UV-Ox system and installation of two additional 20,000 pound GAC vessels and seven additional extraction wells. The two additional GAC vessels were connected in series and operated in parallel with the original GAC vessels. In addition to the expanded treatment capacity, a pipeline was constructed to

transport some of the OU2 effluent to the Sites 2/12 area for aquifer recharge to create a hydraulic barrier for control of plume movement and to minimize and control saltwater intrusion.

The 2001 system modification effectively doubled the potential throughput capacity of the groundwater treatment plant (GWTP) to more than 1,200 gpm. However, water flow into the GWTP was limited by the pipeline flow capacity until installation of a 1,200 gpm in-line pump in 2006. The OU2 treatment system was expanded again in 2006/2007 with the addition of two new extraction wells (EW-OU2-07-180 and EW-OU2-08-180) in the Upper 180-Foot Aquifer that were connected to the treatment system by a new pipeline. One of these wells (EW-OU2-08-180) became operational in July 2007; the second well (EW-OU2-07-180) has been offline since 2007 due to low COC concentrations and was removed from the GWMP in 2013 per the QAPP (last sampled 2013-3Q) (Ahtna, 2021p).

A new GWTP was constructed at the Fort Ord Landfills to increase treatment capacity and efficiency as the OU2 groundwater plumes have reduced in size significantly since the groundwater extraction and treatment began in 1995. On October 12, 2018, the old OU2 GWTP was shut down and the new system was brought online on November 30, 2018. Additional information can be found in the *Operations and Maintenance Manual, Operable Unit 2 (OU2) Groundwater Treatment Plant* (RORE/ITSI, 2019). The JV installed seven new extraction wells for the OU2 A-Aquifer (EW-OU2-17-A, EW-OU2-18-A, EW-OU2-19-A, and EW-OU2-20-A) and Upper 180-Foot Aquifer (EW-OU2-10-180, EW-OU2-11-180, and EW-OU2-12-180), which began operation with the new OU2 GWTP in November 2018. (Ahtna, 2020).

Based on the findings presented in annual reports (2016 through 2021), optimization activities have occurred and generally include modifications to improve performance, reduce costs, and decrease the time to achieving cleanup goals. These modifications typically include continued evaluation of system flow rates and COC concentrations to optimize groundwater treatment system GWTS operation parameters, and replacement or upgrade of various system components (e.g., repair/replace pumps) to improve the efficiency and capabilities of the GWTS.

Landfill Gas Treatment

A landfill gas extraction and treatment system were installed in 2001 to prevent migration of landfill gas toward residential housing east of the Fort Ord Landfills Area F. The system consisted of eleven extraction wells, associated piping, and the landfill gas treatment system, which included GAC (to remove VOCs) and potassium permanganate (to remove vinyl chloride). This system maintained methane concentrations along the fence line adjacent to the eastern side of Area F to less than five percent by volume, which is compliant with CCR Title 27 Section 20921(a)(2).

The landfill gas extraction and treatment system was expanded in 2006 to improve vapor recovery and reduce migration of VOCs to underlying groundwater in addition to reducing atmospheric emissions of VOCs and methane. The expansion included addition of vertical extraction wells along the perimeter and interior of Area F and replacing the existing GAC/potassium permanganate treatment system with a thermal treatment unit (TTU). After the landfill gas extraction and treatment system expansion was completed, intermittent operation of the TTU was initiated as part of the startup testing in April 2006, and full-time operation began on August 2, 2006.

The TTU comprises four process flow trains: Area F interior, Area F perimeter, Area D, and Area E. The system filters out moisture condensed from the extracted landfill gas and the gas is routed into a high-temperature combustion chamber (enclosed ground flare) where the gas is destroyed by thermal treatment. The systems include flow and pressure monitoring devices, fail-safe shut down systems to stop gas flow in the event of system malfunctions, flame arrestors to prevent backward propagation of flame from the combustion chamber, and computerized control systems to measure and record system processes and optimize the gas destruction. The system is described in detail in the September 2019 *Operation and Maintenance Plan Revision 3 Operable Unit 2 Landfills Former Fort Ord, California* (Ahtna, 2019b).

Both EP-35 in Area D and EP-36 were brought online to augment the methane output from the Area F extraction system in March 2008 and April 2009, respectively. As part of Field Work Variance TII-138 to the O&M Plan (Shaw, 2009), testing was performed on Area F passive vent (VF) VF-4 to determine if it was a viable source of methane that could be used for operation of the TTU. Results of this test determined that a significant increase in methane removal could be achieved through the addition of VF-4 into the extraction network. In June 2009, VF-4 was brought online to augment the methane output from the Area F extraction system. In February 2011, four additional passive vents in Areas D and F (VD-2, VD-3, VF-3, and VF-5) were converted to extraction points (EPs) to additionally augment the methane output. The addition was documented in Field Work Variance TII-154 to the O&M Plan (Shaw, 2011). No additional sources of landfill gas have been added since 2011 (Ahtna, 2021q).

6.2.3 System Operations and Maintenance

6.2.3.1 Groundwater Treatment and Effluent Monitoring

The effectiveness of the remedy is evaluated based on data from groundwater monitoring conducted throughout the OU2 treatment area and within the affected aquifers. Continuing O&M activities performed since the start of groundwater treatment operations in 1995 have provided assurance that the OU2 GWTS has functioned in accordance with the objectives of the ROD and system design parameters. The old groundwater treatment system, which treated contaminated groundwater until 2018, was operated in accordance with the August 2009 *Final Operations and Maintenance Manual, Volume 1, Operable Unit 2 Groundwater Remedy, Former Fort Ord, California,* (Ahtna, 2009). The new groundwater treatment system, which began extraction and treatment in 2018, is operated in accordance with the August 2019 *Operations and Maintenance Manual, OU2 Groundwater Treatment Plant, Former Fort Ord* (RORE/ITSI, 2019).

Both old and new groundwater treatment systems effluent monitoring is conducted in accordance with the Quality Assurance Project Plan, Former Fort Ord, California, Volume I, Appendix A, which is updated annually. Summaries of O&M activities are presented in annual groundwater treatment systems operation data summary reports (through 2021) and quarterly groundwater monitoring and treatment system reports (2016 through 2021). The most recent annual report describing OU2 O&M is the *Operable Unit 2 Remedy Monitoring and Operations and Maintenance Fourth Quarter 2020 through Third Quarter 2021 Former Fort Ord, California (Ahtna, 2022a).*

The following provides a discussion of the treatment system efficiency and provides information on problems (typical) that affected system performance. Additional details are provided in the annual groundwater treatment systems operation data summary reports and quarterly groundwater monitoring and treatment system reports; references for these reports are provided in Appendix A.

October 2016 – September 2017 GWTS Performance

The OU2 groundwater remedy was operated during this period with an average GWTP operability rate of 99 percent, as defined by the ratio of downtime to operational time. This exceeded the operational goal of 95 percent. Groundwater treatment system efficiency is evaluated by comparing influent TCE to effluent TCE concentrations. This reporting period shows a 100 percent efficiency.

Problems Encountered with GWTS Operation

- 03/16/2017: EW-OU2-14-A was found offline due to a programmable logic controller (PLC) issue. Repair of the PLC issue was postponed because the RORE Innovative Solutions Joint Venture (JV) contractor disconnected the groundwater collection pipeline required for EW-OU2-14-A to operate.

October 2017 – September 2018 GWTS Performance

The OU2 groundwater remedy was operated during this period with an average GWTP operability rate of 96.8 percent, as defined by the ratio of downtime to operational time. This exceeded the operational goal of 95 percent. Groundwater treatment system efficiency is evaluated by comparing influent TCE to effluent TCE concentrations. This reporting period shows a 95 percent efficiency.

October 2018 – September 2019 GWTS Performance

The OU2 groundwater remedy was operated during this period with an average GWTP operability rate of 84.2 percent, as defined by the ratio of downtime to operational time. This operability rate did not exceed the operational goal of 95 percent because of the shut down and transition to the new OU2 GWTP in the fall of 2018. Groundwater treatment efficiency is evaluated by comparing influent TCE to effluent TCE concentrations. This reporting period shows a 100 percent efficiency.

Problems Encountered with GWTS Operation

- The flow rate at the new GWTP was lower than the intended design average flow rate starting in the fall of 2018 when the new plant came online. This was attributable to wells in the western extraction well network being offline for over 2 years during the extended transition from the old GWTP to the new GWTP and resolution of leak detection system issues by the construction contractor.

October 2019 – September 2020 GWTS Performance

The OU2 groundwater remedy was operated during this period with an average GWTP operability rate of 96.7percent, as defined by the ratio of downtime to operational time. This exceeded the operational goal of 95 percent. Groundwater treatment system efficiency is evaluated by comparing influent TCE to effluent TCE concentrations. This reporting period shows a 100 percent efficiency.

Problems Encountered with GWTS Operation

- On January 7, 2020, extraction well EW-OU2-20-A was shut down because the submersible pump was cycling excessively. The VFD was adjusted to reduce the flow rate and EW-OU2-20-A was restarted on January 9, 2020.

October 2020 – September 2021 GWTS Performance

The OU2 groundwater remedy was operated during this period with an average GWTP operability rate of 99.4 percent, as defined by the ratio of downtime to operational time. This exceeded the operational goal of 95 percent. Groundwater treatment system efficiency is evaluated by comparing influent TCE to effluent TCE concentrations. This reporting period shows a 100 percent efficiency.

Problems Encountered with GWTS Operation

- Development at the former Fort Ord over the last several years had narrowed lines of sight between transceivers, and communications were more easily disrupted by variations in atmospheric conditions. A radio survey was conducted during the October 2020 through September 2021 reporting period.
- Communications upgrades were conducted, including installation of new radios and a new antenna mast at the OU2 GWTP, from January 11 through 12, 2021. A new a radio antenna mast was installed at the Western Network on March 15, 2021.
- On December 16, 2020, the submersible pump flow rate at EW-OU2-05-180 was reduced from 165 to 137 gpm due to the pump motor overheating and cycling.
- The lower than designed average flow rate at the new GWTP was primarily attributed to the western extraction well network (except EW-OU2-04-A) being offline for over 2 years since the transition from the old GWTP to the new GWTP. This issue was rectified when EW-OU2-05-A and EW-OU2-

06-A were finally started on March 22, 2021, and EW-OU2-02-A and EW-OU2-04-A were started on June 18 and 17, 2021 respectively.

- EW-OU2-14-A is not operable and not planned for operation in the future due to a PLC issue. System modifications suggest turning the extraction well into a monitoring well as stated in the Second Quarter 2021 Quarterly Report.

6.2.3.2 Discharge Compliance Monitoring

Discharge compliance monitoring during normal operations is conducted as specified in the Quality Assurance Project Plan (QAPP) (Ahtna, 2021e) to document compliance with treated discharge water requirements for aquifer recharge. The combined OU2 GWTP influent is sampled at TS-OU2-INF-01 and TS-OU2-INF-02 prior to entering the GAC vessels. Injection monitoring samples are collected at TS-OU2-INJ-01. The concentration of TCE at the injection point of compliance is reported as an average for each month. The table below summarizes the compliance point analysis. During the October 2016 through March 2021 (excluding Fourth Quarter 2020) reporting period, six COCs were detected at the injection monitoring point: 1,1-DCA; 1,2-DCA; chloroform; cis-1,2-DCE; methylene chloride; and TCE. All detected concentrations were below discharge limits except one detection of TCE reporting at 8.96 ug/L on November 27, 2018. Upon receiving this result, the JV immediately stopped the flow of treated water to the aquifer recharge structures and a confirmation sample was collected at TS-OU2-INJ-01, and no COCs were detected. The JV determined a valve installed on a temporary pipe that connected the GWTP influent with the GWTP effluent had leaked, which allowed extracted (untreated) groundwater to bypass GAC treatment. The temporary pipe had been used for the initial backwashing of the newly installed GAC. On November 29, 2018, the temporary pipe was removed from the GWTP and the water drained from the pipe was treated through the GWTP. Subsequent effluent samples collected on November 30 were all non-detect (Ahtna, 2020). Injection well IW-OU2-04-180 was sampled on November 30, 2018 and TCE was detected at 0.99 J µg/L, which is above the discharge limit but below the ACL. Additionally, samples were collected quarterly from monitoring wells MW-OU2-28-180, MW-OU2-61-180, MW-OU2-62-180, and EW-OU2-08-180, which are downgradient of IW-OU2-04-180 and IW-OU2-05-180. There were no observable changes in TCE concentrations in these wells related to the discharge of water with a TCE concentration greater than the ACL at IW-OU2-04-180 and IW-OU2-05-180.

Summary of Compliance Point Laboratory Results		
Reporting Period	**Maximum TCE Influent Concentration (ug/L)**	**TCE Concentration at the Injection Monitoring Sampling Point (ug/L)**
October 2016 to September 2017	6.3	ND
October 2017 to September 2018	6.1	Four TCE detections ranging from 0.13 to 0.46 ug/L
October 2018 to September 2019	18.9	One TCE detection at 8.96 ug/L[2]
October 2019 to September 2020	6.3	ND
October 2020 to September 2021[1]	5.6 J+	ND

Notes:
ND – non-detect for every month in the reporting period
ug/L – micrograms per liter
The discharge limit for TCE is 0.5 ug/L.
J – Laboratory or validation qualifier, estimated result between the detection limit (DL) and the limit of quantitation (LOQ) with high (+) or low (-) bias.
1- In 4Q20, a discharge compliance sample was collected at TS-OU2-INJ-01 per the sampling schedule defined in the Groundwater QAPP; other monitoring points at the OU2 GWTP, including the influent monitoring points, were not required to be monitored per the QAPP.
2- TCE exceedance caused by leak on valve installed on temporary pipe connecting the GWTP influent to the effluent.

Sources:
1) *Operable Unit 2 Fourth Quarter 2016 through Third Quarter 2017 Groundwater Monitoring and Treatment System Report, Former Fort Ord, California*(Ahtna, 2018) 2) *Operable Unit 2 Fourth Quarter 2017 through Third Quarter 2018 Groundwater Monitoring and Treatment System Report, Former Fort Ord, California* (Ahtna, 2019) 3) *Operable Unit 2 Annual Report Volume II Fourth Quarter 2018 through Third Quarter 2019 Groundwater Monitoring and Treatment System Operations and Maintenance Report, Former Fort Ord, California* (Ahtna, 2020) 4) *Operable Unit 2 Remedy Monitoring and Operations and Maintenance Fourth Quarter 2019 through Third Quarter 2020 Former Fort Ord, California* (Ahtna, 2021b) 5) *Operable Unit 2 Remedy Monitoring and Operations and Maintenance Fourth Quarter 2020 through Third Quarter 2021 Former Fort Ord, California* (Ahtna, 2022a)

6.2.3.3 Landfill Engineered Cover System

Inspections of the Fort Ord Landfills by a State of California Registered Civil Engineer were completed annually and concluded the Fort Ord Landfills are operating satisfactorily and functioning as designed. There was no evidence of rainfall infiltration through the landfill areas or exposure of sanitary waste in the Fort Ord Landfills to the surrounding environment. Representatives of Monterey County Department of Health conducted quarterly inspections of the Fort Ord Landfills and did not observe any violations during the reporting period.

O&M at the Fort Ord Landfills includes inspection and maintenance of the landfill cover (vegetative cover and geomembrane), slope stability, survey monuments, settlement plates, erosion and drainage control, and security fence.

Routine maintenance work includes setting traps for burrowing animals, filling burrows, and cleaning out drainage ditches to allow unencumbered flow of surface water. Other routine activities included tree trimming, fence and road maintenance, and mowing.

Rolling of slopes was not performed during the reporting period per the recommendations of the 2016 Annual Report (Ahtna, 2017c) and the concurrence of the Army biologist with the goal of establishing a more robust root system in the vegetative cover to minimize future erosion. Due to the extensive growth of vegetation on the Fort Ord Landfills, all the landfill areas were mowed during 2017, 2018, and 2019during routine maintenance. In August 2020, after consultation with the BRAC Office biologist, limited mowing was conducted on the northeast corner of Area D, the southwest part of Area F, and surface features (service roads,

LFG vents, vaults, monitoring wells, and LFG probes), and along the fence line. In FY 2021 only a portion of Area F was mowed. The concrete V-ditches constructed in 2015 in various areas of the Fort Ord Landfills continue to be effective erosion mitigation measures (Ahtna, 2021).

Slope stability issues occurred in 2016 and 2017 on the western side of Area E and the northern side of Area F. Eroded portions of the vegetative cover were repaired in 2017 to match the existing cover on Areas E and F and subdrain systems were installed at the crest of the western slope of Area E and the crest of the northern slope of Area F to capture subsurface water and redirect it to prevent migration downslope, which could result in slope instability. The Fort Ord Landfills experienced no significant slope stability issues in the 2018 water year when there was less precipitation; however, the northern side of Area F that was repaired in 2017 destabilized in February 2019 due to a significant increase in precipitation in the 2019 water year and animal burrows undermining the downdrain. The slope in this area was repaired in July 2019. Areas B, C, D and other parts of Areas E and F were also inspected, and no slope stability issues were observed (Ahtna, 2021). Maintenance personnel actively trap squirrels and fill in burrows in critical areas, such as drainage inlets and channels, as part of the landfill cover maintenance to reduce the impact of burrowing animals on the vegetative cover. Two surplus utility poles, about 30 feet high, were installed on the north side of Area F in 2011 as perches for predatory birds, such as the common western red-tailed hawk (Buteo jamaicensis) to reduce animal burrowing. Red-tailed hawks usually search for prey from elevated perches and generally forage in open habitats containing lagomorphs (hares and rabbits), small rodents, and snakes (Ahtna, 2021b). Barn Owl nest boxes and raptor perches were installed at twenty locations around the Fort Ord Landfills in 2017. Additional raptor perches were installed in 2018 and 2020 for a total of 27 perches, which achieved the desired optimal density of ten perches per 40 acres of landfill area. Several of the 18 owl next boxes have been regularly occupied since they were installed in 2017. Eric Schmidt, Ahtna Task Lead for landfill operations and maintenance, reported an apparent reduction in the number of squirrels since the installation of the raptor perches as well as an apparent reduction in gophers due to the presence of barn owls. In addition, the owl pellets have expanded from gopher to include rats, indicating that gopher populations have been reduced and the owls are moving to other food sources.

In April and May 2019, ITSI Gilbane placed approximately 500 cubic yards of range-related demolition debris in the Area E Phase 2 area and covered the debris with a minimum of 12 inches of clean imported soil. One cubic yard of building demolition materials was transported to the Fort Ord Landfills and placed in the Area E expansion area in October 2019. Spent ammunition collected from Fort Ord Dunes State Park was also placed in Area E during the Five Year Review period: 2,147 lbs in FY19 and 400 lbs in FY20. Upon completion of placement of materials in Area E, a 12-inch-thick interim clean soil cover was placed over the materials and a soil stabilizer was applied. Over the duration of the review period the maintenance crew monitored vegetation recovery in the Phase 1 area of Area E where remediation waste from Site 39was placed and monitored the Phase 2 interim cover on Area E for erosion and maintained at least one foot of clean, compacted soil over the impacted soil area. A permanent engineered cover system, including LLDPE geomembrane and vegetative cover, will be constructed over the Phase 2 area after remedial actions at Site 39 are complete (Ahtna, 2021).

6.2.3.4 Landfill Gas Treatment and Monitoring

Currently, the TTU operates on an intermittent basis to meet the requirement for balancing landfill gas extraction and generation; otherwise, over-extraction may introduce oxygen into the refuse, creating a risk of fire. The TTU operated an average of 66 hours per every two weeks (i.e., the TTU was operated every other week) during this FYR period (October 2016 – September 2021). Although TTU emissions are subject to CERCLA requirements and are not subject to local air district permitting, system operations are within local emission limits during this reporting period. The table below shows total hours, total hours operated, and percent of operation.

Thermal Treatment Unit Operations 2006-2021

							4th Five-Year Review Period (Third Quarter 2011 to the Third Quarter 2016)					**5th Five-Year Review Period (Fourth Quarter 2016 to the Third Quarter 2021)**					
	2006	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019[3]**	**2020[3]**	**2021[3]**	**Cumulative[2]**
Total Hours[1,2]	6,528	8,760	8,760	8,760	8,760	8,760	8,760	8,760	8,760	8,760	8,760	8,760	8,760	8,760	8,760	8,760	137,928
Total Hours Operated	2,891	4,035	2,816	4,524	2,474	2,530	2,509	2,098	1,961	2,653	2,039	1,554	1,661	1,422	1,350	1,170	37,689
Percent Operation	44%	46%	32%	52%	28%	29%	29%	24%	22%	30%	23%	18%	19%	16%	15%	13%	27%

Notes:
1- Hours include system start-up and shakedown, which started on April 4, 2006.
2- Thermal Treatment Unit started full time operation on August 2, 2006.
3- 2019 and 2020 Numbers are based on federal fiscal year (October through September). All other years are based on calendar year.
% - percent

Sources:
1) *Final Annual Report, 2015, Operations and Maintenance, Operable Unit 2 Landfills, Former Fort Ord, California* (Ahtna 2016d)
2) *Operable Unit 2 Remedy Monitoring and Operations and Maintenance Fourth Quarter 2020 through Third Quarter 2021 Former Fort Ord, California* (Ahtna, 2022a)

The LFG monitoring program at the Fort Ord Landfills was established in accordance with 27CCR Section 20921(a)(2), which states:

- The concentration of methane migrating from the landfill must not exceed 5 percent by volume (%v) in air at the facility property boundary or alternative boundary approved in accordance with 27CCR Section 20925 (27CCR Section 20925(a)(1) also requires monitoring probes be spaced a maximum of 1,000 feet apart).
- Trace gases shall be controlled to prevent adverse acute and chronic exposure to toxic and/or carcinogenic compounds (Ahtna, 2021b).

A qualified maintenance technician conducted periodic inspections and maintenance of the TTU and daily inspections (during operational days) of the TTU and extraction system components. As necessary, maintenance activities are conducted to minimize the effects of rust buildup, including lubrication, replacement of rusted parts, washing of the TTU with fresh water, and touch-up painting.
The monitoring schedule includes quarterly monitoring of methane and annual monitoring of VOCs. Sixty-seven monitoring probes and two utility trench probes are located around Areas B through F to monitor potential LFG migration. Of the 67 monitoring probes, 21 are compliance probes installed at a spacing not exceeding 1,000 feet as required by 27CCR. The monitoring probes measure LFG at depths below ground surface (bgs) ranging from 12 to 32 feet. The utility trench probes are 4 feet deep.

The concentrations of VOCs measured in the influent gas have generally decreased since the start of TTU operation; however, during the period between October 2019 and September 2020 the total VOC concentration increased. This increase in total VOC concentrations was mostly because of increases in the concentrations of alcohols (e.g., ethanol and 2-propanol), likely due to pockets of LFG with relatively high VOC concentrations migrating into the LFG extractions and treatments system at the time of sampling. Total VOCs in the TTU influent gas shortly after startup of the TTU in 2006 peaked at a concentration close to 25,000 parts per billion by volume (ppbv). As of June 1, 2021 (when annual sampling was conducted), the average concentration was 1,959 ppbv, which is well below the historical peak. Methane monitoring probes located in Area F, where housing is closest to the Fort Ord Landfills, did not detect methane concentrations more than 0.1%v (Ahtna, 2022a).

6.2.3.5 Operation and Maintenance Costs

Costs for operations and maintenance over the last five years are summarized in the table below.

Annual Landfill and Groundwater Treatment System Operations and Maintenance Costs

Dates		Total Cost (Rounded to the Nearest $1,000)
From	To	
2016	2017	$1,206,000
2017	2018	$1,203,000
2018	2019	$1,590,000
2019	2020	$1,418,000
2020	2021	$920,000

Based on costs listed in the ROD (Army, 1994), the predicted annual O&M costs for both the Landfills and the groundwater treatment system were estimated to be $485,000, in 1994 dollars. Costs are higher than original estimates due to significant expansion of groundwater extraction and treatment operations and inclusion of the

TTU for landfill gas that were not in the original ROD estimates, as well as inflation. During the site inspection interview Derek Lieberman, Ahtna Program Manager, stated that unexpected changes in the cost and scope of O&M are attributed to the construction of the new OU2 GWTP and erosion repairs. Additionally, a higher frequency of unscheduled repairs is expected to fix submersible pump failure seen in the last two years.

6.3 Progress Since the Last Five-Year Review

Activities completed since the last Five-Year Review Report was issued supporting the continued remediation of OU2 include:

- Relocation and expansion of the OU2 GWTS
- Reduction in COC mass and spatial distribution
- Maintained institutional controls (e.g., updating the Monterey County Special Groundwater Protection Zones) and engineering controls (e.g., perimeter fence)[1]
- Completed five consecutive years of landfills operations and maintenance
- Completed five consecutive years of groundwater and treatment system monitoring and maintenance
- The State of California Registered Civil Engineer conducted annual inspections of the Fort Ord Landfills throughout this reporting period
- The Monterey County Department of Health conducted quarterly inspections throughout this reporting period Installation of barn owl nest boxes and raptor perches (installed at 27 locations).
- Installation of subdrain systems on the western slope of Area E and the northern slope of Area F.
- Improved road stability by aggregate base addition.
- Vegetation control
- Maintained and enhanced erosion and surface water controls

These inspections have resulted in only minor recommendations, which have been executed. Internal maintenance programs have been very successful in self-monitoring and reporting. The issues and problems that challenge the efficient operation of the OU2 remediation systems are identified and memorialized. Operators routinely propose optimization activities, many of which are put in place, that have further benefited the system's ability to operate safely and efficiently. These actions have resulted in the GWTS being operational 97.8 percent of the time (average over the last five years).

The Majority of COC mass above the ACL in the A-Aquifer is located close to the source area (Fort Ord Landfills) where the OU2 GWTP relocation and expansion has refocused remediation efforts. However, there is persistent COC mass north and east of the landfills in the A-Aquifer and in the Upper 180-Foot Aquifer to the northeast of the landfills, which are outside of the current extraction well network capture areas, that may need to be addressed separately. The eastern A-Aquifer extraction network and the Abrams/Imjin A-Aquifer and Abrams/Imjin Upper 180-Foot Aquifer extraction well networks are intended as barriers for most COCs so they do not migrate further downgradient; therefore, keeping these networks operations and enhancing flow rates is imperative. To effectively capture the portions of the A-Aquifer COC plumes outside of the capture areas of the existing extraction well networks, expansion of the Eastern Network with additional A-Aquifer extraction wells would be the most time- cost-effective, as opposed to waiting for the Upper 180-Foot Aquifer

[1] Additional details are provided in Appendix B Field Documentation of Site Inspections and Interviews.

extraction well networks to capture the plume. According to Ahtna Program Manager Derek Lieberman, there is currently no increase in risk to human health and the environment due to loss of A-Aquifer plume capture because LUCs are in place (the Groundwater Prohibition Zone), but the time to achieve RAOs will increase. Vegetation is well established in closed landfill areas. Since the onset of TTU operations, the methane concentrations in perimeter monitoring probes have remained below remediation criteria (Ahtna, 2012).

Remediation of TCE was expected to take 17 years past startup of the new GWTS, which was 2018, leading to an estimated completion date in 2035 (RORE/ITSI, 2019). The current operations contractor Ahtna, expects that contracting and construction of additional wells that are recommended for capture of the A-aquifer plume may take 5 years, and the USACE Hydraulic Engineering Center Groundwater modeling has estimated that it will take 10 years of operations to treat that area after the new wells are installed; this would lead to a completion estimate of 15 years from 2022, or 2037. There is no current time estimate for the remediation of recently found TCE above the MCL in the lower 180 aquifer (see section 6.4.2 below), as a remedy has not been selected yet.

6.3.1 2017 Five-Year Review Protectiveness Statement

Regarding the protectiveness of the OU2 remedy, the 2017 Five-Year Review Report (Army, 2017) stated that:

"The remedies at OU2 are protective of human health and the environment. The ongoing remedial activities continue to adequately address all exposure pathways that could result in unacceptable risks. During the course of the remediation process, potential environmental and human health concerns are being addressed by mitigation measures, such as control and treatment of landfill gases. The soil vapor exposure pathway is being controlled by the on-going groundwater remedy (which includes soil gas extraction and GAC treatment). Potential exposure pathways are also being controlled by the restrictions of Chapter 15.08 of Title 15, Monterey County Code, and the CRUP."

6.3.2 Status of 2017 Five-Year Review Issues and Recommendations

There were no issues identified for OU2 in the 2017 Five-Year Review.

6.4 OU2 Five-Year Review Process

This Five-Year Review was performed in accordance with EPA Guidance (EPA, 2001) and with the process described in Section 4.0 of this document. Administrative and community involvement activities have been performed for Fort Ord using a basewide approach and are detailed in Sections 4.1 and 4.2. Document reviews, data reviews, site inspections, and interviews, if applicable, have been conducted on a site-by-site basis and are described in the following subsections.

6.4.1 Document Review

As part of the five-year-review for OU2, pertinent site-specific documents were reviewed to evaluate current site conditions in the context of remedy implementation and progress toward remedial action objectives. Among the documents reviewed were the RI/FS Report, ROD, ESDs remedial design, remedy implementation work plans and completion reports, system modification reports, and quarterly and annual operations and monitoring reports. A complete list of the references reviewed is presented in Appendix A, References.

6.4.2 Data Review

Groundwater

The goals of the OU2 groundwater remedy are to protect human health. Specifically, the RAO is to remediate COCs in the A-Aquifer and Upper 180-Foot Aquifer to federal or state drinking water MCLs or lower for some COCs (ACLs). These goals are accomplished through hydraulic control and containment of contaminated groundwater, and through extraction and treatment of groundwater exceeding ACLs. The table below shows the maximum COC concentrations from groundwater samples collected from extraction and monitoring wells screened in the A-Aquifer. Seven of the eleven OU2 COCs were detected at concentrations exceeding their respective ACLs during the Third Quarter 2021 (1,1-DCA; 1,2-DCA; chloroform; cis-1,2-DCE; PCE; TCE; and VC). The remaining four OU2 COCs (1,2-DCPA; benzene; methylene chloride; and CT) were detected at concentrations at or below their respective ACLs or were ND in the OU2 A-Aquifer (Ahtna, 2022a).

A-Aquifer
Groundwater Analytical Results
Maximum COC Concentrations: Beginning and End of the Five-Year Review Period[1]

Analyte	Aquifer Cleanup Level [2] Concentration (ug/L)	Fourth Quarter 2016 Maximum Concentration (ug/L)	Third Quarter 2021 Maximum Concentration (ug/L)
Benzene	1.0	0.65	0.30J
Carbon Tetrachloride	0.5	ND	ND
Chloroform	2.0	**2.7**	**4.4J-**
1,1- Dichloroethane (1,1-DCA)	5.0	**22.2**	**20.5**
1,2-Dichloroethane (1,2-DCA)	0.5	**5.0**	**3.2**
cis-1,2-Dichloroethene (cis-1,2-DCE)	6.0	**11.6**	**8.8**
1,2-Dichloropropene (1,2-DCP)	1.0	0.88	0.76
Methylene Chloride/Dichloromethane	5.0	ND	ND
Tetrachloroethene (PCE)	3.0	**11.4**	**9.8J-**
Trichloroethene (TCE)	5.0	**15.0**	**19.4**
Vinyl Chloride (VC)	0.1	**15.1**	**6.2**

Notes:
[1] This table does not provide a well to well comparison.
[2] The ACL is the lower of the Federal and State MCLs, and for some constituents more stringent levels.

J - estimated value below the limit of quantitation with a high (+) or low (-) bias
ND - Not detected
ug/L – micrograms per liter
Values in bold are greater than the corresponding ACL.

Sources:
Operable Unit 2 Fourth Quarter 2016 Groundwater Monitoring and Treatment System Report, Former Fort Ord, California (Ahtna 2017a) *Operable Unit 2 Remedy Monitoring and Operations and Maintenance Fourth Quarter 2020 through Third Quarter 2021 Former Fort Ord, California* (Ahtna, 2022a)

The table below shows the maximum COC concentrations from groundwater samples collected from extraction and monitoring wells screened in the Upper 180-Foot Aquifer. Of the eleven COCs, TCE was the only detected COC in the Upper 180-Foot Aquifer at concentrations exceeding its ACL during the Third Quarter 2021 (Ahtna 2021s).

Upper 180-Foot Aquifer Groundwater Analytical Results Maximum COC Concentrations: Beginning and End of the Five-Year Review Period[1]			
Analyte	**Aquifer Cleanup Level [2] Concentration (ug/L)**	**Fourth Quarter 2016 Maximum Concentration (ug/L)**	**Third Quarter 2021 Maximum Concentration (ug/L)**
Benzene	1.0	ND	ND
Carbon Tetrachloride	0.5	0.28J	0.22J
Chloroform	2.0	1.1	0.76
1,1- Dichloroethane (1,1-DCA)	5.0	0.58	0.37J
1,2-Dichloroethane (1,2-DCA)	0.5	0.12J	ND
cis-1,2-Dichloroethene (cis-1,2-DCE)	6.0	5.0	2.9
1,2-Dichloropropene (1,2-DCP)	1.0	0.22J	0.13J
Methylene Chloride/Dichloromethane	5.0	ND	ND
Tetrachloroethene (PCE)	3.0	1.6	2.3
Trichloroethene (TCE)	5.0	**17.4**	**15.1**
Vinyl Chloride (VC)	0.1	ND	ND
Notes: [1] This table does not provide a well to well comparison. [2] The ACL is the lower of the Federal and State MCLs and, for some constituents, more stringent levels. J – estimate value below the limit of quantitation with a high (+) or low (-) bias ND - Not detected ND – not detected ug/L – micrograms per liter Values in bold are greater than the corresponding ACL.		Sources: *Operable Unit 2 Fourth Quarter 2016 Groundwater Monitoring and Treatment System Report, Former Fort Ord, California* (Ahtna 2017a) *Operable Unit 2 Remedy Monitoring and Operations and Maintenance Fourth Quarter 2020 through Third Quarter 2021 Former Fort Ord, California* (Ahtna, 2022a)	

The maximum concentrations of TCE in the Upper 180-foot aquifer increased during the 2019-2021 reporting period compared to the 2018-2019 period, but then decreased again in the 2020-2021 reporting period. Concentrations decreased for chloroform and were comparable for five COCs (1,1-DCA; 1,2-DCPA; CT; cis-1,2-DCE; and PCE). The maximum detected concentrations of TCE in the Upper 180-Foot Aquifer for the last six reporting periods have been:

- 2015-2016 – 25.1 µg/L
- 2016-2017 – 20.0 µg/L
- 2017-2018 – 18.6 µg/L
- 2018-2019 – 16.4 µg/L
- 2019-2020 – 17.7 µg/L
- 2020-2021 – 16.0 µg/L

The maximum TCE concentration is typically detected at MW-OU2-44-180 (2015-2016, 2016-2017, and 2018-2019 reporting periods), which is located northwest of Landfill Area F, or MW-OU2-23-180 (2017-2018, 2019-2020, and 2020-2021 reporting periods), which is located southwest of Landfill Area B (Ahtna, 2022a).

The tables below summarize the quarterly flow rates and COC mass removal for the reporting period. Recent data as of September 2021 show a cumulative of 922 pounds COC mass removed since October 1995.

Annual GWTP Flow Rate and COC Mass Removal				
Reporting Period	**Volume (gallons)[1]**	**Average Flow Rate (gpm)**	**Mass Removal (pounds)[3]**	**Cumulative Mass Removal (pounds)[2]**
October 2016 through September 2017	261,591,968	498	18.4	823
October 2017 through September 2018	261,837,684	499	17.4	840
October 2018 through September 2019	384,360,166	732	27	867
October 2019 through September 2020	332,891,307	843	22.4	890
October 2020 through September 2021	438,578,453	834	25.9	922
Totals	**1,679,259,578**	**681.2**	**111.1**	**4,342**

Notes:
1 – Volume calculated as the sum of volumes from the OU2 and OUCTP groundwater extraction wells.
2 – Since system start-up in October 1995.
3 – COC mass removed from the A-Aquifer and Upper 180-Foot Aquifer by operating extraction wells.

Sources:
1) *Operable Unit 2 Fourth Quarter 2016 through Third Quarter 2017 Groundwater Monitoring and Treatment System Report, Former Fort Ord, California* (Ahtna, 2018) 2) *Operable Unit 2 Fourth Quarter 2017 through Third Quarter 2018 Groundwater Monitoring and Treatment System Report, Former Fort Ord, California* (Ahtna, 2019) 3) *Operable Unit 2 Annual Report Volume I Fourth Quarter 2018 through Third Quarter 2019 Landfill Gas Monitoring and Landfills Operations and Maintenance, Former Fort Ord, California* (Ahtna 2020) 4) *Operable Unit 2 Remedy Monitoring and Operations and Maintenance Fourth Quarter 2019 through Third Quarter 2020 Former Fort Ord, California* (Ahtna, 2021b) 5) *Operable Unit 2 Remedy Monitoring and Operations and Maintenance Fourth Quarter 2020 through Third Quarter 2021 Former Fort Ord, California* (Ahtna, 2022a)

Cis-1,2-DCE; PCE; and TCE represented approximately 89 percent by weight of the total COCs in the untreated influent during the Third Quarter 2021 reporting period. The remaining 11 percent was a combination of 1,1-DCA; 1,2-DCA; and chloroform (Ahtna, 2022a).

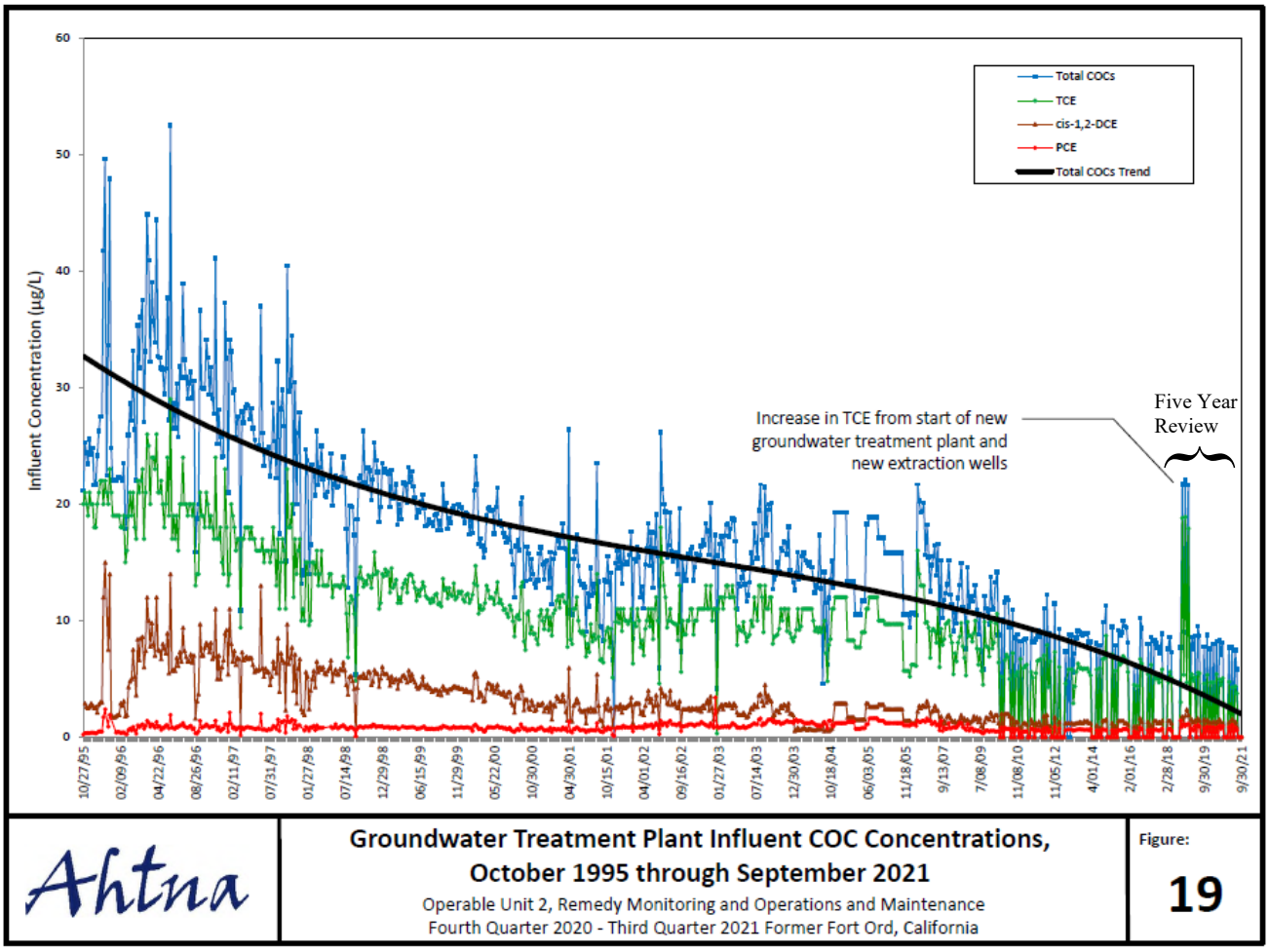
The total volume of treated groundwater in the Third Quarter 2021 period was approximately 439 million gallons. The OU2 GWTP design average flow rate is 1,600 gallons per minute (gpm) and the average flow rate during Third Quarter 2021 was 834 gpm. The reported average monthly flow rate varies depending on flow rates for individual wells and downtime events at the GWTP or the extraction wells. The lower than design average flow rate during the reporting period is primarily attributable to:

- The western extraction well network (except EW-OU2-04-A) was offline during the transition to the new GWTP. Two extraction wells within the well network, EW-OU2-05-A and EW-OU2-06-A, restarted in March 2021.
- Pump failure at several wells:
    - EW-OU2-04-A pump failure on January 21, 2021. Pump replacement scheduled for after the reporting period in June 2021.
    - EW-OU2-10-180 pump failure on March 1, 2021. Pump replacement scheduled for after the reporting period in June 2021.
    - EW-OU2-12-180 pump failure on January 15, 2020 and formation material in the well screen and casing. Well redevelopment completed, and pump replacement scheduled for after the reporting period in June 2021.

Plate 5 shows the extraction well locations, and the Third Quarter 2021 Groundwater Monitoring and Treatment System Report Former Fort Ord, California has more information. Cumulative treated groundwater

flow since startup on October 23, 1995, through September 30, 2021, was approximately 8.7 billion gallons. Treated water was diverted to the Sites 2 and 12 GWTP at an average rate of 441 gpm, which resulted in an average aquifer recharge rate of 393 gpm at OU2 (INF-OU2-01-180, INF-OU2-02-180, IW-OU2-04-180, and IW-OU2-05-180).

The following chart shows the groundwater treatment system influent COC concentrations from system start up to September 2021. All major COC concentrations are trending down since system start-up including through this Five-Year Review period. A spike in TCE concentrations is visible from the start-up of the new GWTP and wells, indicating better capture with the new infrastructure.



Groundwater monitoring data indicate large mass remains of COC in the A-Aquifer and the Upper 180-foot Aquifer. The GWTS has been updated in attempt to reduce costs, improve performance, and increase the likelihood of achieving cleanup goals. Plate 4 demonstrates the reduction in TCE plume size from December 2001 to September 2021.

Hydraulic Capture

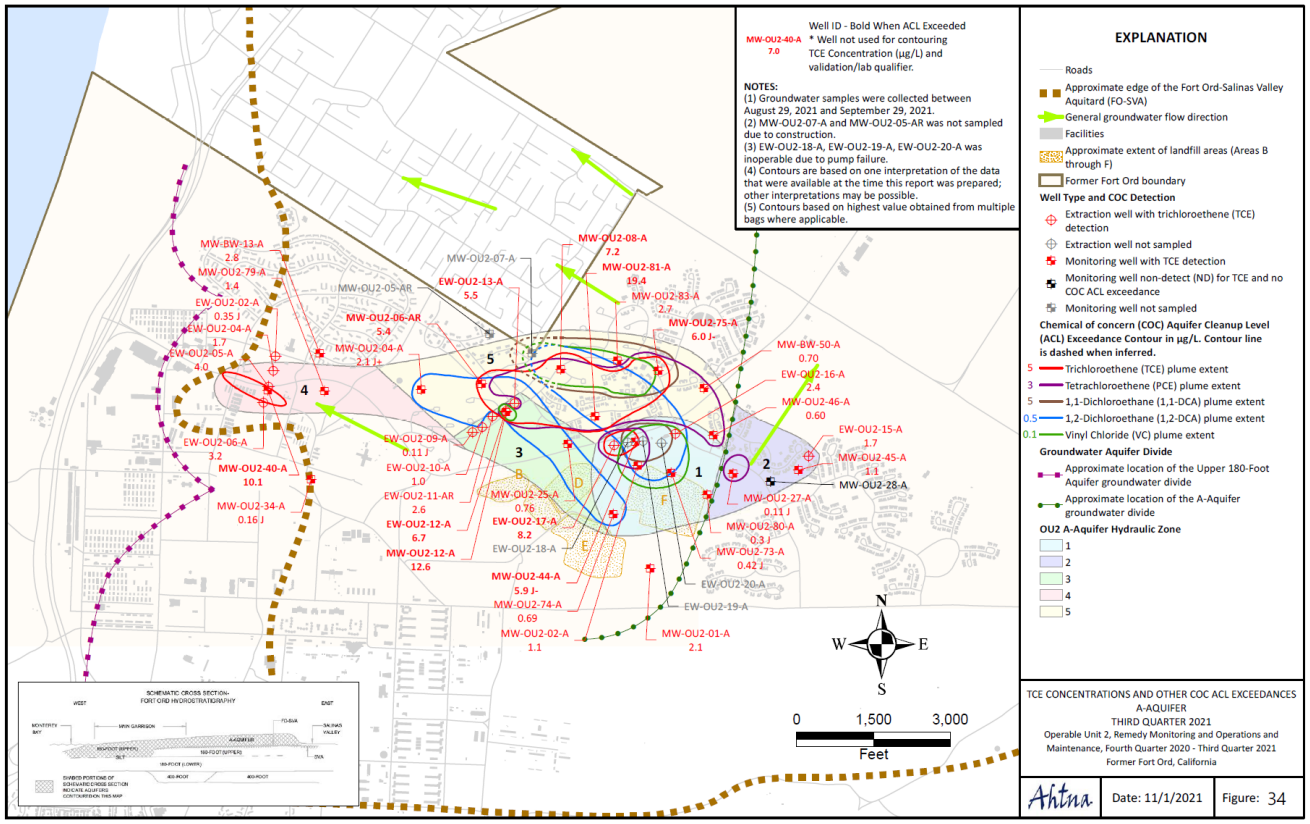
Hydraulic capture analysis of the OU2 GWTS includes groundwater elevation contour interpretation, model-simulated groundwater flow interpretation, and measured groundwater chemistry interpretation. The basewide numerical groundwater flow model (the "model") used to simulate groundwater conditions beneath the former

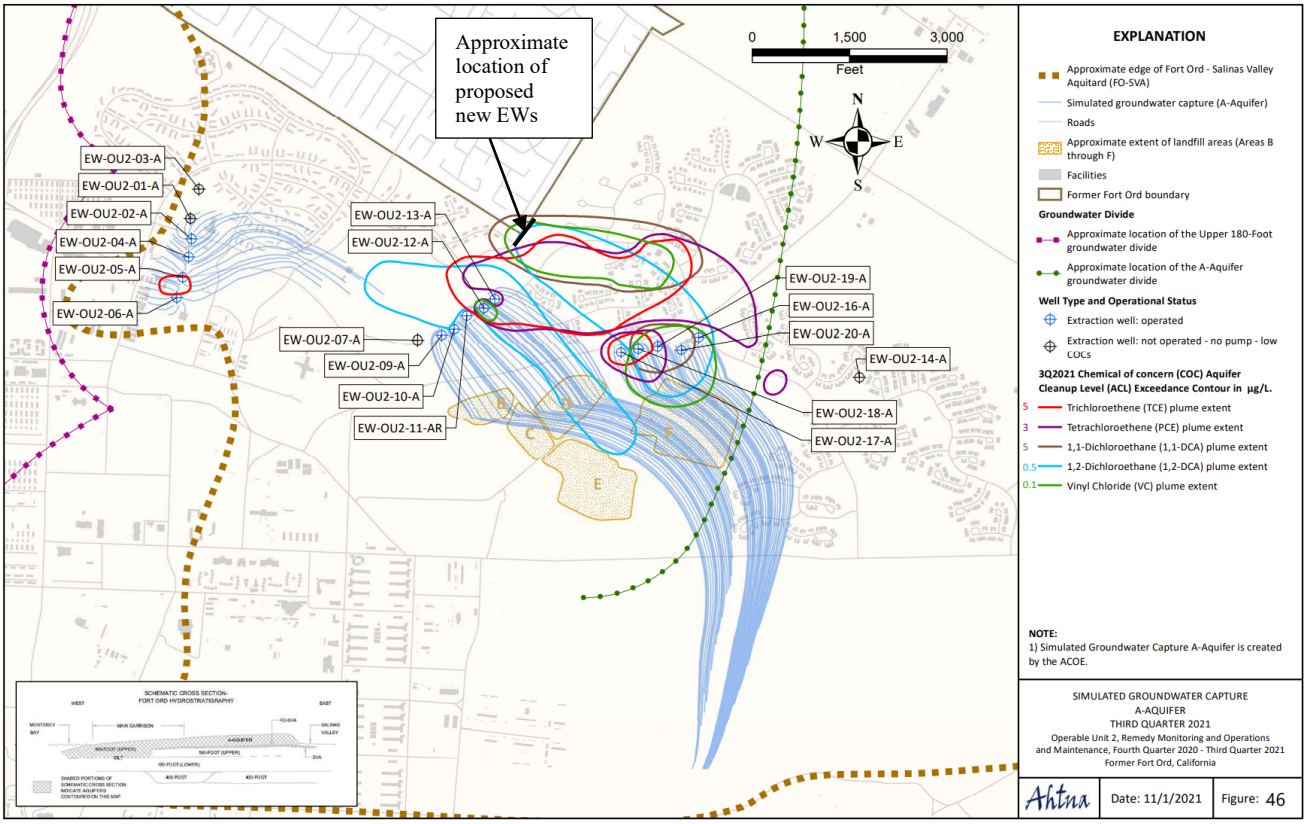
Fort Ord has been updated from the previous version to evaluate hydraulic capture of COCs by the A-Aquifer and Upper 180-Foot Aquifer OU2 extraction wells. The model simulates backward-tracking groundwater flow paths induced by operation of the OU2 extraction wells. The model is based on the finite difference MODFLOW-2005 (MODFLOW) software (Harbaugh., 2005) originally completed for the Fort Ord basewide hydrogeological characterization and used in the Basewide RI/FS (HLA, 1995). Particle tracking was originally generated using the PATH3D model code (Zheng, 1989) and is currently generated using MODPATH (Pollock, 1994) in conjunction with MODFLOW-2005. Groundwater model construction, calibration, and capture zone analysis are performed using the Groundwater Vistas (ESI, 2011) software package, which works in conjunction with MODFLOW-2005 and MODPATH.

A-Aquifer

The encapsulation of the COC plumes by backward-tracking particle pathlines emanating from the A-Aquifer extraction wells illustrates the successful capture of a portion of the western and southern sections of the COC plumes at OU2 by the 2018/2019 extraction/injection configuration. The previously stagnant area between MW-OU2-02-A and EW-OU2-16-A is now being captured by the new extraction wells EW-OU2-17A through EW-OU2-20-A (Ahtna, 2020), however the presence of a groundwater divide in this area makes it difficult for the eastern extraction well network (EW-OU2-09-A through EW-OU2-13-A) to capture the current A-Aquifer COC plumes. Without additional action, the A-Aquifer COC plumes would eventually migrate over the edge of the FO-SVA into the Upper-180 Aquifer and likely be captured by the existing Upper 180-Foot Aquifer extraction well networks. However, this would be very cost and time inefficient, and the COC plumes could be better captured by an expansion of the Eastern Network with additional A-Aquifer extraction wells.

The long-term reduction of the TCE plume footprint illustrates that the current extraction well configuration has effectively removed TCE mass from this aquifer; however, the persistence of TCE and other COCs downgradient from Fort Ord Landfills Area F demonstrates the need for continued operation of the GWTS. The performance of the eastern A-Aquifer extraction well network is considered less than optimal due to its relative distance from the suspected source areas at the Fort Ord Landfills and prevailing groundwater flow directions.

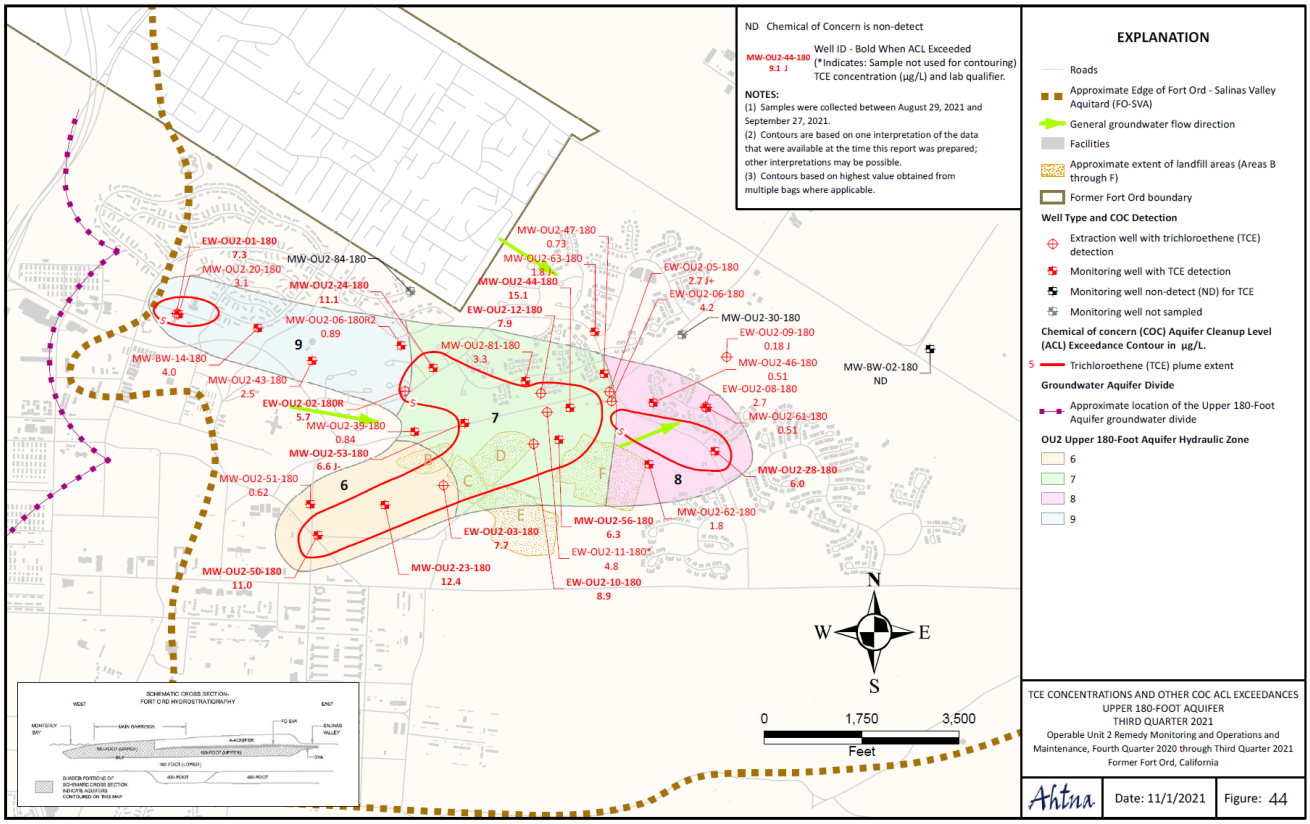

Well ID - Bold When ACL Exceeded
* Well not used for contouring TCE Concentration (µg/L) and validation/lab qualifier.
NOTES:
(1) Groundwater samples were collected between August 29, 2021 and September 29, 2021.
(2) MW-OU2-07-A and MW-OU2-05-AR was not sampled due to construction.
(3) EW-OU2-18-A, EW-OU2-19-A, EW-OU2-20-A was inoperable due to pump failure.
(4) Contours are based on one interpretation of the data that were available at the time this report was prepared; other interpretations may be possible.
(5) Contours based on highest value obtained from multiple bags where applicable.
EXPLANATION
Roads
Approximate edge of the Fort Ord-Salinas Valley Aquitard (FO-SVA)
General groundwater flow direction
Facilities
Approximate extent of landfill areas (Areas B through F)
Former Fort Ord boundary
Well Type and COC Detection
Extraction well with trichloroethene (TCE) detection
Extraction well not sampled
Monitoring well with TCE detection
Monitoring well non-detect (ND) for TCE and no COC ACL exceedance
Monitoring well not sampled
Chemical of concern (COC) Aquifer Cleanup Level (ACL) Exceedance Contour in µg/L. Contour line is dashed when inferred.
5 Trichloroethene (TCE) plume extent
3 Tetrachloroethene (PCE) plume extent
5 1,1-Dichloroethane (1,1-DCA) plume extent
0.5 1,2-Dichloroethane (1,2-DCA) plume extent
0.1 Vinyl Chloride (VC) plume extent
Groundwater Aquifer Divide
Approximate location of the Upper 180-Foot Aquifer groundwater divide
Approximate location of the A-Aquifer groundwater divide
OU2 A-Aquifer Hydraulic Zone
1
2
3
4
5
MW-BW-13-A 2.8
MW-OU2-79-A 1.4
EW-OU2-02-A 0.35 J
EW-OU2-04-A 1.7
EW-OU2-05-A 4.0
EW-OU2-06-A 3.2
MW-OU2-40-A 10.1
MW-OU2-34-A 0.16 J
MW-OU2-07-A
MW-OU2-05-AR
EW-OU2-13-A 5.5
MW-OU2-06-AR 5.4
MW-OU2-04-A 2.1 J+
EW-OU2-09-A 0.11 J
EW-OU2-10-A 1.0
EW-OU2-11-AR 2.6
EW-OU2-12-A 6.7
MW-OU2-12-A 12.6
MW-OU2-08-A 7.2
MW-OU2-81-A 19.4
MW-OU2-83-A 2.7
MW-OU2-75-A 6.0 J-
MW-BW-50-A 0.70
EW-OU2-16-A 2.4
MW-OU2-46-A 0.60
EW-OU2-15-A 1.7
MW-OU2-45-A 1.1
MW-OU2-28-A
MW-OU2-27-A 0.11 J
MW-OU2-80-A 0.3 J
MW-OU2-73-A 0.42 J
MW-OU2-25-A 0.76
EW-OU2-17-A 8.2
EW-OU2-18-A
MW-OU2-44-A 5.9 J-
MW-OU2-74-A 0.69
MW-OU2-02-A 1.1
EW-OU2-20-A
EW-OU2-19-A
MW-OU2-01-A 2.1
A
B
C
D
E
F
1
2
3
4
5
N
W
E
S
0
1,500
3,000
Feet
SCHEMATIC CROSS SECTION-FORT ORD HYDROSTRATIGRAPHY
WEST
EAST
MONTEREY BAY
MAIN GARRISON
FO-SVA
SALINAS VALLEY
A-AQUIFER
180-FOOT (UPPER)
180-FOOT (LOWER)
400-FOOT
DSA
SHADED PORTIONS OF SCHEMATIC CROSS SECTION INDICATE AQUIFERS CONTOURED ON THIS MAP
TCE CONCENTRATIONS AND OTHER COC ACL EXCEEDANCES
A-AQUIFER
THIRD QUARTER 2021
Operable Unit 2, Remedy Monitoring and Operations and Maintenance, Fourth Quarter 2020 - Third Quarter 2021
Former Fort Ord, California
Ahtna
Date: 11/1/2021
Figure: 34

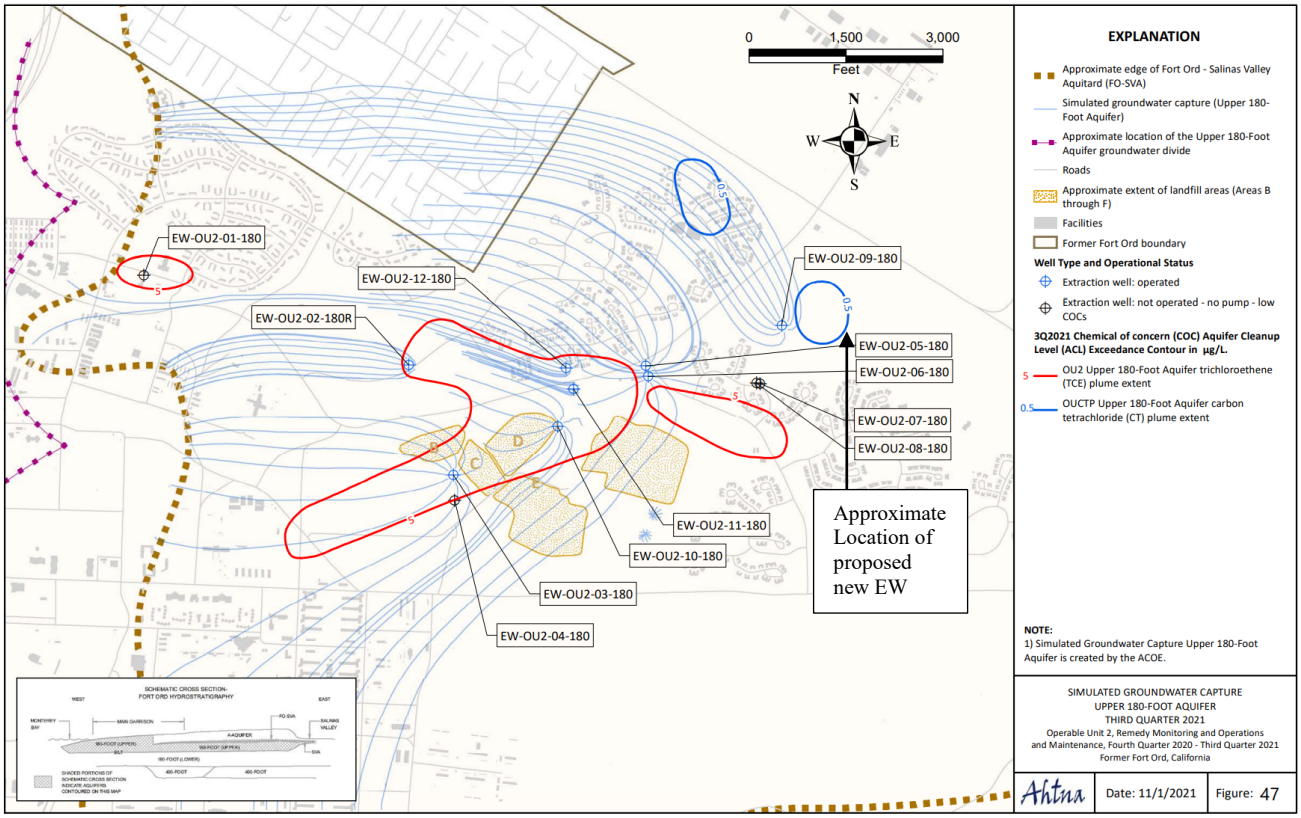

Approximate location of proposed new EWs
EW-OU2-03-A
EW-OU2-01-A
EW-OU2-02-A
EW-OU2-04-A
EW-OU2-05-A
EW-OU2-06-A
EW-OU2-13-A
EW-OU2-12-A
EW-OU2-07-A
EW-OU2-09-A
EW-OU2-10-A
EW-OU2-11-AR
EW-OU2-19-A
EW-OU2-16-A
EW-OU2-20-A
EW-OU2-14-A
EW-OU2-18-A
EW-OU2-17-A
A
B
C
D
E
F
0
1,500
3,000
Feet
N
W
E
S
EXPLANATION
Approximate edge of Fort Ord - Salinas Valley Aquitard (FO-SVA)
Simulated groundwater capture (A-Aquifer)
Roads
Approximate extent of landfill areas (Areas B through F)
Facilities
Former Fort Ord boundary
Groundwater Divide
Approximate location of the Upper 180-Foot groundwater divide
Approximate location of the A-Aquifer groundwater divide
Well Type and Operational Status
Extraction well: operated
Extraction well: not operated - no pump - low COCs
3Q2021 Chemical of concern (COC) Aquifer Cleanup Level (ACL) Exceedance Contour in µg/L.
5 Trichloroethene (TCE) plume extent
3 Tetrachloroethene (PCE) plume extent
5 1,1-Dichloroethane (1,1-DCA) plume extent
0.5 1,2-Dichloroethane (1,2-DCA) plume extent
0.1 Vinyl Chloride (VC) plume extent
NOTE:
1) Simulated Groundwater Capture A-Aquifer is created by the ACOE.
SCHEMATIC CROSS SECTION-FORT ORD HYDROSTRATIGRAPHY
WEST
EAST
MONTEREY BAY
MAIN GARRISON
FO-SVA
SALINAS VALLEY
A-AQUIFER
180-FOOT (UPPER)
180-FOOT (LOWER)
400-FOOT
DSA
SHADED PORTIONS OF SCHEMATIC CROSS SECTION INDICATE AQUIFERS CONTOURED ON THIS MAP
SIMULATED GROUNDWATER CAPTURE
A-AQUIFER
THIRD QUARTER 2021
Operable Unit 2, Remedy Monitoring and Operations and Maintenance, Fourth Quarter 2020 - Third Quarter 2021
Former Fort Ord, California
Ahtna
Date: 11/1/2021
Figure: 46

The majority of COC mass above the ACL in the A-Aquifer is located close to the source area (Fort Ord Landfills) where the OU2 GWTP relocation and expansion has refocused remediation efforts. However, a persistent COC mass in A-Aquifer Hydraulic Zones 2 and 5 need to be addressed; new EWs are recommended as shown in the above figure and discussed in Sections 6.6 and 6.7.The eastern A-Aquifer extraction network and the Abrams/Imjin A-Aquifer extraction well network are intended as barriers for most COCs so they do not migrate further downgradient; therefore, keeping these networks operational and enhancing flow rates is imperative.

Upper and Lower 180-Foot Aquifers

The encapsulation of the TCE plume by backward-tracking particle pathlines emanating from Upper 180-Foot Aquifer OU2 extraction wells illustrates that the 2018/2019 extraction/injection configuration was able to provide successful capture conditions except for a portion of the TCE plume east of the extraction well network. Particle pathlines in the 2019 model differ from the 2018 model due to operation of three new extraction wells (EW-OU2-10-180, EW-OU2-11-180, and EW-OU2-12-180) and two previously inoperable wells (EW-OU2-02-180R and EW-OU2-05-180) during the reporting period, which increased the capture area of the extraction well network, especially for the northern and central areas of the TCE plume.





Analysis of Upper 180-Foot Aquifer extraction wells indicates the plume is mostly captured, although persistent TCE concentrations exceeding the ACL suggest relatively low mass removal efficiency in the area of monitoring well MW-OU2-50-180 and no mass removal in the area of MW-OU2-28-180 and MW-OU2-62-180 (see two Figures above). TCE concentrations observed in these two wells during 2019-2020 indicate the TCE plume extends downgradient and to the east of the current Upper 180-Foot Aquifer extraction well network (Hydraulic Zone 8). This area has a suspected discontinuity in the Intermediate 180-Foot Aquitard as indicated by TCE detections above the MCL in Lower 180-Foot Aquifer monitoring well MW-BW-59-180 (monitored as part of the OUCTP site). Hydraulic Zone 8 is outside the current extraction well network (Ahtna, 2021b).

Historically, operating extraction wells in the Upper 180-Foot Aquifer maintained hydraulic capture of the TCE plume, but a persistent TCE footprint exceeding the ACL suggested an overall low efficiency of the GWTS for this aquifer. Model optimization simulations suggested that the three new additional extraction wells (EW-OU2-10-180, EW-OU2-11-180, and EW-OU2-12-180) would lessen the time to reduce TCE mass to concentrations below the ACL by approximately seven years due to closer proximity to core TCE impacted areas of the aquifer (Gilbane 2014a). Modifications to individual extraction wells, such as limiting flow from portions of the screened interval associated with relatively clean groundwater, may also increase the mass removal efficiency. TCE concentrations at Upper 180-Foot Aquifer extraction wells suggest that flow into these well screens may originate from deeper units, and characterization of one or more currently operating extraction well(s) within the eastern network via downhole flow monitoring should be considered. Results from these tests would be used to improve the accuracy of future GWTS capture analysis. Multiple extraction wells were offline for extended periods of time during the transition to the new GWTP, with some only coming online in 2021. TCE concentrations in MW-OU2-62-180 have been decreasing since early 2019, after increasing from 2016 to 2019. However, TCE concentrations in MW-OU2-28-180 have only been increasing

since 2016, going above the ACL for the first time in late 2020 (Ahtna, 2021b). With full operation of the expanded groundwater remedy and new OU2 GWTP configuration of the COC plumes may change (Ahtna, 2021b).

Landfill Gas Monitoring

In compliance with 27CCR Section 20921(a)(2), quarterly monitoring for methane was conducted at the Landfills perimeter. All 21 perimeter compliance probes had concentrations of methane that were not detectable (less than or equal to 0.1 percent by volume). These results indicate there is no landfill gas migration and the Fort Ord Landfills are in compliance with regulatory requirements. During the five-year review reporting period COCs were detected above their respective LOQs for the compliance probe VOC samples. The COCs detected include Chloroform, PCE, Vinyl Chloride, Benzene, and Tetrachloroethene according to the "*Annual Report Operation and Maintenance Operable Unit 2 Landfills Former Fort Ord, California*" 2016-2020 reports.

Landfill Gas Extraction and Treatment System

Annual source testing of the TTU conducted during the reporting period demonstrated the TTU operated efficiently and met the substantive requirements of Monterey Bay Air Resources District Rule 207 and Rule 1000. The average TTU biweekly operational hours during the five-year review period (Fourth Quarter 2016 through Third Quarter 2021) was 66 hours biweekly, however operational hours have decreased over the five-year review period, and currently the average is approximately 50 hours biweekly. The operating schedule was set to meet the requirement for balancing landfill gas extraction and generation. The table below shows a summary of VOCs and methane removed by the Fort Ord Landfills TTU from its startup and through this reporting period.

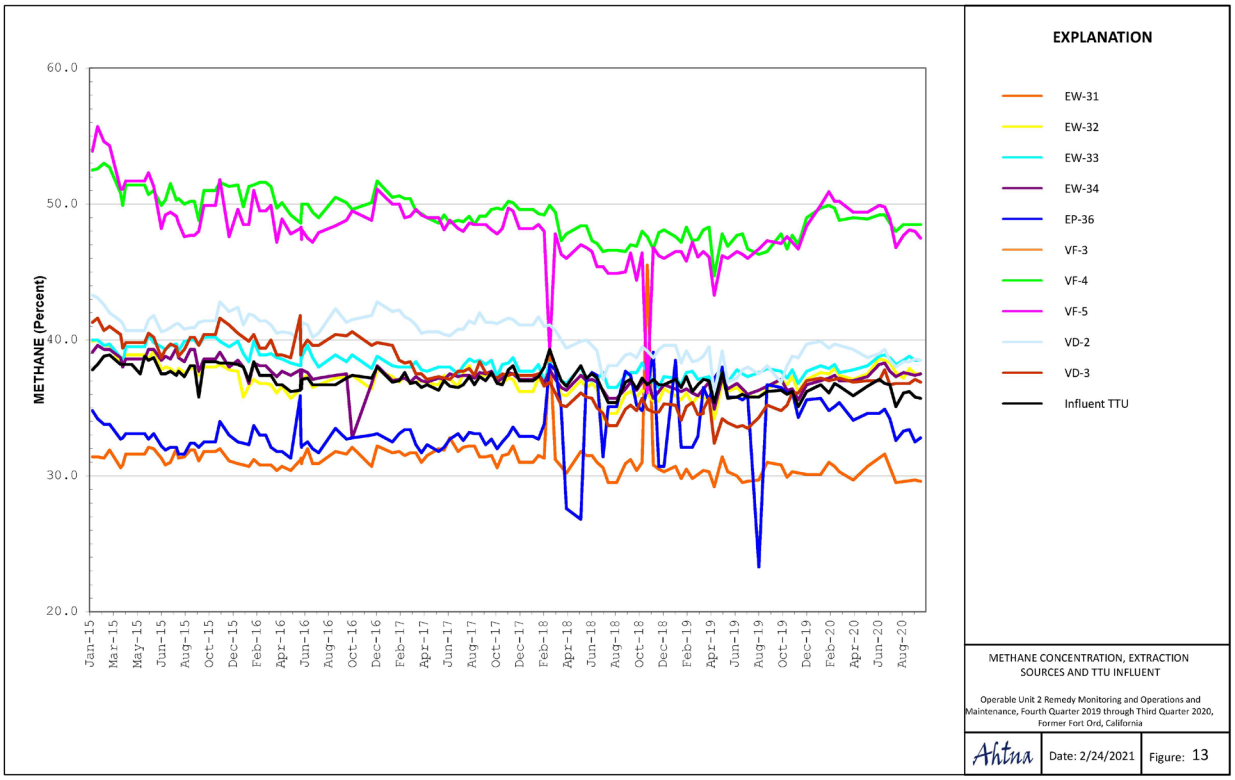
VOCs and Methane Removed by Fort Ord Landfills TTU
(In Pounds)

							4th Five-Year Review Period (Third Quarter 2011 to the Third Quarter 2016)				5th Five-Year Review Period (Fourth Quarter 2016 to the Third Quarter 2021)						
	2006	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019[5]**	**2020[5]**	**2021[5]**	**Cumulative[2]**
Type[1]	04/04/06 12/31/06	01/01/07 12/31/07	01/01/08 12/31/08	01/01/09 12/31/09	01/01/10 12/31/10	01/01/11 12/31/11	01/01/12 12/31/12	01/01/13 12/31/13	01/01/14 12/31/14	01/01/15 12/31/15	01/01/16 12/31/16	01/01/17 12/31/17	01/01/18 12/31/18	10/01/18 09/30/19	10/01/19 09/30/20	10/01/20 09/30/21	04/04/06 09/30/19
Methane	428,214	532,181	288,433	448,148	211,634	228,085	229,400	186,000	174,430	237,574	178,648	135,712	145,175	134,057	115,501	100,442	3,738,603
VOCs[3]	55.4	64.7	31.2	33.3	11.9	12.1	11.0	9.9	9.4	12.1	4.0	5.6	7.0	6.8	10.1	9.0	266
COCs[4]	9.5	6.2	3.1	3.4	1.4	1.4	1.2	1.1	1.0	1.3	0.4	0.5	0.6	0.5	0.5	0.4	31

Notes:
1- The pounds removed is calculated based on the mixed influent concentration for the TTU. Sample concentrations were assumed to be constant during the operation period from the time of collection until the next sample set was collected. Pounds removed for methane is based upon field measurements made during normal landfill gas treatment/TTU operation. Conversion for all years assumes 1 atmosphere pressure, and 25°C temp.
2- For Total (methane, VOCs, and COCs) pounds, cumulative column provides total pounds 2006 - Third Quarter 2019
3- Includes all compounds that were measured in the samples collected (excluding methane). These are approximately 60 individual volatile organic compounds on the standard Air Toxics TO-15 list of analytes.
4- Includes all groundwater compounds as stated in Table 1, Chemicals of Concern, Remediation Goals, and Discharge Limits, of the OU2 Record of Decision (Army, 1994).
5- The 2019 and 2020 reporting periods are for federal fiscal years (10/1 – 9/30). All previous years are reported in the calendar year.
Sources:
1) *Final Annual Report, 2015, Operations and Maintenance, Operable Unit 2 Landfills, Former Fort Ord, California* (Ahtna 2016d).
2) *Operable Unit 2 Remedy Monitoring and Operations and Maintenance Fourth Quarter 2020 through Third Quarter 2021 Former Fort Ord, California (Ahtna, 2022a)*

The table above summarizes total VOCs, groundwater COCs, and methane removed from 2006 to September 2021. In the reporting period (2016 through Third Quarter 2021) the TTU removed 809,535 pounds of methane, 42.5 pounds of VOCs (excluding methane), and 2.9 pounds of total COCs from OU2 Landfills gas. A total of 3,738,603 pounds of methane have been removed since the startup in 2006 (Ahtna, 2022a).

The time series plot below shows methane concentrations starting in January 2015 and gives some indication that there is a reduction in landfill methane generation based on the trend line (Ahtna, 2021b)



Vapor Intrusion

Groundwater Plumes

In 2011, an analysis of the potential for soil vapor intrusion associated with chlorinated solvents (e.g., TCE) emanating from the Fort Ord Landfills area was conducted (Army, 2011). The analysis focused on the physical properties of TCE (principally its volatility and density relative to that of water), the concentrations detected in groundwater, the depth of TCE detections and its proximity to buildings. According to guidance documents from the EPA and DTSC, soil vapor intrusion is possible when buildings are located within 100 feet of a source of chlorinated solvents. This guidance is explained in the October 2011 *Final Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air* (Vapor Intrusion Guidance; DTSC, 2011). The guidance also stipulates that 100 feet may not be applicable where preferential pathways exist or if the groundwater plumes are increasing in size.

The most recent groundwater data was collected during the 2021 Third Quarter sampling event (Ahtna, 2022a). Seven of the eleven OU2 COCs were detected at concentrations exceeding their respective ACLs during the Second Quarter 2021 (1,1-DCA; 1,2-DCA; chloroform; cis-1,2-DCE; PCE; TCE; and VC). The sampling well locations with exceeding concentrations were MW-OU2-08-A, EW-OU2-13-A, MW-OU2-75-A, EW-OU2-16-A, MW-OU2-81-A, and MW-OU2-02-A at depths of 125 feet, Unknown, 106 feet, Unknown, 116 feet, and 115 feet (btoc), respectively. The screened intervals for extraction wells EW-OU2-13-A and

EW-OU2-16-A are 115-146 ft btoc with water levels at ~132 ft btoc for EW-OU2-13-A, and 79.5-109.5 ft btoc with water levels at ~95 ft btoc for EW-OU2-16A. Samples from these operating extraction wells are composites of the entire screened interval below the groundwater level.

Soil vapor was assessed during the 2012 Five-Year Review. At that time, the Johnson and Ettinger Model[2] for subsurface vapor intrusion was used to predict indoor air concentrations based on VOC concentrations in groundwater (EA,1997). The results demonstrated that, except for PCE and TCE, the predicted indoor air concentrations have cancer risks and hazard quotients that do not exceed 1 x 10^{-6} and the threshold level of 1, respectively. The estimated cancer risks based on the ACLs for PCE and TCE were 1 x 10^{-6} and 1 x 10^{-6}, respectively. The cumulative cancer risk was 4 x10^{-6} and is within EPA's risk management range of 1 x 10^{-6} to 1 x 10^{-4}. The cumulative hazard index was 0.3, which is less than the threshold level of 1.
Soil vapor associated with OU2 was assessed by the USACE as part of this Five-Year Review using current soil vapor screening levels (EPA, 2022). The nine OU2 A-Aquifer COCs with detections during Third Quarter 2021 were included in this assessment. The results show that, individually, the estimated excess cancer risk to a resident is within or below the acceptable risk range of 10^{-4} to 10^{-6}, based on current exposure assumptions and toxicity data. The cumulative risk is also within the acceptable risk range. In addition, the ACLs for groundwater COCs are health-protective of indoor air exposures and remain valid.

Vapor Intrusion

Landfills

Both VOCs and methane have been detected in soil gas within the boundaries of the Fort Ord Landfills area. Although methane has little toxic effect, at levels of 5 to 15 percent in air, methane can be ignited. State regulations require that landfill gases be monitored at the property boundary (compliance requirements are: methane less than 5 percent by volume). The Army has installed underground probes to monitor landfill gases. Presently there are 67 monitoring probes and 2 utility trench probes located around Areas B-F. The monitoring probes installed around the Fort Ord Landfills area are monitored quarterly for methane and annually for the 11 groundwater COCs (see Table 4). The Army installed a landfill gas extraction and treatment system in 2001. The system's initial design has been optimized to maximize gas extraction and destruction of methane and VOCs by a thermal treatment unit which began full-time operation in August 2006. Since that time, the system has been further optimized to increase gas capture and system efficiency. Analytical results for samples collected from the 21 compliance probes during the annual VOC monitoring indicate VOCs were mostly not detected (ND) to the limit of quantitation (LOQ) during the Fourth Quarter 2019 through Third Quarter 2020 sampling event. Concentrations of groundwater COCs associated with the Fort Ord Landfills have decreased significantly since the implementation of TTU operations. Methane was ND (less than or equal to 0.1%v) in all 21 compliance probes during the sampling event (Ahtna, 2021b).

6.4.3 Site Inspection and Interviews

Groundwater

A site inspection was performed on August 5, 2021 by Jocelyn Barber and Charity Meakes (Environmental Engineers for USACE) to assess the overall condition of the remedy as it relates to its effectiveness, including the physical condition of the system, system integrity, system operations, site security, and access controls. Mr. Derek Lieberman (Ahtna Program Manager) and Mark Fisler (System Operator) were interviewed on the same day as the inspection to provide information on the site's operational activities and to help facilitate the site inspection. Detailed inspection forms and site photographs are included in Appendix B. The treatment system is partially housed in a metal-framed warehouse structure that limits access and provides protection from the elements. The system operators' offices and SCADA system are in the new GWTP building. The

[2] Johnson and Ettinger introduced a screening-level model which incorporates both convective and diffusive mechanisms for estimating the transport of contaminant vapors emanating from either subsurface soils or groundwater into indoor spaces located directly above or in close proximity to the source of contamination.

extraction wells are connected to the treatment system by a network of underground pipes. The system operates continuously and is computer monitored. Automated shutdown and operator notification systems are in place in the event of a malfunction if the operator is not on site. System components generally are in good condition and show no unusual or unexpected wear or aging. In general, the system appears to be well maintained, in good condition, and functioning as designed. System integrity appeared good, and security systems generally appeared to be adequate.

Landfills

The Fort Ord Landfills are surrounded by a chain-link fence to restrict access, and the TTU is within the main Landfill area and enclosed by another chain-link fence. On December 26, 2019, an automatic security gate was installed at the main road to access the landfill. Components of the TTU appear to be in generally good condition but show some indications of exposure to the elements. The SCADA system notifies the operators in the event of a system shutdown or other critical issue. The system operators work during the business week at the OU2 Treatment plant, which is now located within the boundaries of the landfill fencing, so they can regularly evaluate maintenance needs and implement minor system adjustments. In general, the system appears to be well maintained, in good condition, and functioning as designed. System integrity appeared good, and security systems generally appeared to be adequate.

The landfill engineered cover system appears to be in generally good condition, with minor erosion and animal burrowing that are regularly addressed. Vegetation is reasonably well developed within allowances for protection of the engineered cover system and provides suitable habitat for native fauna. Natural control of burrowing rodents is encouraged by the presence of raptor perches and barn owl nest boxes constructed within the landfill. In general, the landfill engineered cover system and TTU systems appeared to be in good condition and functioning as designed.

6.5 Technical Assessment

6.5.1 Question A

Is the Remedy functioning as intended by the Decision Documents?

Landfill Engineered Cover System

The OU2 Landfills engineered cover system, which minimizes rainwater infiltration and migration of contaminants to the groundwater aquifers and protects the surrounding environment from exposure to landfill waste, is functioning as intended. Operation and maintenance for the Fort Ord Landfills includes the landfill cover, slope stability, survey monuments, settlement plates, erosion and drainage control, preventing and repairing wildlife damage to the landfill cover system. Continued operation of the TTU will mitigate landfill gas emissions. A State of California Registered Civil Engineer conducts annual inspections of the landfill. Representatives of the Monterey County Department of Health conduct quarterly inspections each year during the reporting period. There were no violations; however, some minor maintenance improvements were recommended and were implemented. In general, inspections found that appropriate maintenance of the landfill is being conducted, and the landfill engineered cover system is functioning as designed.

Groundwater Treatment

Groundwater treatment has continued to function as intended for OU2, as documented by the summary of compliance point TCE concentrations over the period of October 2016 to September 2021. Except for the November 2018 incident during the transition to the new GWTP, the TCE concentration after groundwater treatment was always lower than the OU2 discharge limit of 0.5 ug/L for TCE (which is lower than the California TCE MCL of 5 ug/L by a factor of 10). Additionally, from October 2016 through September 2021, the GWTS was online more than 98.5 percent of the time, which exceeded the goal of 95 percent operability.

6.5.2 Question B

Are the Exposure Assumptions, Toxicity Data, Cleanup Levels, and Remedial Action Objectives used at the time of remedy selection still valid?

Landfill Engineered Cover System

Yes. The RAOs for the shallow soils and waste materials are to restrict rainfall infiltration and prevent leaching to underlying groundwater of VOCs remaining in waste materials and soil and to prevent potential exposure of VOCs to the environment or people who use the site in the future. Although toxicity data and exposure assumptions may have changed, such changes do not impact the protectiveness of the landfill engineered cover system.

Groundwater Treatment

Yes. The RAOs for groundwater include cleaning the A-Aquifer and the Upper 180-Foot Aquifer to MCLs or lower, as shown in Section 6.2. For more information, see Section 6.2 Remedial Actions.

Many of the Aquifer Cleanup Levels are based on the more restrictive of EPA or California MCLs, meaning changes to the toxicity values are not directly relevant to the protectiveness of the remedy. No changes have been made to MCLs for any of the COCs. Several of the groundwater cleanup levels are based on carcinogenic tap water risk calculations. However, although exposure assumptions and toxicity values may have changed, individually, the estimated excess cancer risk using the existing Aquifer Cleanup Levels is within the acceptable risk range of 10^{-4} to 10^{-6}, based on current exposure assumptions and toxicity data. The cumulative risk is also within the acceptable risk range, and therefore cleanup levels continue to be protective.

Soil vapor associated with OU2 was assessed as part of this Five-Year Review using current soil vapor screening levels (EPA May 2021 Vapor Intrusion Screening Levels). The nine OU2 A-Aquifer COCs with detections during Third Quarter 2021 were included in this assessment. The results show that, individually, the estimated excess cancer risk to a resident is within or below the acceptable risk range of 10^{-4} to 10^{-6}, based on current exposure assumptions and toxicity data. The cumulative risk is also within the acceptable risk range.

6.5.3 Question C

Has any other information come to light that could call into question the Protectiveness of the Remedy?

Landfill Engineered Cover System

There is no known current information that would call into question the protectiveness of the landfill engineered cover system and associated engineering and institutional controls.

Groundwater Treatment

The majority of COC mass above the ACL in the A-Aquifer is located close to the source area (Fort Ord Landfills) where the OU2 GWTP relocation and expansion has refocused remediation efforts. However, a persistent COC mass in A-Aquifer Hydraulic Zones 2 and 5 and Upper 180-Foot Aquifer Hydraulic Zone 8, which are outside of the current efficient extraction well network capture areas are of concern. There have been TCE detections above the MCL in the Lower 180-Foot Aquifer monitoring well MW-BW-59-180, presumed to have migrated there from the Upper-180 OU2 plume through a suspected discontinuity in the Intermediate 180-Foot Aquitard which needs to be further addressed. These areas are within the Fort Ord Special Groundwater Protection Zone and concentrations of TCE in downgradient water supply wells do not exceed MCLs, so the remedy is still currently protective, but additional action will need to be taken to ensure protectiveness in the future.

6.6 Issues

A-Aquifer

Without additional action, the A-Aquifer COC plumes would eventually migrate over the edge of the FO-SVA into the Upper-180 Aquifer and likely be captured by the existing Upper 180-Foot Aquifer extraction well networks (EW-OU2-09-A through EW-OU2-13-A). However, this would be very cost and time inefficient, and the COC plumes could be better captured by expansion of the Eastern Network with additional A-Aquifer extraction wells.
The long-term reduction of the TCE plume footprint illustrates that the current extraction well configuration has effectively removed TCE mass from this aquifer; however, the persistence of TCE and other COCs downgradient from Fort Ord Landfills Area F demonstrates the need for continued operation of the GWTS. The eastern A-Aquifer extraction network and the Abrams/Imjin A-Aquifer extraction well network are intended as barriers for most COCs so they do not migrate further downgradient; therefore, keeping these networks operational and enhancing flow rates is imperative

Upper and Lower 180-Foot Aquifers

TCE concentrations observed in MW-OU2-28-180 and MW-OU2-62-180 during 2019-2020 indicate the TCE plume extends downgradient and to the east of the current Upper 180-Foot Aquifer extraction well network (Hydraulic Zone 8). This area has a suspected discontinuity in the Intermediate 180-Foot Aquitard as indicated by TCE detections in Lower 180-Foot Aquifer monitoring well MW-BW-59-180 (monitored as part of the OUCTP site). Hydraulic Zone 8 is outside the current extraction well network (Ahtna, 2021b).

TCE plumes outside of the capture area of existing Upper 180-Foot Aquifer extraction well networks are still within the Fort Ord Special Groundwater Protection Zones; however, the TCE plume may be migrating from the Upper 180-Foot Aquifer through an apparent discontinuity in the Intermediate 180-Foot Aquitard to the Lower 180-Foot Aquifer where three downgradient water supply wells are partially screened. The original ROD and subsequent ESDs for OU2 do not address the Lower 180-Foot Aquifer, only the A-Aquifer and Upper 180-Foot Aquifers.

6.7 Recommendations and Follow-Up Actions

- To effectively capture the plume migrating outside of the A-Aquifer an expansion of the Eastern Network A wells north of the Abrams/Imjin Network would be most time effective as opposed to waiting for the Upper 180-Foot extraction wells to capture the plume. The expansion includes installing eight new A-Aquifer extraction wells in the Eastern Network (Ahtna, 2021m). Planning and installation of these wells should start as soon as feasible. At the time of this report, a Cost Effectiveness Evaluation was being prepared for this issue.

- Multiple extraction wells were offline for extended periods of time during the transition to the new GWTP, with some only coming online in 2021. It is possible that with recent operation of the expanded groundwater remedy and new OU2 GWTP, configuration of the COC plumes may change. If evidence of recapture of the Upper-180 plume does not become apparent by late 2022, it will be necessary to investigate additional means of treating the plume.

- Further assessment of contaminants from OU2 migrating into the Lower 180-Foot aquifer is needed. Response to contaminants in the Lower 180-Foot Aquifer will require a decision document, as the original ROD and existing ESDs for OU2 do not cover this aquifer.

- Continue operation of the new OU2 GWTS, including optimization measures to maximize

mass removal and plume capture. Modifications to individual extraction wells, such as redevelopment if needed, repairs, and limiting flow from portions of the screened interval associated with relatively clean groundwater, may also increase the mass removal efficiency. Implementation of optimization recommendations for the OU2 GWTP in the *Operable Unit 2 Groundwater Treatment System Evaluation and Optimization Report* (Ahtna, 2021m), such as EW and IW specific capacity testing and energy efficiency and solar power evaluations are also be recommended.

6.8 Protectiveness Statement

Protective in the Short-term. The remedy at OU2 currently protects human health and the environment because the ongoing remedial activities continue to adequately address all exposure pathways that could result in unacceptable risks. Areas of the plume that are currently out of capture zones are not currently being used by any potential receptors, and potential exposure pathways are also being controlled by the restrictions of Chapter 15.08 of Title 15, Monterey County Code, and the CRUP. During the remediation process, potential environmental and human health concerns are being addressed by mitigation measures, such as control and treatment of landfill gases. However, additional evaluation of the Upper and Lower 180-foot aquifer plumes is needed to determine an appropriate remedy for long-term protectiveness. As part of this, RAOs and appropriate remedy will need to be determined for the Lower 180-foot aquifer and promulgated in an ESD or ROD amendment.

Potable drinking water on the Former Fort Ord is provided by the Marina Coast Water District (MCWD), and drinking water supplied by the MCWD meets all Federal and State regulatory standards. MCWD regularly tests drinking water quality and reports the results in an annual Consumer Confidence Report that is provided to customers and found at https://www.mcwd.org/. Water quality data and operational information are also available at MCWD.

7.0 BASEWIDE REMEDIAL INVESTIGATION SITES ROD

This section presents background information on the Basewide RI Sites; provides a summary of remedial actions, a technical assessment of the actions taken at these sites, and progress since the last Five-Year Review Report was issued; identifies any issues related to the protectiveness of the remedies based on the review; presents recommendations and follow-up actions, if needed, to address any issues identified during the review; and provides statements regarding the protectiveness of the site remedies.

7.1 Site 2 – Main Garrison Sewage Treatment Plant and Site 12 – Four Sub-Areas

Sites 2 and 12 comprise an area that is inclusive of five separate sub-areas of various types of operations within two separate investigation sites. The locations of the two sites are shown on Plate 2.

7.1.1 Sites 2 and 12 Background

Sites 2 and 12 were combined into one site after the first phase of the RI activities (HLA, 1995a) because similar groundwater contamination was identified at both sites and in the area between the two sites (see Plate 2). A description of the five individual areas of concern within the Sites 2 and 12 complex and a description of groundwater contamination associated with the complex are presented below. The eight groundwater COCs identified at Sites 2 and 12 and their respective ACLs are listed in Table 4.

7.1.1.1 Site 2 - Main Garrison Sewage Treatment Plant

Site 2 comprises an area of approximately 28 acres that included the infrastructure associated with the MGSTP, which was the primary sewage treatment facility for Fort Ord. This facility served the majority of the housing areas and the main industrial areas from the late 1930s until it was decommissioned in May 1990. The former treatment facility was fenced and contained several buildings and two large trickling filters. Three unlined sewage ponding areas and 10 asphalt-lined sludge-drying beds were located outside of the fenced area. During operation, effluent from the MGSTP was discharged in accordance with a National Pollutant Discharge Elimination System (NPDES) permit to a storm drain that emptied to the west onto Indianhead Beach during low tide and discharged to Monterey Bay during high tide. Sewage from the former Fort Ord area now flows via gravity to a pumping station in Marina and is then pumped to the Monterey Regional Treatment Plant in Marina. Potential contaminants associated with the former MGSTP include metals, pesticides, and hydrocarbons.

7.1.1.2 Site 12

Site 12 includes four former operations areas south and east of Imjin Parkway and State Route 1 in an area now mostly occupied by commercial retail complexes. The four major areas include the Lower Meadow Disposal Area, the DOL Automotive Yard, the Cannibalization Yard, and the Railroad Spur[3], as described below.

Lower Meadow Disposal Area

The Lower Meadow was an approximately 2-acre grassy field east of State Route 1, near the former Twelfth Street gate. The Lower Meadow was approximately 5 feet lower than the adjacent DOL Automotive Yard and received runoff from it. Several drainpipes and outfalls were present in the eastern and southeastern portions of the site, but it is unknown whether these were designed as drainage lines. No buildings were present in the

[3] The Army owned the Railroad Spur until it was transferred in 2004 to FORA as part of Parcel L20.16.2. FORA then transferred it to the Transportation Agency for Monterey County (TAMC).

Lower Meadow. The Lower Meadow previously was used to dispose of waste material generated by the DOL such as scrap metal, oil, and batteries, and also was reported to contain road construction waste. Contaminated soil and associated debris were excavated during cleanup activities at the site, and the area was backfilled with clean soil (IT, 1999).

DOL Automotive Yard

The DOL Automotive Yard is east of State Route 1 and northeast of the Railroad Spur that runs east from First Avenue. The 8.5-acre fenced site was adjacent to Twelfth Street to the north and the Lower Meadow to the west. The site included a paint shop, two wash racks, one temporary hazardous waste container storage area, an oil/water separator, an above-ground storage tank (AST), and several buildings that housed automotive repair operations. The site was paved and sloped gently to the west. Documented site activities included transmission repair, degreasing, testing, vehicle steam-cleaning and washing of engines, and petroleum/oil/lubricant storage. A buried container, which originally was used as a muffler for exhaust from engine testing, also may have been used for liquid waste storage. Tanks and contaminated soils were excavated during cleanup activities at the site, and the area was backfilled with clean soil.

Cannibalization Yard and Industrial Area

The Cannibalization Yard was a small (0.5-acre) paved and fenced area located within the larger (18.5 acre) paved and fenced Industrial Area. The entire 18.5-acre area was bounded by State Route 1 to the west, a baseball field to the east, and Tenth Street to the south. The Railroad Spur separated the Industrial Area from the DOL Automotive Yard to the north. The Industrial Area included a machine shop, a furniture repair shop, a laundry facility, a temporary hazardous waste container storage area, an oil/water separator, and an AST used for storing waste oil. Beginning in 1964, the Cannibalization Yard was used for disassembly of old equipment, primarily decommissioned military vehicles. Used motor oil was collected and stored on site in 55-gallon drums, and also in the 450-gallon AST for a brief period (between January 1988 and August 1988). Other vehicle maintenance activities included removal and storage of the following types of fluids and parts: gasoline (leaded and unleaded), diesel fuel, brake fluid, asbestos-containing brake shoes and linings, antifreeze/coolants, lead and acid from batteries, lubricating greases, and transmission fluids. Prior to the installation of the oil/water separator at the northeastern corner of the yard, runoff from the site flowed down the sloped area northeast of the Cannibalization Yard toward the baseball field. Contaminated soils were excavated during cleanup activities at the site, and the area was backfilled with clean soil.

Railroad Spur

The Railroad Spur[4] included an area of approximately 0.8 acres of right-of-way along a portion of the Railroad Spur that extended northward from the Southern Pacific Railroad track west of State Route 1 and curved east through an industrial complex. The portion of the railroad track within Site 12, and discussed here, extended from the main track east of State Route 1, across First Avenue, and between the DOL Automotive Yard and the Cannibalization Yard and surrounding Industrial Area. The rest of the Railroad Spur was investigated during the characterization of Site 13 (a Railroad Right-of-Way which included approximately 5,000 feet of rail spur [HLA, 1995]) and is not discussed in this section. The relatively flat right-of-way was mostly unpaved except in the areas adjacent to loading docks and where the Railroad Spur crossed First Avenue. The Railroad Spur was used to transport troop materials and equipment from the main rail line to storage facilities between the DOL Automotive Yard and the Industrial Area. The Railroad Spur was of concern because waste oil and/or fuels may have been sprayed in this area for dust control.

7.1.1.3 Sites 2 and 12 Groundwater Description

Groundwater investigated at Sites 2 and 12 included the upper two groundwater aquifers as described in the October 1995 *Final Basewide Remedial Investigation/Feasibility Study, Fort Ord, California, Volume II -*

[4] In the Record of Decision (ROD), the Railroad Spur is also referred to as the Southern Pacific Railroad (SPRR) Spur.

Remedial Investigation: Introduction and Basewide Hydrogeologic Characterization (HLA, 1995). In the Sites 2 and 12 area, these two aquifers include the Upper 180-Foot Aquifer, and the Lower 180-Foot Aquifer. The A-Aquifer, which is present elsewhere at Fort Ord, terminates a short distance east of the site. Depth to groundwater in the Upper 180-Foot Aquifer is approximately 40 feet bgs (at Site 2) to 80 feet bgs (at Site 12). The base of the confining aquitard beneath the Upper 180-Foot Aquifer and overlying the Lower 180-Foot Aquifer is encountered at approximately 110 feet bgs in the vicinity of the site. Groundwater in monitoring wells rises above this depth as a result of hydraulic pressure. The Lower 180-Foot Aquifer in the vicinity of Sites 2 and 12 is not used as a water supply source, but elsewhere it is a significant source of potable water for Fort Ord and the City of Marina (Army, 2008). Existing water supply wells are located at least 3 miles away from the site. The natural flow of groundwater in the Upper 180-Foot Aquifer in the vicinity is westward toward the Pacific Ocean; however, reinjection of treated groundwater at Site 2 creates a localized hydraulic mound that causes an easterly groundwater flow to the extraction wells at Site 12. Groundwater at Sites 2/12 is designated as drinking water, industrial water, and agricultural water source under the RWQCB Basin Plan, but is not currently used for these purposes. Achievement of the RAOs will restore the uses of groundwater within and adjacent to Sites 2/12.

The Intermediate 180-Foot Aquitard, a sandy clay layer, appears to have limited the downward migration of contaminants between the Upper and Lower 180-Foot Aquifers so that remediation was only necessary in the Upper 180-Foot Aquifer. The COCs and aquifer cleanup levels for Sites 2 and 12 are listed in Table 4. The primary indicator chemicals for the distribution of COCs at Sites 2 and 12 have been PCE and TCE. The footprints of the Sites 2 and 12 PCE plumes in 2016 and 2021 are shown on Plate 3 (Ahtna, 2017b) and Plate 4 (Ahtna, 2021), respectively. There were no TCE concentrations above the ACL in the timeframe depicted in either Plate.

7.1.2 Remedial Actions

Remedial actions were implemented at Sites 2 and 12 in accordance with the Basewide RI Sites ROD (Army, 1997a). For soil, the RAO for Sites 2 and 12 was to protect groundwater by remediating TPH in soil to a concentration of 500 milligrams per kilogram (mg/kg) or less. For groundwater, the RAO was to remediate the Upper 180-foot aquifer to MCLs, and for some constituents more stringent levels, for the detected VOCs. Finally, there was an RAO for removal of debris because contaminated soil was potentially mixed with the debris. Remedy implementation included removal of contaminated soil and construction of a groundwater treatment system. One groundwater remedial unit and three soil remedial units (SRUs) were defined at Sites 2 and 12, as described below (Army, 2012).

Groundwater Remedial Unit (VOC Plume at Sites 2 and 12)

The groundwater remedial unit is defined as the portion of groundwater at Sites 2 and 12 where the eight identified COCs exceed ACLs (see Table 4) (Army, 2012).

The vertical extent of the affected groundwater ranges from the top of the water table to the top of the sandy clay layer that divides the 180-Foot Aquifer into upper and lower zones. The affected water-bearing zone beneath Sites 2 and 12 is the Upper 180-Foot Aquifer, which is the uppermost water-bearing zone in the vicinity and has approximately 75 to 80 feet of saturated thickness. Depth to water is approximately 70 to 80 feet bgs at the eastern edge of the plume (Site 12) and approximately 40 feet bgs at the western edge (Site 2). The sandy clay layer dividing the Upper 180-Foot Aquifer from the Lower 180-Foot Aquifer appears to have limited vertical migration of dissolved VOCs. The groundwater plume as of September 2021 is shown on Plate 4.

Property overlying and surrounding Sites 2 and 12 is within the "Prohibition Zone" of the "Special Groundwater Protection Zone." County Ordinance No. 04011 (Monterey County Code Title 15, Chapter

15.08.140) prohibits construction of water wells within the Prohibition Zone. See Plate 2 for the current Prohibition and Consultation Zones.

Soil Remedial Unit 1 (Lower Meadow Disposal Area)

The Lower Meadow Disposal Area, which is an approximately 0.5-acre portion of the Lower Meadow on Site 12, consisted of a grassy field east of State Route 1 near the Twelfth Street Gate. This area, defined as SRU 1, contained concrete rubble and other construction debris intermixed with petroleum hydrocarbon (TPH)-contaminated soil (Army, 2012).

Soil Remedial Unit 2 (Outfall-31 Area)

SRU 2 was defined as the OF-31 Area east of SRU 1. It consists of a grass-covered depression that received surface runoff and storm drainage flow from OF-31 and several other pipes. It had a catch basin area that collected precipitation and rainfall runoff. The catch basin was connected to subsurface piping, which ran to the west from the OF-31 Area to OF-15. The primary contaminants in soil associated with OF-31 included TPH of unknown origin (TPH-unknown) and TPH as diesel (TPH-d) (Army, 2012).

Soil Remedial Unit 3 (Cannibalization Yard Area)

SRU 3 was the Cannibalization Yard Area, a shallow surface drainage area subject to runoff from the DOL Automotive Yard to the west and the Industrial Area to the south. Samples from the surface and shallow borings near an oil/water separator and along the eastern margin of the Cannibalization Yard indicated that elevated concentrations (greater than 500 mg/kg) of TPH were present in shallow soil. No TPH concentrations greater than 500 mg/kg were detected in soil samples collected below 0.5 feet bgs. The vertical and horizontal limits were defined by analytical data from soil borings and surface samples (Army, 2012).

7.1.2.1 Remedy Selection

The following four remedial alternatives were evaluated in the Sites 2 and 12 FS (HLA, 1995a).

- Alternative 1: No Action
- Alternative 2: Groundwater Extraction and Treatment by Publicly Owned Treatment Works
- Alternative 3: Groundwater extraction and treatment by GAC
- Alternative 4: Groundwater extraction, treatment, and disposal

Selected Remedy

Alternative 4 was selected as the remedy and includes the following components:

- Disposal of treated groundwater by: (1) reuse above ground or (2) injection or infiltration of treated water back into the aquifer
- Excavation of approximately 16,000 cy of soil and debris containing TPH concentrations above the cleanup goal of 500 mg/kg from the Lower Meadow Disposal Area, and placement at the Fort Ord Landfills[5]
- Excavation of approximately 3,800 cy of soil containing TPH concentrations above the cleanup goal of 500 mg/kg from the OF Area and Cannibalization Yard, and placement at the Fort Ord Landfills
- Groundwater extraction and treatment by GAC

[5] The extent of soil and debris containing TPH concentrations above 500 mg/kg was greater than originally estimated; therefore, a total of 58,400 cy was excavated (IT, 1999).

- Deed restriction on groundwater use

Significant Differences with the Selected Remedy

The following additional RAOs were proposed in the February 2015 *Final Remedial Investigation/Feasibility Study Addendum at Sites 2 and 12, Former Fort Ord, California* (Ahtna, 2015) for groundwater within Sites 2 and 12:

- Prevent migration of VOCs in soil gas that would result in groundwater concentrations in excess of ACLs.
- Remediation of PCE in groundwater to the federal and State MCL of 5.0 ug/L.

The Army formalized these RAO's in the February 2016 *Explanation of Significant Differences No. 1 Basewide Remedial Investigation Sites 2 and 12, Former Fort Ord, California* (Army, 2016). The ESD modifies the groundwater remedy to include the following elements:

- Continuation of the current groundwater monitoring program.
- Operation of the existing Sites 2 and 12 GWTS in accordance with the 1997 ROD.
- Revising the ACL for PCE from 3.0 ug/L to 5.0 ug/L.
- Expansion of the existing Sites 2 and 12 GWTS with additional groundwater extraction.
- Soil vapor extraction (SVE) and treatment with GAC.
- Soil gas cleanup levels (SGCLs) of 1,800 micrograms per cubic meter (ug/m^3) for PCE and 1,000 ug/m^3 for TCE.
- Implementation of a soil gas monitoring program.

The SGCLs for PCE and TCE were determined by calculating the concentrations of these chemicals in soil gas that will not partition into groundwater at concentrations exceeding their respective ACLs. With ACLs of 5.0 ug/L for PCE and 5.0 ug/L for TCE, the calculated equilibrium concentrations in soil gas would be 2,417 ug/m^3 for PCE and 1,432 ug/m^3 for TCE; however, since these calculated equilibrium concentrations assume ideal conditions based on a static system with constant temperature, equilibrium, and molecular heterogeneity, the SGCLs are conservatively set at 75 percent of the calculated concentrations rounded down to the nearest 100 ug/m^3. The SGCLs are then 1,800 ug/m^3 for PCE and 1,000 ug/m^3 for TCE for protection of groundwater (Army, 2015b).

7.1.2.2 Remedy Implementation

Soil Remedy

The soil remedy was implemented in accordance with the approved plan (HLA, 1995) including a series of soil removal actions, as documented in the June 1999 *Draft Final Remedial Action Confirmation Report and Post-Remediation Health Risk Assessment, Site 12 Remedial Action, Basewide Remediation Sites, Fort Ord, California* (IT, 1999). Based on completion of the soil remediation activities, the site is available for unrestricted reuse (Army 2012).

Groundwater Remedy

The GWTS comprises a network of extraction wells screened in the Upper 180-Foot Aquifer (Plate 6), primary treatment by GAC, and injection and infiltration as described in the June 2021 *Sites 2 and 12, First Quarter 2021 Groundwater and Soil Gas Monitoring and Treatment System Report* (Ahtna, 2021f). Operation of the groundwater pump-and-treat system to remediate COCs in groundwater began in 1999 and the EPA concurred with the Army's demonstration the system was "Operating Properly and Successfully" in 2002 (EPA, 2002).

Sampling and analysis are routinely conducted to verify that the treatment system is operating effectively. Groundwater samples and water levels from monitoring wells are collected quarterly to evaluate the effects of pumping and treatment on hydraulic capture and contaminant reduction. This information is compiled into quarterly and annual reports that summarize long-term trends resulting from system operation (Army, 2012).

The groundwater treatment system consists of carbon adsorption, accomplished using two GAC vessels connected in series. The GAC vessels have a 13,000-pound capacity, but the system is designed to use 10,000 pounds of GAC in each of the vessels. The original system extracted water from eight wells located at Site 12 and discharged into five Upper 180-Foot Aquifer recharge structures (2 injection wells and 3 infiltration galleries) at Site 2. However, system modifications were implemented shortly after startup due to the presence of vinyl chloride at concentrations greater than anticipated. System modifications included construction of a pipeline to transport and combine treated water from the OU2 GWTP with treated water from the Sites 2 and 12 GWTP at the effluent tank (Plate 6). In response to the presence of elevated vinyl chloride concentrations, the effectiveness of various remediation alternatives was evaluated to address vinyl chloride and optimize remediation efficiency (Ahtna, 2003; Shaw, 2006). Based on the study results, treatment system augmentation was completed in 2006, in accordance with the February 2006 *Treatment Augmentation Work Plan, Sites 2 and 12 Groundwater Remedy Expansion* (Shaw, 2006). Treatment augmentation consists of a modified low-profile air stripper, with vapor treatment by a substrate impregnated with potassium permanganate. Since the augmentation acts as a polishing step, the GAC groundwater remedy specified in the Basewide RI Sites ROD (Army, 1997a) remained unchanged until ESD No. 1 in 2015. Photographs showing key components of the GWTP and GWTS are provided in Appendix B, Operable Unit 2 and Sites 2 and 12 Groundwater Remedy.

To accommodate redevelopment activities at the former Fort Ord, four extraction wells (EW-12-01-180U, EW-12-01-180M, EW-12-02-180U, EW-12-02-180M) and associated pipelines were abandoned and three replacement wells (EW-12-05-180M, EW-12-06-180M, and EW-12-07-180M) and associated pipelines were installed in 2006 (Army, 2012).

In 2015, the groundwater remedy was expanded, per ESD No. 1 to the Basewide RI Sites ROD, to address a groundwater remedial unit (GRU) and a soil gas remedial unit (SGRU), both within Site 12. The existing GWTS includes two functional extraction wells (EW-12-05-180M and EW-12-07-180M) screened in the middle zone of the Upper 180-Foot Aquifer and one extraction well (EW-12-08-180U) screened in the upper zone of the Upper 180-Foot Aquifer. Well EW-12-07-180M has been offline since 2012 due to low COC concentrations. Wells EW-12-05-180M and EW-12-08-180U are operated continuously, pumping a combined average of 142 gpm in the Second Quarter 2021. Well EW-12-08-180U is the newest extraction well. It was installed in 2015 to optimize the capture and extraction of PCE and TCE. The existing untreated groundwater conveyance system includes pipeline extending from well EW-12-05-180M to the Sites 2 and 12 GWTP on the west side of the retail buildings, pipeline extending from well EW-12-08-180U to the Sites 2 and 12 GWTP on the east side of the retail buildings, a treated groundwater pipeline from the OU2 GWTP to the Sites 2 and 12 GWTP, and a treated groundwater pipeline that conveys combined Sites 2 and 12 and OU2 GWTP effluent to aquifer recharge structures west of State Route 1; see Plate 6 (Ahtna, 2015b).

Investigations and operation of a soil vapor extraction (SVE) and air sparge (AS) pilot study treatment system in 2014 identified groundwater and soil gas plumes of TCE in the southern Site 12 area and PCE in the northern Site 12 area (Ahtna, 2021h). The pilot study demonstrated that SVE and AS are effective technologies for remediation of soil gas and groundwater at Site 12; however, it was determined SVE and additional groundwater extraction and treatment would likely be most effective for achieving remedial action objectives as described in the Explanation of Significant Differences No. 1 (Ahtna, 2021h). A full-scale soil vapor extraction and treatment system (SVETS) and one additional groundwater extraction (GWE) well were constructed (Ahtna, 2021h). The SVETS at Sites 2/12 is a part of the groundwater remedy and consists of the soil vapor treatment unit (SVTU) and ten SVE wells located at Site 12. The SVETS extracts soil gas from the vadose zone and treats it with vapor-phase GAC at the Sites 2/12 soil vapor treatment unit in order to

remediate the vadose zone. The full-scale SVETS removes contaminated soil gas that is identified as a continuing source of COCs to groundwater. Continuous SVE and treatment began on September 14, 2015 (Ahtna, 2019b). Five SVE wells (VE-12-01 through VE-12-05) were installed as part of a pilot study[6] in 2014 in the southern area of Site 12. Of these five SVE wells, three were screened in the lower portion of the vadose zone (VE-12-01 through VE-12-03) and two were screened in the middle portion of the vadose zone (VE-12-04 and VE-12-05). These five SVE wells constitute the south SVE well field and were intended to remediate the primarily TCE plume in soil gas near the Cinemark Century Theaters. In July 2015, five additional SVE wells (VE-12-06 through VE-12-10) were installed in the northern area of Site 12 and were screened in the lower portion of the vadose zone (see Plate 6). These five SVE wells constitute the north SVE well field and were intended to remediate the primarily PCE plume in soil gas under the parking lot of The Dunes on Monterey Bay retail center. Additional detail on the systems design can be found in the October 2015 *Final Operations and Maintenance Manual Volume III, Sites 2 and 12 Soil Vapor Extraction and Treatment System, Former Fort Ord, California* (Ahtna, 2015d).

SVETS operations consisted of vadose zone soil gas extraction from SVE wells at Site 12 (Ahtna, 2019b). The extracted soil gas was piped to the Sites 2/12 SVTU where the soil gas underwent condensate removal through liquid separation prior to treatment. The Sites 2/12 SVTU is located in the compound adjacent to the Sites 2/12 GWTP and consists of a positive displacement blower and two 3,000-pound vapor-phase GAC vessels operated in series (Ahtna, 2019b). In February 2019, with the concurrence of the regulatory agencies, the SVETS was shutdown to evaluate whether COCs were continuing to partition between soil gas and groundwater and whether concentrations of COCs in soil gas would remain below SGCLs (Ahtna, 2021h). After two quarters of monitoring, no significant changes in COC concentrations were observed, and the regulatory agencies concurred the SVETS could remain offline (Ahtna, 2021h).

A rebound study was performed to determine whether there is a rebound in concentrations of PCE and TCE in soil gas or groundwater by observing trends in concentrations and determining whether continued operation of the SVETS is required to remove COCs from soil gas that could adversely impact groundwater (Ahtna, 2021h). The goals of the rebound study were to evaluate if COC concentrations have stabilized or are declining in both soil gas and groundwater with the SVETS offline; and confirm remedial action objectives for soil gas to continue to be met with the SVETS offline (Ahtna, 2021u). Per Soil Gas QAPP Addendum No. 1, soil gas probes and groundwater wells were scheduled to be sampled for three consecutive quarters: First Quarter 2020, Second Quarter 2020, and Third Quarter 2020 (Ahtna, 2021h). An increase in TCE concentrations in soil gas to levels above the SGCL required operation of the SVETS during Second Quarter 2020. This resulted in postponing the completion of the rebound study until Fourth Quarter 2020. From April 27, 2020 to June 16, 2020, the SVTU was operated due to the exceedance of TCE concentrations above SGCLs in two soil gas probes during the First Quarter 2020. The SVTU was then turned off for the rest of the Five-Year Review reporting period with concurrence of USEPA, DTSC, and Central Coast RWQCB since soil gas COC concentrations decreased and remained below SGCLs. COCs in soil gas do not appear to be partitioning into groundwater at concentrations above ACLs. Additionally, no soil gas COC concentrations exceeded SGCLs in the Third Quarter 2020 and Fourth Quarter 2020 (Ahtna, 2021h). Based on the rebound study, it was recommended the SVETS remain offline; however, if soil gas COC concentrations near the water table exceed the SGCLs and there is a corresponding increase in groundwater COC concentrations greater than ACLs, the SVETS may be operated (Ahtna, 2021t).

These modifications to the groundwater remedy were expected to reduce the intrinsic threat posed by contamination in groundwater and restore groundwater for potential beneficial reuse within approximately 3 years of implementation because of active remediation of soil gas, additional extraction and treatment of groundwater, and revision of the ACL for PCE. Without these modifications, it was estimated achievement of

[6] The pilot study also included air sparging of groundwater and five air sparge wells are collocated with the five SVE wells; however, air sparging is not part of the full scale remedial strategy.

RAOs (i.e., restoration of groundwater for beneficial use) would have taken 13 years with a 60 percent increase in costs (Army, 2016).

Deed Restrictions

In accordance with the January 1997 *Record of Decision, Basewide Remedial Investigation Sites, Fort Ord, California* (Army, 1997a), a groundwater use restriction was made part of the remedy. This requirement was articulated in the 2003 and 2007 quitclaim deeds indicating that the Grantee covenants for itself, its successors, and assigns not to access or use groundwater underlying the property for any purpose[7].

7.1.2.3 System Operations and Maintenance

The Sites 2 and 12 groundwater treatment system has been in operation since April 1999. The Sites 2 and 12 groundwater remedy is operated in accordance with the August 2009 *Final Operations and Maintenance Manual, Volume II, Sites 2 and 12 (Sites 2/12) Groundwater Remedy, Former Fort Ord, California* (Ahtna, 2009) and the February 2021 *Quality Assurance Project Plan, Former Fort Ord, California, Volume I, Appendix A, Final Revision 8, Groundwater Remedies and Monitoring at Operable Unit 2, Sites 2 and 12, and Operable Unit Carbon Tetrachloride Plume* (Ahtna, 2021n). O&M activities are summarized quarterly in groundwater monitoring and treatment system reports.

A 1,000-gallon holding tank for 93 percent sulfuric acid solution is located in a hazardous material containment area inside the Sites 2/12 GWTP. The sulfuric acid was intended to be metered into the Sites 2/12 GWTP influent pipeline to lower the pH of the untreated groundwater and minimize calcium carbonate scaling in GWTP components. Through operation of the plant, it was determined that scaling was not an issue and the sulfuric acid was not needed. On April 25, 2018, approximately 238 gallons of sulfuric acid was removed from the 1,000-gallon tank and the Presidio of Monterey Directorate of Public Works, Hazardous Waste Management Division removed the sulfuric acid from the site (Ahtna, 2019b). The Monterey County Health Department inspected Sites 2/12 on June 21, 2018 and confirmed that the volume of sulfuric acid remaining onsite was below 55 gallons (Ahtna, 2019b). The Fourth Quarter 2019 through Third Quarter 2020 annual report reports that the sulfuric acid tank TK-5210 is empty (Ahtna, 2021g).

The SVE system was initially constructed as part of a pilot study with five soil vapor extraction wells in the southern area of Site 12 (south SVE well field). The pilot study system was operated from May 2014 to June 2014. Data from the pilot study was used to design and construct a full-scale soil vapor extraction system, which incorporated the south SVE well field and added a north SVE well field with five additional soil vapor extraction wells. The full-scale soil vapor extraction system was operating from September 2015 to February 2019. A rebound study was conducted during the Fourth Quarter 2017 and First Quarter 2018 which determined that the southern SVE wells will remain offline (Ahtna, 2018b). Based on the results of the Fourth Quarter 2018 soil gas monitoring program (SGMP), it was ultimately recommended that the SVETS be turned off for a soil gas rebound study during the First and Second Quarters of 2019 (Ahtna, 2019a). Based on the results of the Second Quarter 2021 SGMP event, it is recommended that the SVTU remain offline. The most recent reports describing O&M activities at Sites 2 and 12 are the June 2021 *Final Sites 2 and 12 First Quarter 2021 Groundwater and Soil Gas Monitoring and Treatment System Report, Former Fort Ord, California* (Ahtna, 2021f) and the October 2015 *Final Operations and Maintenance Manual Volume III, Sites 2 and 12 Soil Vapor Extraction and Treatment System, Former Fort Ord, California* (Ahtna, 2015d).

The GWTP currently operates continuously except during routine maintenance, GAC servicing, and replacement of worn equipment, and has been operational approximately 89.4 percent[8] of the time. This is

[7] There are also State Land Use Covenants, also known as CRUPs, with similar restrictions. CRUPs are executed by California DTSC and either the Army or the transferee and are recorded with the quitclaim deed, which is provided to the property recipient at the time of property transfer and run with the land. See Section 4.6 for additional information.

[8] According to annual reports, it was calculated that Sites 2 and 12 GWTP operated about 87 percent of the time.

less than the 95% operational goal for the GWTP. Some of the major downtimes include approximately 8 weeks offline in fiscal year 2017 for GAC vessel underdrain assembly malfunction and repairs, and approximately 14 weeks offline in fiscal year 2019 due to loss of SCADA system communications during and after the transition from the old to new OU2 GWTP.

Annual System Operations/O&M Costs

Based on costs listed in the ROD (Army, 1997a), predicted annual O&M costs for the groundwater treatment system were estimated to range from $326,000 to $375,000. The actual GWTS and SVE O&M costs for this Five-Year Review reporting period ranged from $198,903.17 to $320,154.38, with the highest costs in 2018 and 2019.

7.1.3 Progress Since the Last Five-Year Review

During the Five-Year Review reporting period, the GWTP operated continuously in the automatic control mode utilizing two GAC treatment vessels and an air stripper until a GAC vessel malfunction during a GAC change-out on April 18, 2017. On May 10, 2017, representatives from DTSC, USEPA, and Central Coast RWQCB agreed that operation of the Sites 2/12 GWTP with one GAC vessel and the air stripper would be acceptable for treatment of extracted groundwater and still comply with the ROD requirements. On June 6, 2017, the Sites 2/12 GWTP resumed operation with one GAC vessel and the air stripper. Through the Sites 2/12 GWTP was down for two months, there was no significant change in groundwater COC distribution. On September 13, 2017, the Army recommended that the Sites 2/12 GWTP continue to operate with one GAC vessel and the air stripper online for treatment of extracted groundwater until remedial action objectives are achieved based on the estimated costs of repairing the other GAC vessel (Ahtna, 2018a). Since that change, the GWTP operated continuously in the automatic control mode utilizing one GAC treatment vessel and the air stripper (Ahtna, 2021g). The GAC vessel COC removal efficiency calculated in the First Quarter 2021 indicated the GAC may be desorbing; however, COCs detected do not exceed ACLs or treated water discharge limits (Ahtna, 2021f). A backwash of the GAC was completed on March 25, 2021 and a sample was collected on March 29, 2021 to assess if the backwashing addressed the desorbing issue (Ahtna, 2021f). Samples indicated that desorbing was still occurring. The GAC was changed out on April 27, 2021 and no COCs were detected after sampling (Ahtna, 2021i).

After April 2021, EW-12-08-180U, which had been underperforming since its installation in 2015, was redeveloped and a larger pump was installed in an effort to increase the pumping rate from the well and reduce the cleanup time for the PCE plume (Ahtna, 2021f). This redevelopment and pump replacement increased flow in EW-12-08-180U; however, the expected increase in flow rate was not achieved. Ahtna attempted to address the issue by scoping the pipeline to identify possible restrictions. No restrictions were observed, though turns in the pipeline prevented the scope from advancing through the entire length of the pipeline (Ahtna, 2021t). Additional effort to identify possible pipeline restrictions and increase flow rate may be made after the Third Quarter 2021 reporting period. EW-12-08-180U will continue to be operated and sampled quarterly to monitor for remedial progress (Ahtna, 2021t).

From the start of the Five-Year Review reporting period until February 11, 2019, the SVTU operated continuously in the automatic control mode utilizing two GAC treatment vessels to remediate soil gas and augment the groundwater plume remediation (Ahtna, 2020d). Before the system was taken offline, TCE removal efficiency had been negative since the Fourth Quarter 2017 due to TCE desorbing from the GAC as PCE continued to be adsorbed. The SVETS continued to remain in compliance with the requirements of Air District Rules 207 and 1000 and could continue to efficiently remove PCE, which is the only groundwater COC with concentrations above the ACL, if the system were turned back on (Ahtna, 2021g).

On February 11, 2019, the SVETS was turned off to evaluate whether COCs were continuing to partition between soil gas and groundwater and whether concentrations of COCs in soil gas would remain below

SGCLs (Ahtna, 2021h). A rebound study was performed due to a decrease in COC concentrations in SVE well VE-12-09 in the Third Quarter 2018 and Fourth Quarter 2018 SGMP events (Ahtna, 2020d). After the SVETS was turned off in February 2019, there was a minimal rebound in PCE soil gas concentrations observed at the three northern soil gas probe locations (SG-12-01, SG-12-04, and SG-12-06) within the radius of influence for SVE well VE-12-09 (Ahtna, 2021g). PCE and TCE in sampled soil gas probes and SVE wells had no or minimal increases in COC concentrations during this rebound study and remained below soil gas screening levels (SG-SLs) (Ahtna, 2020d). After two quarters of monitoring, no significant changes in the COC concentrations were observed, and regulatory agencies agreed the SVETS could remain offline (Ahtna, 2021h).

A soil gas rebound study began in the First Quarter 2020 but was suspended in the Second Quarter 2020 due to TCE soil gas concentrations above SGCL in two sampled soil gas probes (Ahtna, 2021h). The SVETS was operated from April 27 to June 16, 2020, to remediate TCE levels. On June 16, 2020, the SVETS was shut down as soil gas COC concentrations were below SGCLs. The rebound study resumed in the Third Quarter 2020 and completed in the Fourth Quarter 2020 (Ahtna, 2021f). COCs in soil gas do not appear to be partitioning into groundwater at concentrations above ACLs (Ahtna, 2021h).

The goals of the soil gas rebound study were to evaluate if COC concentrations have stabilized or are declining in both soil gas and groundwater with the SVETS offline; and confirm remedial action objectives for soil gas continue to be met with the SVETS offline. The northern PCE soil gas concentrations are consistently below the SGCL. There are two soil gas probe locations (SG-12-02 and SG-12-20) with PCE consistently above the SG-SL, but these concentrations are decreasing (SG-12-02) or stable (SG-12-20) (Ahtna, 2021t). The three northern soil gas probe locations (SG-12-01, SG-12-04, and SG-12-06) are within the radius of influence for SVE well VE-12-09. The results of the rebound study showed that TCE concentrations exceeded the SGCL at SG-12-04-10 and SG-12-04-20 in the Second Quarter 2021. In the Third Quarter 2021, soil gas TCE concentrations exceeded the SGCLs at SG-12-04-10, SG-12-04-20, and SG-12-04-65 and were equal to the TCE SGCL at SG-12-04-50. The trend in TCE concentrations in groundwater does not appear to follow the trend observed in the soil gas probes, indicating there is no partitioning into groundwater at concentrations above ACLs. Statistical analyses and non-statistical review of soil gas and groundwater monitoring data indicate that rebound is not occurring in most soil gas probes and is not occurring in any groundwater wells (Ahtna, 2021u). The soil gas rebound study states that the statistically significant evidence of increasing TCE concentration trends at soil gas probes SG-12-04-10 and SG-12-04-65 indicate TCE rebound is occurring in this localized area. However, there is no evidence of adverse impacts to groundwater related to this rebound (Ahtna, 2021u). Rebound may also be occurring in isolated areas associated with specific soil gas probes (SG-12-06-10, SG-12-17-60, and SG-12-20-70). According to the soil gas rebound study, detections of PCE and TCE have been consistently less than SGCLS in these probes.

Based on this information, it is recommended that the SVETS remain offline. The quarterly SGMP should be continued per the Soil Gas QAPP and the quarterly GWMP should be continued per the Groundwater QAPP to confirm groundwater is not adversely impacted (Ahtna, 2021u). COCs in soil gas do not appear to be partitioning into groundwater at concentrations above ACLs and soil gas COC concentrations have historically remained less than SGCLs across the majority of the site when the SVETS is offline. According to the soil gas rebound study, the operation of the SVETS may be considered and further monitoring may be conducted if rebound occurs.

Ahtna Global, LLC prepared the *Draft Sites 2 and 12 Site Closure Exit Strategy* on behalf of the U.S. Army Corps of Engineers (USACE) Sacramento District, per Contract W91238-19-C-0027 to define an exit strategy for reaching final site closure of Sites 2 and 12 (Ahtna, 2021v). This document was prepared to define the steps for completing groundwater remediation and reaching final closeout of Sites 2 and 12 (Ahtna, 2021t). The Exit Strategy provides a brief site history, including past groundwater and soil gas monitoring and remediation activities, and a description of procedures for evaluating if Sites 2 and 12 meets RAOs

documented in the RI Sites ROD and ESD No. 1. The Sites 2 and 12 Site Closure Exit Strategy document is still in draft form and a final version has not yet been agreed upon by the agencies, so the plan discussed below may change.

Based on the findings of soil gas and groundwater remediation as of Second Quarter 2021 and the Closure Exit Strategy, no further remedial action is required, and it is recommended that a closure process be implemented for Sites 2 and 12 (Ahtna, 2021v). Site closure depends on the decision criteria for completion of the groundwater restoration remedial action per the Groundwater QAPP. According to the Closure Exit Strategy, the analytic approach for soil gas plume remediation is subordinate to the analytic approach for groundwater plume remediation; therefore, it was not considered during the development of the exit strategy per the Soil Gas QAPP. Criteria for terminating the groundwater remedy are based on decision rules identified in the Groundwater QAPP (Ahtna, 2021n). Groundwater monitoring wells and extraction wells are sampled quarterly during the remediation monitoring phase (Ahtna, 2021v). The attainment monitoring phase for a well is complete when concentrations of all COCs in the well are less than or equal to their respective ACLs in eight consecutive monitoring events and data analysis indicates COC concentrations are stable or declining, or when COC concentrations are below their respective limits of quantitation or below 10 percent of their respective ACLs in six consecutive monitoring events (Ahtna, 2021v). The well may be removed from the sampling program when the attainment monitoring phase for the well is completed. If the well is no longer needed for groundwater elevation data, it may be proposed for decommissioning (Ahtna, 2021v).

The first step of the exit strategy for the Sites 2 and 12 groundwater remedy, states the SVETS should remain shut off because COCs in soil gas do not appear to be partitioning into groundwater at concentrations above ACLs (Ahtna, 2021u). The next step of the groundwater remedy exit strategy includes continuing the operation of the GWTS until all COC concentrations in EW-12-08-180U are less than or equal to ACLs for two consecutive quarters per Groundwater QAPP *Plume Remediation* Decision Rule 3. After GWTS shutdown in Step 2, quarterly GWMP will continue per the Groundwater QAPP and quarterly SGMP will continue per the Soil Gas QAPP until all COC concentrations in EW-12-08-180U are less than or equal to ACLs for four consecutive quarters. After the remediation monitoring phase is complete for EW-12-08-180U, the completion of the attainment monitoring phase per the Groundwater QAPP *Completion of Groundwater Restoration Remedial Actions* Decision Rule 5 will be confirmed. If the attainment monitoring phase is determined to be compete per Section 7.2, Decision 5 of the Groundwater QAPP, then the Sites 2 and 12 GWMP and SGMP will be discontinued. If it cannot be demonstrated that COC concentrations will continue to be less than or equal to ACLs in the future, then it will be decided what additional groundwater monitoring or remediation efforts are needed to reach site closure. After completion of the attainment monitoring phase, Sites 2 and 12 will be proposed for closure and the Sites 2 and 12 GWTS and SVETS will be proposed for decommissioning in a remedial action completion report (Ahtna, 2021v).

7.1.3.1 2017 Five-Year Review Protectiveness Statement

The 2017 Five-Year Review Report (Army, 2017) for Sites 2 and 12 stated that:

> "The remedies at Sites 2 and 12 are protective of human health and the environment. The remedial activities completed to date have adequately addressed all exposure pathways that could result in unacceptable risks in these areas."
>
> "Pathways are being controlled by groundwater use restrictions, modifications to the groundwater remedy (including soil vapor extraction and treatment), and the presence of Monterey County Ordinance 4011 and the CRUP."

7.1.3.2 Status of 2017 Five-Year Review Issues and Recommendations

The 2017 Five-Year Review Report did not identify any issues that would affect current or future protectiveness of the Sites 2 and 12 groundwater remedy.

7.1.4 Sites 2 and 12 Five-Year Review Process

This Five-Year Review was performed in accordance with EPA Guidance (EPA, 2001) and with the process described in Section 4.0 of this document. The administrative and community involvement activities have been performed for Fort Ord using a base wide approach and are detailed in Sections 4.1 and 4.2. Document reviews, data reviews, site inspections, and interviews, if applicable, have been conducted on a site-by-site basis and are described in the following subsections.

7.1.4.1 Document Review

As part of the five-year-review for Sites 2 and 12, pertinent site-specific documents were reviewed to evaluate current site conditions in the context of remedy implementation and progress toward remedial objectives. Among the documents reviewed were the RI/FS Report, ROD, RI/FS Report Addendum, ESD No. 1 remedial action work plan and remedial design, remedy implementation work plans and completion reports, and quarterly and annual operations and monitoring reports. A complete list of the references reviewed is presented in Appendix A.

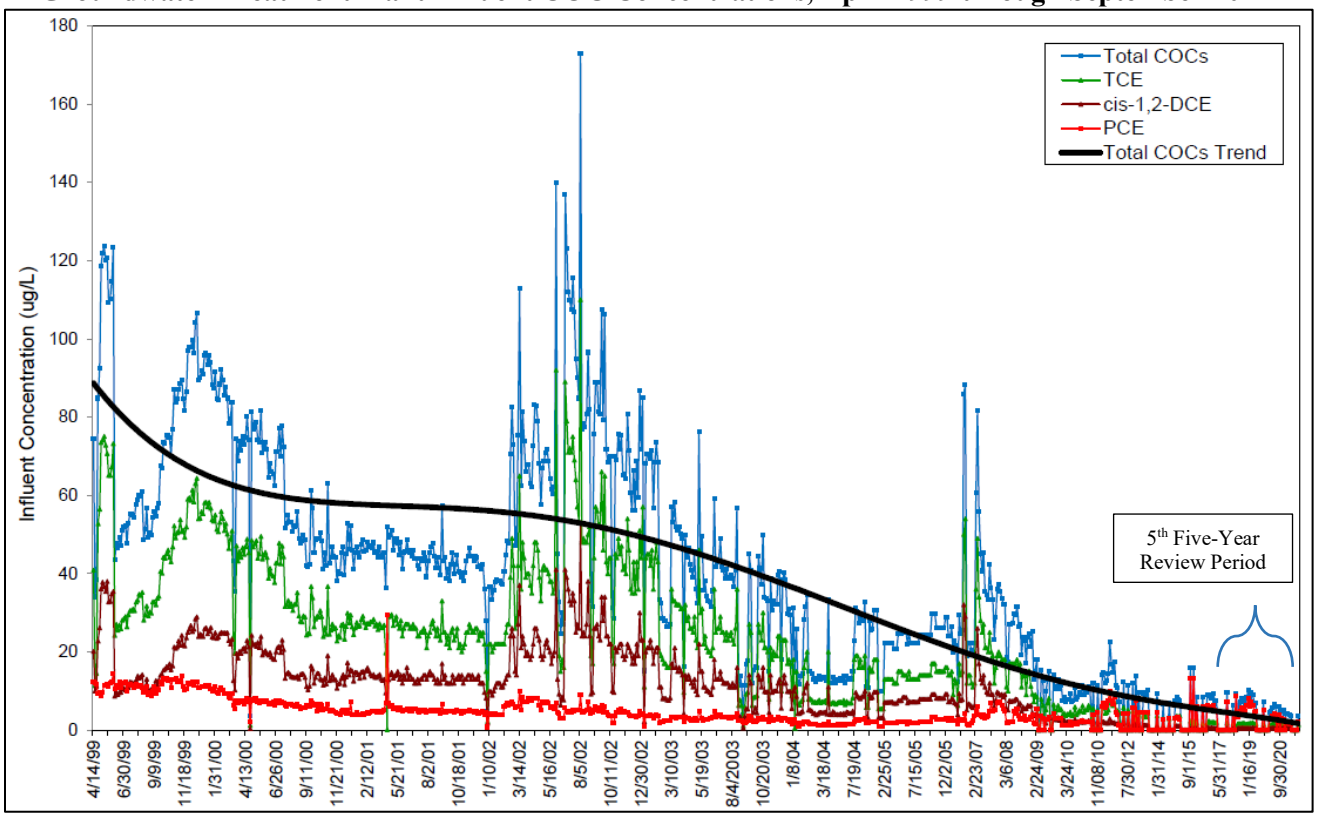
7.1.4.2 Data Review

As shown in the table below, the maximum COC concentrations have declined over the period of this Five-Year Review.

Groundwater Analytical Results **Maximum COC Concentrations: Beginning and End of the Five-Year Review Period[1]**			
Analyte	**Aquifer Cleanup Level (ACL)[3] Concentration (ug/L)**	**Fourth Quarter 2016 Maximum Concentration (ug/L)**	**Third Quarter 2021 Maximum Concentration (ug/L)**
1,1-Dichloroethene (1,1-DCE)	6.0	ND	ND
1,2-Dichloroethane (1,2-DCA)	0.5	0.54	0.28 J
1,3-dichloropropene (1,3-DCP)[2]	0.5	ND	ND
Chloroform	2.0	0.72	0.49 J
cis-1,2-dichloroethene (cis-1,2-DCE)	6.0	5.0	2.3
Tetrachloroethene (PCE)	3.0/5.0[4]	**19.3**	**5.9**
Trichloroethene (TCE)	5.0	4.4	2.1
Vinyl Chloride (VC)	0.1	ND	ND
Notes: 1 This table does not provide a well-to-well comparison. 2 The reported value is the sum of both cis- and trans-isomers. 3 The ACL is the lower of the Federal and State MCLs, and for some constituents more stringent levels. 4 – ACL for PCE was changed from 3.0 ug/L to 5.0 ug/L in 2015 by ESD No.1. ug/L - micrograms per liter ND - Not detected J – estimated value below the limit of quantification with a possible high (+) or low (-) bias J/E – estimated result exceeding the calibration range Values in bold are greater than the corresponding ACL.		Sources: *Sites 2 and 12 Fourth Quarter 2016 Groundwater and Soil Gas Monitoring and Treatment System Report, Former Fort Ord, California* (Ahtna, 2017b) *Draft Sites 2 and 12 Fourth Quarter 2020 through Third Quarter Groundwater and Soil Gas Monitoring and Treatment System Report, Former Fort Ord, California* (Ahtna,2021t)	

The chart below shows the groundwater treatment system influent COC concentrations from system start up to September 2021. All major COC concentrations are trending down since system start-up including through this Five-Year Review period. Additionally, the results of most quarterly groundwater monitoring events have been below the ACL for PCE (the primary COC for Sites 2 and 12) since the Third Quarter 2017 event. However, PCE detections were above the ACL for EW-12-08-180U three of the last four quarters. PCE detections were also above ACL for MW-12-20-180U in Third Quarter 2017 and Third Quarter 2018.

Groundwater Treatment Plant Influent COC Concentrations, April 1999 through September 2021



During the Five-Year Review reporting period, the GWTP operated continuously in the automatic control mode utilizing two GAC treatment vessels and an air stripper until a GAC change-out on April 18, 2017. It was agreed that operation of the Sites 2/12 GWTP with one GAC vessel and air stripper would be acceptable for treatment. Since that change, the GWTP operated continuously in the automatic control mode utilizing one GAC treatment vessel and the air stripper (Ahtna, 2021g). The capacity of the Sites 2 and 12 GWTP with the GAC vessels and air stripper in series (225 gpm) is the practical maximum flow rate that allows for adequate residence time in the air stripper (Ahtna, 2021v). The two Site 2 injection wells (IW-02-01-180 and IW-02-02-180) have limited capacity and receive an insignificant amount of treated water. The total volume of treated groundwater for the reporting period was approximately 314.6 million gallons. The average flow rate approximating the reporting period for this Five-Year Review is 120 gpm. The reported average monthly flow rate varies depending on flow rates for individual wells and downtime events at the GWTP or the extraction wells. Cumulative treated groundwater flow since startup on April 13, 1999 through September 2021 is estimated at 2.224 billion gallons.

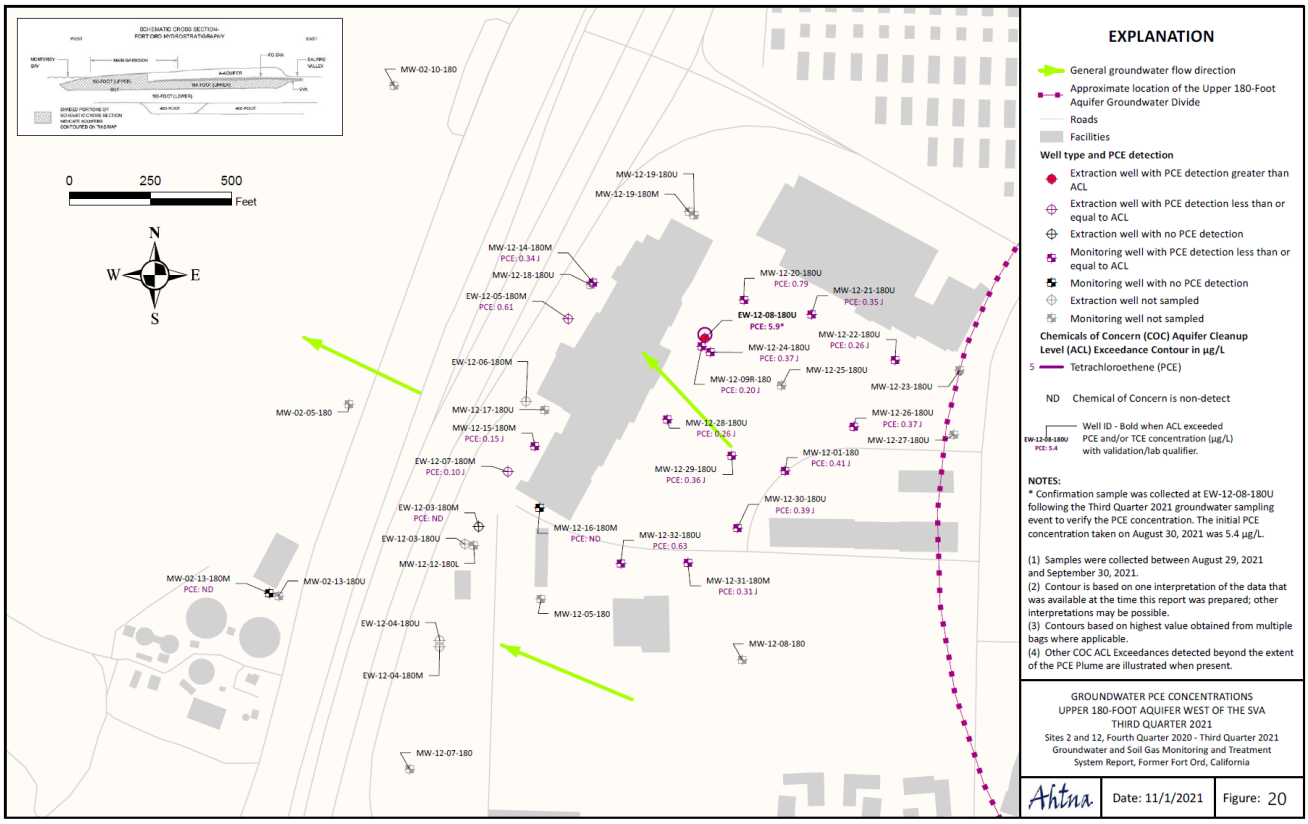
The data shows a decline in COC mass from groundwater since the start of the system and through this Five-Year Review reporting period (most recent data set Third Quarter, 2021). The following table shows the volume of treated water from Site 12 extraction wells, average flow rates, mass removal for the Third Quarter 2017 through the Third Quarter 2021 period, as well as the total mass removal (April 1999 to September 2021). The data show an estimated 17.2 pounds of COCs were removed in a period approximating the reporting period for this Five-Year Review.

Annual GWTP Flow Rate and COC Mass Removal				
Reporting Period	**Volume (gallons)[1]**	**Average Flow Rate (gallons per minute)**	**Mass Removed in Reporting Period (pounds)**	**Cumulative Mass Removed[2]**
October 2016 through September 2017	59,625,432	114	3.9	481
October 2017 through September 2018	60,652,641	116	3.9	484.97
October 2018 through September 2019	51,280,524	98	3.2	488
October 2019 through September 2020	71,055,193	135	3.7	491.9
October 2020 through September 2021	72,002,573	137	2.5	494.4
Totals	314,616,363	120	17.2	2,440.27

Notes:
1 – Total water treated for the reporting period calculated as the sum of volumes from Sites 2/12 extraction wells.
2 - Since system start-up in April 1999.

Sources:
1) *Final Sites 2 and 12 Fourth Quarter 2016 through Third Quarter 2017 Groundwater and Soil Gas Monitoring and Treatment System Report, Former Fort Ord, California (Ahtna, 2018a)*
2) *Final Sites 2 and 12 Fourth Quarter 2017 through Third Quarter 2018 Groundwater and Soil Gas Monitoring and Treatment System Report, Former Fort Ord, California (Ahtna, 2019b)*
3) *Final Sites 2 and 12 Fourth Quarter 2018 through Third Quarter 2019 Groundwater and Soil Gas Monitoring and Treatment System Report, Former Fort Ord, California (Ahtna, 2020d)*
4) *Sites 2 and 12 Fourth Quarter 2019 through Third Quarter 2020 Groundwater and Soil Gas Monitoring and Treatment System Report, Former Fort Ord, California (Ahtna, 2021g)*
5) *Draft Sites 2 and 12 Fourth Quarter 2020 through Third Quarter Groundwater and Soil Gas Monitoring and Treatment System Report, Former Fort Ord, California (Ahtna, 2021t)*

The figure below shows the location of the monitoring wells associated with Sites 2/12, groundwater flow direction, and the latest groundwater monitoring results for PCE in third quarter 2021.



The SVTU system began operation in September 2015. During the Five-Year Report period, the SVTU system stopped operation twice. The SVTU stopped operation on February 11, 2019 to perform a rebound study. The SVETS was operated then from April 27 to June 16, 2020 to remediate TCE levels. On June 16, 2020, the SVETS was shut down due to soil gas COC concentrations below SGCLs.

SVTU Flow Rate and COC Mass Removal				
Reporting Period	**Cumulative Volume[1] (standard cubic feet)**	**Average Flow (standard cubic feet per minute)**	**Total COC Mass Removed in Reporting Period (pounds)**	**Cumulative Total COC Mass Removed[2] (pounds)**
October 2016	560,882,462	798	0.30	7.6
November 2016	596,368,718	820	0.10	7.7
December 2016	629,622,313	780	0.09	7.8
January 2017	664,199,286	778	0.10	7.9
February 2017	696,248,594	767	0.09	8.0
March 2017	731,103,987	786	0.08	8.1
April 2017	760,550,469	781	0.07	8.1
May 2017	799,336,985	772	0.12	8.2
June 2017	832,523,810	776	0.10	8.3

July 2017	867,115,842	774	0.11	8.4
August 2017	901,511,682	771	0.11	8.6
September 2017	935,448,906	771	0.11	8.7
October 2017	965,064,072	679	0.09	8.8
November 2017	996,344,444	722	0.11	8.9
December 2017	1,024,678,450	680	0.10	9.0
January 2018	1,055,381,471	649	0.10	9.1
February 2018	1,078,179,089	562	0.06	9.1
March 2018	1,101,003,272	532	0.06	9.2
April 2018	1,119,866,336	529	0.05	9.2
May 2018	1,143,116,615	528	0.06	9.3
June 2018	1,169,803,895	527	0.07	9.4
July 2018	1,193,866,715	527	0.06	9.4
August 2018	1,216,066,231	496	0.04	9.5
September 2018	1,235,619,171	486	0.03	9.5
October 2018	1,259,176,971	497	0.04	9.5
November 2018	1,279,325,245	499	0.04	9.6
December 2018	1,303,002,325	497	0.05	9.6
January 2019	1,323,035,141	451	0.04	9.7
February 2019	1,330,004,741	440	0.01	9.7
March 2019 to March 2020	1,330,004,741	0	0	9.7
April 2020	1,333,182,461	546	0.01	9.7
May 2020	1,359,078,461	650	0.13	9.8
June 2020	1,373,913,341	612	0.07	9.9
July 2020 to September 2021	1,373,913,341	0	0	9.9

Notes:
1 - System startup on September 14, 2015.
Sources: Ahtna, 2018a, 2019b, 2020d, 2021g, 2021t

Since the start of this Five-Year Review period, approximately 1.373 billion standard cubic feet of soil gas and approximately 9.9 pounds of COC have been removed.

As indicated in the table below, PCE and TCE concentrations in soil gas have progressively declined with the operation of the SVETS. PCE did not exceed its SGCL of 1,800 ug/m^3 in any of the soil gas probes during the monitoring events shown. TCE did exceed its SGCL of 1,000 ug/m^3 during the Five-Year review period at a few soil gas probes, though there is no indication of adverse impact on groundwater. PCE did exceed its SG-SL of 603 ug/m^3 in multiple soil gas probes in the Third Quarter of 2017 through 2021.

Soil Gas Monitoring Results										
	Tetrachloroethene (PCE)					Trichloroethene (TCE)				
Soil Gas Probe ID	**3Q 2017**	**3Q 2018**	**3Q 2019**	**3Q 2020**	**3Q 2021**	**3Q 2017**	**3Q 2018**	**3Q 2019**	**3Q 2020**	**3Q 2021**
SG-12-01-10	<40	<68				<32	<54			
SG-12-01-20	600	220				<33	<53			
SG-12-01-30	230	<64		450	490	<31	<51		<54	<41
SG-12-01-40	<40					<32				
SG-12-01-50	580					<32				
SG-12-01-58	41 J			410		<32			<54	
SG-12-01-65		<64	<53	330	380		<51	<42	<52	<42
SG-12-02-10	*1,700*	*1,400*	*1,300*	*1,200*	*1,100*	<33	<54	<41	<57	<47
SG-12-02-20	*1,300*	*1,200*	*860*	*940*	*800*	<32	<52	<39	<56	<45
SG-12-02-30	*1,200*	*1,100*	*810*	*830*	*730*	<34	<50	<43	<54	<41
SG-12-02-40	*940*	*920*	*690*	*760*	*720*	<33	<57	<40	<57	<45
SG-12-02-50	*920*	*960*	*630*	*760*	*720*	<32	<52	45 J	<56	<44
SG-12-02-57	*900*	*820*	570	*820*	290	<32	<51	<41	<56	<42
SG-12-02-65	*890*	*680*	580	600		<33	<55	<40	<58	
SG-12-04-10	<44	<70	62 J	100	280	<34	<55	580	360	**2,000**
SG-12-04-20	46 J			100	260	<31			350	**1,900**
SG-12-04-30										
SG-12-04-40	56 J			83 J	120	<35			<54	220
SG-12-04-50	79 J			85	210	<31			180	***1,000***
SG-12-04-58	86			81 J		<33			170	
SG-12-04-65	90	<75	54 J	88	220	<34	<59	400	220	**1,500**
SG-12-05-50										
SG-12-05-60										
SG-12-05-70										
SG-12-06-10	<40	<64	84	110	230	<32	<51	<39	<54	<42
SG-12-06-20	140					<32				
SG-12-06-30	<39					<31				
SG-12-06-40	<42					<33				
SG-12-06-50	310					<32				
SG-12-06-60	<41	<72				<33	<57			
SG-12-06-70			95	160	260			<41	<56	<44
SG-12-07-10										
SG-12-07-20	<41					<32				
SG-12-07-30	54 J					<33				
SG-12-07-40	<41					<33				
SG-12-07-50	<41					<32				
SG-12-07-57.5	<40					<32				
SG-12-07-65	130	<70		170		<34	<55		<56	
SG-12-08-10	<39					<31				
SG-12-08-20	<41					<32				
SG-12-08-30	<41					<32				
SG-12-08-40	<40					<32				
SG-12-08-50	52 J					<32				
SG-12-08-60	86					<33				
SG-12-08-70	60 J			230		<34			<53	
SG-12-09-10	300					<32				
SG-12-09-20	200					<31				
SG-12-09-30	150					<35				
SG-12-09-40	150					<31				
SG-12-09-50	130					<31				
SG-12-09-59	160					<31				
SG-12-11-60										
SG-12-12-30										
SG-12-12-40										
SG-12-12-50										
SG-12-12-60										
SG-12-12-70	<41					<32				

Soil Gas Monitoring Results										
	Tetrachloroethene (PCE)					Trichloroethene (TCE)				
Soil Gas Probe ID	3Q 2017	3Q 2018	3Q 2019	3Q 2020	3Q 2021	3Q 2017	3Q 2018	3Q 2019	3Q 2020	3Q 2021
SG-12-13-10	230					<33				
SG-12-13-20	400					<32				
SG-12-13-30	300					<32				
SG-12-13-40	240					<35				
SG-12-13-50	450					<30				
SG-12-13-60	<42					<34				
SG-12-14-70										
SG-12-16-10	<41					<33				
SG-12-16-20	<43					35 J				
SG-12-16-30	<40					34 J				
SG-12-16-40	<40					<32				
SG-12-16-50	<42					53 J				
SG-12-16-60	<41	<51	<49			<32	590	560		
SG-12-16-70	<40			<72		<32			540	
SG-12-17-10	<43					<34				
SG-12-17-20	<41					34 J				
SG-12-17-30										
SG-12-17-40	<43	<64	<51	<70		130	320	640	700	
SG-12-17-50										
SG-12-17-60	<42			<68		<33			670	
SG-12-17-75	<340					<270				
SG-12-18-50										
SG-12-18-60										
SG-12-18-70				<69					<55	
SG-12-19-20	<40					<32				
SG-12-19-30										
SG-12-19-40										
SG-12-19-50										
SG-12-19-60										
SG-12-19-70										
SG-12-20-10	*1,200*	*1,200*	*1,200*	*1,200*	*1,100*	<34	<57	<39	<57	<45
SG-12-20-20	310	*720*	*750*	*900*	*770*	<33	<57	<42	<53	<44
SG-12-20-30	140					<32				
SG-12-20-40	120					<34				
SG-12-20-50	120					<32				
SG-12-20-60	160					<32				
SG-12-20-70	280			300		<32			<55	
VE-12-01	<39					<31				
VE-12-02	<39					<31				
VE-12-03	<34					58				
VE-12-06	<40					<31				
VE-12-08	120					<39				
VE-12-09	170	<52				<31	<52			
VE-12-10	<39					<31				

Notes:
J is an estimated result between the detection limit (DL) and the limit of quantitation (LOQ).
ND – not detected above the limit of detection (LOD).
NS – not sampled
Results reported in micrograms per cubic meter (ug/m^3).
Results highlighted in gray are not detected concentrations
Cells highlighted in gray are wells that were not sampled.
Source: Ahtna, 2018a, 2019b, 2020d, 2021h, 2021t

	SGCL (ug/m^3)	*SG-SL (ug/m^3)*
PCE	1,800	603
TCE	1,000	888

SGCL - soil gas cleanup level
SG-SL - soil gas screening level

SGCL exceedances are bold and highlighted in blue.

SG-SL exceedances are shown italicized and highlighted in yellow.

Groundwater monitoring analytical results for the Five-Year review period are displayed below. Throughout the Five-Year Review reporting period, monitoring well EW-12-08-180U was above ACL for PCE based on

Third Quarter data. In Second Quarter 2021, monitoring well EW-12-08-180U fell below ACL for PCE with a value of 3.4 µg/L, however it increased again in Third Quarter 2021 to 5.4 µg/L. If all COC concentrations are below ACLs in all monitoring points for two consecutive quarters, then the Sites 2/12 GWTS will be turned off, followed by two quarters of verification monitoring per Groundwater QAPP decision rules.

Groundwater Monitoring Analytical Results: COC Concentrations (µg/L)

	Tetrachloroethene (PCE)					Trichloroethene (TCE)				
Well Identification	**3Q 2017**	**3Q 2018**	**3Q 2019**	**3Q 2020**	**3Q 2021**	**3Q 2017**	**3Q 2018**	**3Q 2019**	**3Q 2020**	**3Q 2021**
EW-12-03-180M	0.24 J	0.12 J	<0.25	0.18 J	<0.25	3.0	2.0	1.7	2.4	0.60
EW-12-05-180M	0.77	0.82	0.71	0.65	0.61	2.4	2.4	1.9	1.9	2.1
EW-12-05-180M*	NS	0.79	0.73	NS		NS	2.4	1.9	NS	
EW-12-06-180M	0.46 J					2.4				
EW-12-07-180M	0.42 J	0.47 J	0.28 J	0.12 J	0.10 J	3.2	2.5	1.1	0.54	0.45 J
EW-12-08-180U	**16.7**	**12.3**	**14.1**	**11.6**	**5.4**	0.66	0.52	0.47 J	0.36 J	0.32 J
MW-02-05-180	<0.25	<0.25	<0.25			0.11 J	0.16 J	0.16 J		
MW-02-13-180M	<0.25	<0.25	<0.25	<0.25	<0.25	1.8	0.96	1.5	1.5	1.9
MW-12-01-180	0.43 J+/J	0.40 J	0.39 J	0.38 J	0.41 J	0.65 J+	0.43 J	0.29 J	0.22 J	0.15 J
MW-12-05-180			NS					NS		
MW-12-05-180*			NS	NS				NS	NS	
MW-12-07-180	<0.25					<0.25				
MW-12-09R-180	0.59	0.41 J	0.28 J	0.21 J	0.20 J	4.3	2.8	1.9	1.2	1.3 J+
MW-12-14-180M	0.61	0.42 J	0.28 J	0.36 J	0.34 J	4.1	3.0	2.4	2.1	1.7
MW-12-15-180M	0.52	0.35 J	0.16 J	0.16 J	0.15 J	2.7	2.0	1.2	1.4	1.4
MW-12-15-180M*	NS	0.35 J	NS	NS		NS	2.1	NS	NS	
MW-12-16-180M	<0.25	<0.25	<0.25	<0.25	<0.25	1.3	1.4	1.2	1.7	2.1
MW-12-18-180U	<0.25	0.12 J	<0.25			0.13 J	0.12 J	<0.25		
MW-12-19-180M	<0.25					0.20 J				
MW-12-19-180U	<0.25	0.12 J				0.15 J	0.19 J			
MW-12-20-180U	**24.6**	**7.7**	2.7	3.1	0.79	0.29 J	0.15 J	<0.25	<0.25	<0.25
MW-12-20-180U*	NS	**7.8**	NS	NS		NS	0.15 J	NS	NS	
MW-12-21-180U	0.69	0.49 J	0.28 J	0.41 J	0.35 J	<0.25	<0.25	<0.25	<0.25	<0.25
MW-12-22-180U	0.58 J	0.50	0.39 J	0.31 J	0.26 J	<0.25	<0.25	<0.25	<0.25	<0.25
MW-12-22-180U*	NS	0.48 J	NS	NS		NS	<0.25	NS	NS	
MW-12-24-180U	**11.1**	0.60	1.8	0.33 J	0.37 J	0.21 J	<0.25	0.13 J	<0.25	<0.25
MW-12-25-180U	0.83	0.49 J	0.39 J	0.14 J		<0.25	<0.25	<0.25	<0.25	
MW-12-26-180U	0.69	0.42 J	0.39 J	0.36 J	0.37 J	<0.25	<0.25	<0.25	<0.25	<0.25
MW-12-28-180U	0.52	0.32 J	0.33 J	0.39 J	0.26 J	0.14 J	<0.25	<0.25	<0.25	<0.25
MW-12-29-180U	0.53	0.45 J	0.37 J	0.37 J	0.36 J	<0.25	<0.25	<0.25	<0.25	<0.25
MW-12-30-180U	0.95	0.62	0.36 J	0.56	0.39 J	0.25 J	0.17 J	<0.25	<0.25	0.19 J
MW-12-31-180M	0.17 J	0.29 J	0.18 J	0.30 J	0.31 J	1.4	<0.25	<0.25	<0.25	<0.25
MW-12-32-180U	0.55	0.41 J	0.41 J	0.64	0.63	1.2	0.48 J	0.42 J	0.64	0.71

Notes:
J is an estimated result between the detection limit (DL) and the limit of quantitation (LOQ) with a possible high (+) or low (-) bias.
ND – not detected above the limit of detection (LOD).
NS – not sampled
* Duplicate sample
Results in **bold** and highlighted yellow are concentrations above the Aquifer Cleanup Level (ACL).
Results in gray are not detected concentrations.
Cells highlighted in gray are wells that were not sampled.

µg/L: micrograms per liter

ACL for PCE: 5.0 ug/L
ACL for TCE: 5.0 ug/L

Source: Ahtna, 2018a, 2019b, 2020d, 2021g, 2021t

7.1.4.3 Site Inspection and Interviews

A site inspection was performed on August 4, 2021 by Ms. Charity Meakes P.E. (U.S. Army Corps of Engineers, Senior Environmental Engineer) to assess the overall condition of the remedy as it relates to its effectiveness, including the physical condition of the system, system integrity, system operations, site security, and access controls. Mr. Derek Lieberman (Ahtna Program Manager) and Mr. Mark Fisler (Treatment System Operator) were interviewed on the same day as the inspection to provide information on the site's operational activities and to help facilitate the site inspection. Detailed inspection forms and site photographs are included in Appendix B. The groundwater treatment system is housed in a metal-framed warehouse structure that limits access and provides protection from the elements. The extraction wells are connected to the treatment system by a network of underground pipes. The system operates continuously and is computer monitored. Automated shutdown and operator notification systems are in place in the event of a malfunction if the operator is not on site. System components generally are in good condition and show no unusual or unexpected wear or aging. On the day of site inspection, there was a transformer failure in well EW-12-08-180U which required shutdown; it was repaired by early morning the next day. In general, the system appears to be well maintained, in good condition, and functioning as designed. System integrity appeared good, and security systems generally appeared to be adequate. The soil vapor extraction and treatment system are in good condition and the system has been mostly offline for the last two years as it was deemed no longer necessary since the soil gas was found to no longer be significantly impacting groundwater. There is also no unacceptable risk from vapor intrusion. Although the system is offline, it is still checked monthly. Monitoring data suggests that the soil gas plume is effectively contained.

7.1.5 Technical Assessment

7.1.5.1 Question A

Is the Remedy functioning as intended by the Decision Documents?

Yes. Soil excavation at Sites 2 and 12 has been conducted. Groundwater extraction and treatment remains in progress. Monitoring data from Second Quarter 2021 showed concentrations of all COCs at all monitored wells below ACLs for the first time. Decisions regarding when to end groundwater treatment will follow decision making guidelines in the Sites 2 and 12 Site Closure Exit Strategy, details of which are still being discussed between the agencies and Army.

7.1.5.2 Question B

Are the Exposure Assumptions, Toxicity Data, Cleanup Levels, and Remedial Action Objectives used at the time of remedy selection still valid?

Yes. Though human health risk assessment-based exposure assumptions and associated toxicity data may have changed since the 1997 ROD and 2015 ESD, many of the Aquifer Cleanup Levels are based on the more restrictive of EPA or California MCLs, meaning changes to the toxicity values are not directly relevant to the protectiveness of the remedy. No changes have been made to MCLs for any of the COCs. Several of the groundwater cleanup levels are based on carcinogenic tap water risk calculations. However, although exposure assumptions and toxicity values may have changed, individually, the estimated excess cancer risk using the existing Aquifer Cleanup Levels is within the acceptable risk range of 10^{-4} to 10^{-6}, based on current exposure assumptions and toxicity data. The cumulative risk is also within the acceptable risk range, and therefore cleanup levels continue to be protective. Restricting access to contaminated groundwater and remediating the contaminated groundwater are the RAOs used during remedy selection and are still valid.

For Sites 2/12, the soil RAO was to protect groundwater by remediating TPH in soil to a concentration of 500 mg/kg or less. Though human health risk assessment-based exposure assumptions and associated toxicity data

may have changed since the 1997 ROD, the cleanup level of 500 mg/kg is consistent with current environmental screening levels for TPH (for example, the San Francisco Bay Regional Water Quality Control Board Environmental Screening Level for TPH as diesel for the protection of groundwater as a drinking water source is 1,100 mg/kg).

The 2015 ESD established soil gas cleanup levels (SGCLs) of 1,800 µg/m^3 for PCE and 1,000 µg/m^3 for TCE for the protection of groundwater. There are no changes to exposure assumptions for this endpoint. In addition, the results of the risk assessment indicating the vapor intrusion pathway to indoor air is incomplete and remediation of soil gas and implementation of risk management strategies in the footprint of the retail stores are not warranted at Sites 2/12 is still valid under current conditions. The conclusion from the 2015 ESD that the SGCLs for PCE and TCE will also be protective with respect to future potential vapor intrusion into buildings and subsequent potential impacts to indoor air should site conditions change is also still valid when comparing to current screening levels for this pathway.

7.1.5.3 Question C

Has any other information come to light that could call into question the Protectiveness of the Remedy?

No information has come to light that could call into question the protectiveness of the remedy.

7.1.6 Issues

This technical assessment did not identify any issues that affect current or future protectiveness of the Sites 2 and 12 groundwater remedy.

7.1.7 Recommendations and Follow-Up Actions

There are no specific recommendations for this site. The groundwater extraction/treatment system is performing as intended and should continue as designed until groundwater RAOs i.e., ACLs are attained.

Opportunities for Optimization[9]

Opportunities for future system optimization may include adjustments to groundwater sampling or extraction locations and rates coincident with changes in the site condition. Specifically, adjustments to the locations of, or rates of extraction (groundwater) to those areas of greatest mass, may shorten the time to attain compliance.

Recently proposed activities that may improve system performance, reduce costs, and reduce the timeframe to achieve cleanup goals include:

[9] For additional details refer to Section 6 of the June 2021*, Final Sites 2 and 12 First Quarter 2021 Groundwater and Soil Gas Monitoring and Treatment System Report* (Ahtna, 2021f).

Groundwater Recommendations:

- Continue operating the Sites 2/12 GWTS, including optimization of flow rates to maximize COC mass removal and groundwater plume capture.
- Increase the pumping rate in EW-12-08-180U to approximately 90 gpm, if possible.
- Continue non-operation and sample quarterly per the Groundwater QAPP (EW-12-03-180U, EW-12-03-180M, EW-12-04-180U, EW-12-04-180M, and EW-12-07-180M).
- For extraction well EW-12-05-180M, continue operation for the PCE plume and sample quarterly per the Groundwater QAPP. Install a VFD to optimize flow regulation.
- If all COC concentrations remain below ACLs for two consecutive quarters, shut down the Sites 2/12 GWTS and continue with verification monitoring per the decision rules in the Groundwater QAPP (Ahtna, 2021n).

Soil Gas Recommendations:

According to the June 2021 *Final Sites 2 and 12 First Quarter 2021 Groundwater and Soil Gas Monitoring and Treatment System Report*, the SVTU influent and effluent were not sampled as the SVETS was not operated during that quarter. The SVETS shut down on February 11, 2019, and then went back online April through June 16, 2020 due to COC concentrations above SGCL. The SVTU was then turned off from July 2021 to the end of the Five-Year Review reporting period since soil gas COC concentrations decreased previously. Based on the results of the Second to Third Quarter 2021 SGMP events, where some wells showed TCE concentrations above the SGCL, the quarterly SGMP should be continued per the Soil Gas QAPP, and the quarterly GWMP should be continued per the Groundwater QAPP to confirm groundwater is not being adversely impacted. If soil gas COC concentrations near the water table exceed the SGCLs and there is a corresponding increase in groundwater COC concentrations greater than ACLs, the SVETS may be operated. The soil gas rebound study determined the SVETS could remain offline because statistical analyses and non-statistical review of soil gas and groundwater monitoring data indicate rebound is not occurring in most soil gas probes and it is not occurring in any groundwater wells (Ahtna, 2021u). There are no recommended modifications to the SVETS after the Third Quarter 2021 SGMP. Soil gas data will continue to be evaluated quarterly per the Soil Gas QAPP and the quarterly GWMP should be continued per the Groundwater QAPP.

7.1.8 Protectiveness Statement

Protective.

Because the remedial actions at Sites 2 and 12 are protective, the site is protective of human health and the environment. Pathways are being controlled by groundwater use restrictions, modifications to the groundwater remedy (including soil vapor extraction and treatment), and the presence of Chapter 15.08 of Title 15, Monterey County Code and the CRUP.

Potable drinking water on the Former Fort Ord is provided by the Marina Coast Water District (MCWD), and drinking water supplied by the MCWD meets all Federal and State regulatory standards. MCWD regularly tests drinking water quality and reports the results in an annual Consumer Confidence Report that is provided to customers and found at https://www.mcwd.org/. Water quality data and operational information are also available at MCWD.

7.2 Site 31

7.2.1 Site 31 Background

The selected remedies for the Basewide RI Sites, including Site 31, are described in the January 1997 *Record of Decision, Basewide Remedial Investigation Sites, Fort Ord, California* (Army, 1997a). Site 31 is a former dump site in the southern part of the East Garrison and is adjacent to a ravine approximately 0.2 mile southeast of the intersection of Watkins Gate Road and Barloy Canyon Road (see Plate 2). This dump site was at the boundary of the Leadership Reaction Training Compound on the northern side of the ravine. The visible extent of disposal encompassed an approximately 500- foot-long section of the northern slope of the ravine. The dump site was reportedly used in the 1940s and 1950s. Apparently, during this time, refuse was wholly or partially incinerated in a 500-ton incinerator, which was adjacent to the ravine, and the incineration waste was dumped over the side of the north side of the ravine (Army, 2017).

The site is underlain by fine- to medium-grained sand to silty or clayey sand. Loose to slightly cemented sand outcrops are present in several areas within the ravine (Army, 2017).

7.2.2 Remedial Actions

As described in the Basewide RI Sites ROD (Army, 1997a), the RAO for soil at Site 31 was to remove soil containing lead intermixed with debris above the health-based level of concern of 1,860 mg/kg lead in surface soil as developed in the October 1995 *Final Remedial Investigation/Feasibility Study, Fort Ord, California, Volumes I-VI - Site 31* (HLA, 1995). At this concentration, blood levels would not be expected to exceed the 10 micrograms/deciliter (ug/dL) threshold level (Army, 1997a).

Groundwater Remedial Unit

No chemicals were identified in soils posing a threat to groundwater; therefore, no groundwater remedial units were defined (Army, 1997a).

Soil Remedial Unit

Based on the lead contamination detected in soil at concentrations above the human health-based level defined in the ROD, a single SRU was defined on the north slope of Site 31. The SRU consisted of shallow soil (up to 3 feet bgs) defined by five sample locations where lead in soil was above the ROD-specified soil cleanup level. The area is steep (1 foot horizontal per 1 foot vertical) and heavily vegetated. The steep slope and sandy non-cohesive soil make the SRU unstable.

The remainder of the debris and soil at the site that has not been shown to pose a human health risk does not require remediation. In addition, debris removal or treatment was not performed in these other areas for the following reasons:

- Steep topography and inaccessibility of the ravine
- Biological hazards (e.g., poison oak)
- Sensitive habitats that could be disturbed
- Overhead power lines traversing the site make maneuvering equipment difficult
- Unstable soil conditions

7.2.2.1 Remedy Selection

The following four remedial alternatives were evaluated for Site 31 in the October 1995 *Final Remedial Investigation/Feasibility Study, Fort Ord, California, Volumes I-VI - Site 31* (HLA, 1995):

- Alternative 1: No Further Action
- Alternative 2: Excavation and Treatment of Soil and Disposal of Debris
- Alternative 3: Excavation, Consolidation and On-site Disposal
- Alternative 4: Excavation and Off-site Disposal of Soil and Debris

Selected Remedy

Alternative 2 is the selected remedy and includes the following components:

- Excavation and segregation of approximately 350 cy of soil and debris containing lead above the ROD-specified soil cleanup level (1,860 mg/kg)
- Placement of soil and debris at the OU2 Landfills as part of the foundation layer
- Deed restrictions

7.2.2.2 Remedy Implementation

The selected remedy[10] was completed in June 1998, as described in the April 1999 *Remedial Action Confirmation Report, Site 31 Remedial Action, Basewide Remediation Sites* (IT/HLA, 1999). A *Post-Remediation Health Risk Assessment* (PRHRA) and a *Post-Remediation ERA* were included as Appendix A to the Confirmation Report. The PRHRA concluded that human health risks and hazards are unlikely to be associated with future site development, and the Post-Remediation ERA concluded that significant risks are not expected to ecological receptors that are exposed to chemicals remaining on site. The RAOs have been achieved and the Army received letters of NFA from the EPA (EPA, 1999) and DTSC (DTSC, 2006) on September 20, 1999 and June 28, 2006, respectively. Restrictive covenants prohibiting excavation, exposures to soil, or use of the area as part of any residential development are indicated in Exhibit B of Quitclaim Deed (No. DACA05-9-06-549) between the United States of America and the Fort Ord Reuse Authority (recorded on July 10, 2009).

7.2.2.3 System Operations and Maintenance

There are no ongoing activities related to the remedy that require operations and maintenance.

7.2.3 Progress Since the Last Five-Year Review

In September 2009, OEHHA published a revised set of soil screening levels based on the new Health Guidance Value (HGV), including updated values for commercial/industrial receptors based on a pregnant adult worker (Cal/EPA, 2009). In 2011, DTSC updated the LeadSpread model (DTSC, 2011a) that had been used in the HHRA that was a part of the *Final Basewide Remedial Investigation/Feasibility Study* (HLA, 1995). The updated version of the model "LeadSpread 8" incorporates the new HGV and is designed to assess residential land use scenarios (DTSC, 2011a). The September 2012 *Final 3rd Five-Year Review Report for Fort*

[10] The selected remedy assumed 350 cy of soil and debris; however, the actual amount of material excavated and placed in Operable Unit 2 Landfills was approximately 1,500 cy. The increased amount reflects additional soil from regrading activities and the removal of soil associated with the haul ramp cut through the crest of the slope (IT/HLA, 1999).

Ord Superfund Site (Army, 2012) recommended an evaluation of the protectiveness of the human health-based cleanup levels for lead at this and other sites.

The Army reevaluated protectiveness and found that the site is protective as long as the land use restrictions remain in effect. Additional information is provided in the February 2017 *Final Technical Memorandum, Evaluation of Lead Concentrations at Selected Sites, Former Fort Ord, Monterey, California* (KEMRON, 2017). In January 2019, the *Revised Final Technical Memorandum, Evaluation of Lead Concentrations at Selected Sites, Former Fort Ord, Monterey, California* (KEMRON, 2019) mirrored the findings of the 2017 document, stating that the site remedy is protective as long as land use restrictions remain in place, and recommending no further remediation or evaluation of the site.

7.2.3.1 2017 Five-Year Review Protectiveness Statement

In 2017, the 4th Five-Year Review Report (Army, 2017) stated that:

> "The remedy at Site 31 is protective of human health and the environment. The successful completion of the remedy establishes that the site is protective of human health and the environment. The land use restrictions incorporated into the Quitclaim Deed and CRUP apply to the entire site and run with the land ensuring protectiveness."

7.2.3.2 Status of 2017 Five-Year Review Issues and Recommendations

There were no issues identified for Site 31 in the 2017 Five-Year Review. Recommendations were to include the site in the subsequent Five-Year Review.

7.2.4 Site 31 Five-Year Review Process

This Five-Year Review was performed in accordance with EPA Guidance (EPA, 2001) and with the process described in Section 4.0 of this document. The administrative and community involvement activities that have been performed for Fort Ord using a basewide approach are detailed in Sections 4.1 and 4.2. Document review, data review, site inspection, and interviews, if applicable, have been conducted on a site-by-site basis and are described in the following subsections.

7.2.4.1 Document Review

A list of relevant documents reviewed as part of this evaluation is presented in Appendix A.

7.2.4.2 Data Review

No new sampling data have been generated since the previous Five-Year Review was conducted.

7.2.4.3 Site Inspection and Interviews

An inspection of Site 31 was conducted on August 4, 2021. Significant observations include the following:

- Overall, the site was observed to be in good condition.
- Vegetation on the excavated slope is intact with growth evident.
- There are no signs of soil disturbance, erosion, or drainage problems.
- Former Building 660 has evidence of vandalism/trespassing; however, it is uncertain how recent. Nothing was noted on excavated slope or remaining footprint of site.

- There are no changes in land use (site remains unimproved).

Site Inspection documentation and photographs are presented in Appendix B.

7.2.5 Technical Assessment

7.2.5.1 Question A

Is the remedy functioning as intended by the decision document?

The Army successfully completed the remedial action in 1999[11] in accordance with CERCLA and the RI Sites ROD. The RAOs of the time have been met and the remedy is functioning as intended by maintaining land use restrictions to protect human health and the environment.

7.2.5.2 Question B

Are the exposure assumptions, toxicity data, cleanup levels, and RAOs used at the time of the remedy selection still valid?

Yes, the exposure assumptions and RAOs used at the time of remedy selection are still valid. However, both EPA and DTSC have published new screening levels and adopted new toxicity criteria since the time of the 1997 ROD.

The RAO for soil at Site 31 was to remove soil containing lead intermixed with debris above the health-based level of concern of 1,860 mg/kg lead in surface soil based on a recreational exposure scenario, as developed in the October 1995 *Final Remedial Investigation/Feasibility Study, Fort Ord, California, Volumes I-VI - Site 31* (HLA, 1995). At this concentration, blood lead levels would not be expected to exceed the 10 µg/dL threshold level used at that time. Upon completion of the remedial action for Site 31, the maximum lead concentration in post-remediation confirmation samples was 140 mg/kg.

In September 2009, OEHHA published a revised soil screening level, based on a revised change in blood lead level of 1 µg/dL. The current DTSC Leadspread model incorporated this revised change in blood lead level to calculate a human health-based residential soil screening level of 80 mg/kg in soil based on residential exposure assumptions. Using the DTSC Leadspread model, and the recreational exposure assumptions from the 1995 risk assessment results in a current recreational cleanup level equivalent to that in the 1997 ROD; well above the maximum post-remediation concentrations of lead in soil at the site.

The recent (May 2021) update to USEPA's IEUBK model that is used to calculate preliminary remediation goals includes a default blood lead level of concern of 5 µg/dL (down from the previous 1994 version of 10 µg/dL). This is based on current Centers for Disease Control and Prevention (CDC) recommendations. Using the current version of USEPA's IEUBK model, with this blood lead level of concern, results in a preliminary remediation goal of 200 mg/kg for residential exposures. As noted above, upon completion of the remedial action for Site 31, the maximum lead concentration in post-remediation confirmation samples was 140 mg/kg.

Based on concentrations detected in confirmation sampling, the objectives of the remedial action excavation were met in accordance with the ROD. Regardless of the changes to toxicity values, the remedy is functioning as intended provided current land use restrictions remain in place. Additionally, the maximum lead

[11] Date of the approved Remedial Action Completion Report (IT/HLA, 1999).

concentration in post-remediation confirmation samples is less than the current EPA residential preliminary remediation goal of 200 mg/kg, using CDC's current blood lead level of concern.

7.2.5.3 Question C

Has any other information come to light that could call into question the protectiveness of the remedy?

No information has come to light that could call into question the protectiveness of the remedy.

7.2.6 Issues

There are no issues affecting the protectiveness of the remedy at Site 31.

7.2.7 Recommendations and Follow-Up Actions

The current remedy is functioning as intended, there are no recommendations or follow-up actions identified for this site.

7.2.8 Protectiveness Statement

Protective. The remedy at Site 31 is protective of human health and the environment.

The successful completion of the remedy establishes that the site is protective of human health and the environment. As long as the land use restriction remains in place, which prohibits excavation, exposure of the soil, or residential development of the area, the site remedy is considered protective.

7.3 Site 39

7.3.1 Site 39 Background

Site 39 is in the southwestern portion of the Former Fort Ord and includes the Inland Ranges (approximately 8,000 acres) and the 2.36-inch Rocket Range (approximately 50 acres). The Inland Ranges are bounded by Eucalyptus Road to the north, Barloy Canyon Road to the east, South Boundary Road to the south, and General Jim Moore Blvd. to the west. The 2.36-inch Rocket Range is immediately north of Eucalyptus Road, near the north-central portion of the Inland Ranges. A majority of Site 39 is encompassed within the footprint of the Impact Area MRA (discussed in Section 15.0). In addition, the BRA was created to review all ranges that were being assessed under the various ongoing programs (e.g., Site 39, Site 39A, Site 39B, Site 3, East Garrison Ranges, etc.) The footprint of the BRA encompasses a different and larger area than the footprint of Site 39.

The Inland Ranges were reportedly used beginning in the early 1900s for ordnance training exercises. Over the years, various types of ordnance have been used or found in the Inland Ranges, including hand grenades, mortars, rockets, practice land mines, artillery projectiles, and small arms ammunition. Some training activities using petroleum hydrocarbons also were conducted. The 2.36-inch Rocket Range reportedly was used for anti-armor (bazooka) training during and shortly after World War II.

The proposed future use of most of the Inland Ranges will be as a NRMA and as habitat reserve areas. These areas will be managed by the U.S. Department of the Interior, BLM, and public access will be restricted. Several areas within, but along the periphery of, the Inland Ranges have proposed future land use other than as a NRMA. The Military Operations on Urban Terrain Area, near the northeastern edge of the Inland Ranges, is proposed for use as a peace officer training area. The areas along the southern and western boundaries of the Inland Ranges are designated for future development under the Reuse Plan and Habitat Management Plan (HMP).

The remedial action for the Site 39 Inland Ranges at the Former Fort Ord was originally identified in the *Record of Decision, Basewide Remedial Investigation Sites, Fort Ord, California* (Basewide RI Sites ROD) dated January 13, 1997 (Army, 1997a). The selected remedy addresses risks to human health from lead contamination in soils co-located with bullets and constituents of explosives in soils from historical military munitions training at the Site 39 Inland Ranges.

The selected remedy for the Site 39 Inland Ranges is "Excavation and Onsite Placement at the Operable Unit 2 Landfill Beneath a Cap" at the Former Fort Ord based on the protection of human health for reuse of the site as development and habitat reserve. As discussed in Section 7.3.2, parts or all of six ranges or historical areas (HAs) were remediated in accordance with the Basewide RI Sites ROD.

Explanation of Significant Differences: Excavation and Segregation of Spent Ammunition from Soil

An ESD issued in December 2003 describes a change in the final remedy selected for lead contaminated soil at the Small Arms Ranges at Site 39. The portion of the remedy for Site 39 that addressed the Small Arms Ranges included segregation and recycling of spent ammunition from soil containing lead prior to placement of the soil at the Fort Ord Landfills. The remedy to dispose of lead-contaminated soils in the Fort Ord Landfills was selected in the OU2 ROD, dated August 1994, and three ESDs for OU2 dated August 1995, August 1996, and January 1997. The same remedy was selected to address lead-contaminated soils excavated from the Small Arms Ranges at Site 3 (the Beach Trainfire Ranges), where conditions are similar to those at Site 39. The Site 3 remedy was selected in the Interim ROD, Site 3, Beach Trainfire Ranges (Army, 1997b).

Based on comments from the public, site conditions, and engineering constraints for the Site 3 remedial activities, segregation and recycling of spent ammunition prior to placement at the Fort Ord Landfills was found to be of significant public concern, and technically and economically impractical. Therefore, the Army eliminated these procedures from the remedy for the Small Arms Ranges at Site 39 (Army, 2012).

Basewide Range Assessment

The November 2009 *Comprehensive Basewide Range Assessment Report, Former Fort Ord, California, Revision 1* (MACTEC Engineering and Consulting, Inc. [MACTEC]/Shaw 2009) and the January 2012 *Basewide Range Assessment Report, Former Fort Ord, California, Revision 2* (Shaw, 2012) summarized the status of investigation for the presence of potential COCs at known or suspected small arms ranges, multi-use ranges, and military munitions training areas within the Former Fort Ord, including those within Site 39.

The objective of the BRA was to (1) ascertain whether the potential COCs could be present in sufficient amounts to warrant remediation, and if remediation was warranted based on available information, to determine the area(s) within a site where remediation should be recommended; (2) identify which HAs could be eliminated from consideration for potential remediation; and (3) identify sites that require additional investigation or should be considered for remediation.

The BRA process involved five steps: (1) review of historical documents including historical training maps, historical aerial photographs, range control records, and military munitions after action removal reports; (2) site reconnaissance and mapping; (3) limited soil sampling for screening purposes; (4) site characterization; and (5) remediation/ habitat mapping. This investigation identified areas of additional soil contamination associated with ranges within Site 39 and resulted in a significant increase in the volume of soil to be excavated at the site (Shaw, 2012).

Ecological Risk Assessment

The October 2007 *Ecological Risk Assessment for Site 39 Ranges, Habitat Areas, Impact Area, Former Fort Ord, California* (Shaw/MACTEC, 2007) described the methods, approach, and results of an assessment conducted to evaluate potential ecological risks for the ranges within habitat areas of the Impact Area. The ERA was used to guide risk management decision-making. The overall approach for conducting the ERA was to evaluate potential ecological risk under a baseline scenario (i.e., current conditions with no remediation) and evaluate risk reduction based on various potential remediation scenarios developed based on an assessment of habitat quality and distribution and concentrations of contaminants.

The ERA focused on chemical contamination in soil associated with 22 Range Areas at Site 39; lead, copper, antimony, and explosive compounds were identified as chemicals of potential ecological concern. Ecological receptors at the Impact Area evaluated in the ERA included plants, reptiles, herbivorous/insectivorous mammals, omnivorous/carnivorous mammals, herbivorous birds, omnivorous/carnivorous birds, and insectivorous birds[12]. Aquatic receptors were also evaluated for pond areas.

Because previous ecological risk evaluations for the Impact Area were conducted using limited soil and biota data, an ERA sampling program was conducted to fill data gaps for the evaluation of ecological risks. A total of 40 locations within the ranges were sampled, and lead bioavailability tests also were conducted on soil and plant samples. Baseline (No Action) risks were estimated for the receptors and exposure areas, and risk estimates were then calculated for a range of remedial exposure scenarios to evaluate both the level of risk reduction and the amount of habitat destroyed under various potential remediation scenarios. The primary goal of developing the remedial risk scenarios was to devise a remediation approach that would maximize risk

[12] The term "herbivorous" refers to mammals or birds with a plant-based diet; "insectivorous" refers to mammals or birds with an insect-based diet; "omnivorous" refers to mammals or birds with a varied diet of both plants and animals; "carnivorous" refers to mammals or birds with a meat-based diet.

reduction within known and potential breeding habitat for the California Tiger Salamander (CTS) along with preservation of high-quality habitat to be used in remedial decision-making (Army, 2012).

Feasibility Study Addendum

The March 2008 *Final Feasibility Study Addendum Site 39 Ranges Former Fort Ord, California Revision 0* (MACTEC, 2008) for the Site 39 Ranges presents the revisions to the remedial units (originally identified in the Basewide RI Sites ROD) based on additional investigations for contaminated soils and the ERA completed at Site 39 since the time the Basewide RI Sites ROD was prepared. The purpose of this FS Addendum was to summarize the results of the Comprehensive BRA and ERA for contaminated soils present at Site 39, and identify the revised remedial units based on those results for which the original preferred remedial alternative of "On-site Placement at the OU2 Landfills Beneath a Cap" was to be implemented, as identified in the Basewide RI Sites ROD. The results of the BRA, ERA, and FS Addendum were used to guide risk management and remedial decision-making for these habitat reserve ranges during the preparation of a ROD Amendment to address ecological risks and the additional volume of contaminated soil that required remediation (Army, 2012).

7.3.2 Remedial Actions

The Basewide RI Sites ROD (Army, 1997a) includes details concerning the RAOs and soil remedy for Site 39. One RAO for soil was for protection of groundwater, to remediate TPH in soil to a concentration of 500 mg/kg or less. A second RAO addressed lead, cyclotrimethylene trinitramine (RDX), and beryllium, and specified removal of soil containing these chemicals above health-based levels of concern and risk-based target cleanup levels of 1,860 mg/kg for lead, 0.5 mg/kg for RDX, and 2.8 mg/kg for beryllium in surface soil. A third RAO was the removal of spent ammunition, because it is a source of lead in soil.

Several investigations occurred prior to the development of the BRA, including the Basewide RI/FS, several pilot studies, and additional characterization and remediation of areas within the Impact Area where reuse was modified from habitat reserve to development. The portion of the Site 39 Inland Ranges addressed in the ROD Amendment is comprised of approximately 6,830 acres designated as habitat reserve in the HMP within the 8,000-acre Impact Area. This portion of the Impact Area is restricted from future residential development. The remaining 1,170-acre portion of the Impact Area occurs within designated development areas where remedial actions were done, or no further action was recommended based on the results of the BRA. (Army 2009).

Groundwater

No groundwater remedial unit was defined for Site 39 because (1) the vertical extent of contamination is limited to shallow soil, (2) the depth to groundwater beneath Site 39 is estimated to range from 60 to 180 feet bgs, (3) the presence of potential contaminants (antimony and nitrates) in groundwater has not been confirmed, and (4) groundwater data from monitoring wells in the area indicated that there is little potential for contamination of groundwater as a result of site activities.

Initial Soil Remedial Units

Before 2007, soils were removed from several ranges/HAs (Ranges 21, 24, 25, and 46; the Seaside parcels of Ranges 18 and 19) that had soil containing lead exceeding the human health-based level of 1,860 mg/kg, as defined in the Basewide RI Sites ROD (Army, 1997a). For the explosive ordnance target areas, the distribution of lead with concentrations at or above the ROD's cleanup level defined the remedial units, based on the original FS (HLA, 1994). For the small arms ranges, chemical data for lead in soil and the distribution of lead above the cleanup level was believed to correspond to the distribution of spent ammunition based on the Site 3 investigation. Because the conditions at the small arms ranges were similar to Site 3, the same model for site characterization was applied to these ranges.

Soils Remediation Completed under the ROD Amendment

The ROD Amendment addressed ecological risks, established revised cleanup levels, identified a significantly larger volume of soil for remediation, confirmed that the landfill is still the best location to place the contaminated soil, eliminated the need to conduct a post-remediation risk assessment, and eliminated the need for institutional controls related to the chemical contamination. The ROD Amendment specified remedial excavation of soil containing concentrations above the new cleanup levels developed to be protective of ecological receptors, which included the range-wide weighted average of 225 mg/kg for lead. The remedy (Army, 2009) also included special considerations to minimize destruction of high quality habitat, including potential CTS reproductive habitat (KEMRON, 2017).

Remedial actions were conducted through July 2013 at 18 of the HAs within the Site 39 Inland Ranges in accordance with the December 2009 *Remedial Design/Remedial Action Work Plan, Site 39 Inland Ranges Remediation and OU2 Landfills, Area E Construction, Former Fort Ord, California* (Shaw, 2009). Approximately 150,000 cy of soil have been excavated at the HAs identified in the FS Addendum (MACTEC, 2008). The activities were summarized in the December 2014 *Final Remedial Action Completion Report, Site 39 Inland Ranges Habitat Reserve, Former Fort Ord, California* (ITSI Gilbane/CB&I Federal Services LLC [CB&I], 2014). The Remedial Action Completion Report concluded that the remedial action objectives presented in the 2009 Remedial Action Work Plan (RAWP) were achieved for each HA and that no further action is required for the HAs.

Site 39 ranges are divided into habitat areas that will be managed as habitat and development ranges (or portions of ranges) that are within designated future development areas and could be developed for residential use in the future. Site 39 habitat areas and development areas are discussed separately below.

Site 39 Habitat Areas

The selected remedy in the ROD Amendment (Army, 2009) specified: "Remediation to Range-Wide Weighted Average for Lead and Explosive Compounds, with Special Considerations for Ecological Receptors." This included excavation of soil with lead concentrations above a range-wide weighted average of 225 mg/kg for the habitat areas of Site 39. Areas and extents of excavations were selected to ensure only a moderate amount of disturbance to critical habitat, including habitat for rare, threatened, and endangered species. To determine the range-wide weighted average for each remediation area, areas containing soil confirmation samples with concentrations of lead that exceeded the cleanup levels were identified for each area containing low, medium, and high-quality habitat, and the analytical results within these areas were then averaged. According to the RAWP, the total volume of contaminated soil planned for excavation was approximately 125,000 cy (including the spent bullets). Proposed excavation depths ranged from approximately 1 to 2 feet bgs over the estimated remediation area of approximately 53 acres. The lead cleanup level established to protect ecological receptors also is protective of human health, because it is lower than the human health-based level of concern identified in the Basewide RI Sites ROD for use of the area as a habitat reserve (based on risks to a habitat management worker and site visitor). The 225 mg/kg level also is lower than the current EPA Regional Screening Level (RSL) of 400 mg/kg for lead. The recent DTSC change to the blood-lead level limits applies to a child resident receptor. Residential criteria are not applicable to the habitat areas of Site 39, because residential uses are not proposed. Therefore, 225 mg/kg remains an appropriate lead cleanup level for the Site 39 habitat areas which encompass a majority of the Site 39 acreage.

Site 39 Development Areas

Site 39 development HAs have been separated from the habitat HAs due to the difference in future uses. Development HAs were evaluated using a cleanup level of 400 mg/kg, based on EPA guidance for residential uses. Of the development HAs, only one range exceeded the cleanup level of 400 mg/kg; HA-21D. HA-21D was subsequently evaluated based on the 95 percent UCL of the mean. The calculated 95 percent UCL for

HA-21D was 38.74 mg/kg. All of the development HAs were found to have a remaining lead concentration less than the DTSC residential soil screening level of 80 mg/kg, except for HA-18D and HA-23D. Excavation activities at HA-18D were initiated in 1999 to remove soil containing accumulated spent ammunition and residual lead from within areas identified for remediation. Confirmation samples from HA-18D were collected to confirm that the remediation goal of 400 mg/kg set in the August 2002 *Draft Final Sampling and Analysis Plan Characterization and Remediation Confirmation, Site 39, Ranges 18 and 19, Former Fort Ord, California* (IT, 2002) was met. All in-place results for HA-18D were below the cleanup level of 400 mg/kg. A series of residential grid 95 percent UCL lead concentrations from within the development area had concentrations that ranged from 14.5 to 768.2 mg/kg. In addition, the UCL for HA-18D was calculated at 99.4 mg/kg. Incremental samples were collected at HA-23D in September 2016 and January 2016 in accordance with the November 2015 *Final Historical Area (HA) 23D Sampling Work Plan*, *Former Fort Ord, California* (ITSI Gilbane, 2015). The 95 percent UCL lead concentration ranged from 40.5 mg/kg to 378 mg/kg. In addition, a development-wide 95 percent UCL for HA-23D was calculated at 174.7 mg/kg. The values at HA-18D and HA-23D are below the 400 mg/kg cleanup level established for the project, which the Army considers protective of human health. It is recognized that DTSC concludes that the cleanup level for lead at the development areas should be the DTSC 80 mg/kg screening level. This screening level is based on the OEHHA benchmark change in blood lead concentration criteria and the DTSC methodology for calculating risk-based soil preliminary remediation goals. The January 2019 *Revised Final Technical Memorandum Evaluation of Lead Concentrations at Selected Sites, Former Fort Ord, Monterey County, California* re-evaluated HA-18D, HA-21D, and HA-23D. The document noted, as detailed above, the 95 percent UCL values at HA-18D and HA-23D exceed the DTSC residential soil screening level of 80 mg/kg. The document recommended that the Army and regulatory agencies work to develop an appropriate site-specific lead remediation goal for HA-18D and HA-23D. Additional discussion between the regulatory agencies and the Army regarding the residential lead cleanup level is currently ongoing. Since 2020, a deed restriction has been in place for HA-18D and HA-23D prohibiting residential use. This restriction shall remain in place until an agreement on the lead cleanup level is documented and remediation, if needed, is complete.

7.3.2.1 Remedy Selection

Basewide RI Sites ROD

The following four remedial alternatives were evaluated in the original Feasibility Study (FS) (HLA, 1994).

- Alternative 1: No action
- Alternative 2: Institutional controls
- Alternative 3: Excavation and onsite disposal
- Alternative 4: Excavation and offsite disposal

Alternative 3 of the initial FS (HLA, 1994) was the originally selected remedy and guided remediation of sites remediated under the Basewide RI Sites ROD (Army, 1997a) (Ranges 21, 24, 25, and 46; the Seaside parcels of Ranges 18 and 19 were remediated to support the reuse plan which identified development in these areas).

ROD Amendment

The ROD Amendment addressed ecological risks, established revised cleanup levels, identified a significantly larger volume of soil for remediation, confirmed that the landfill is still the best location to place the contaminated soil, eliminated the need to conduct a post-remediation risk assessment, and eliminated the need for institutional controls related to the chemical contamination. Soils from 18 HAs in Site 39 were addressed in the ROD Amendment. The ROD Amendment specified remedial excavation of soil containing concentrations above the new cleanup levels for lead of 225 mg/kg developed to be protective of ecological receptors. The remedy also included special considerations to minimize destruction of high quality habitats (Army, 2009).

As previously mentioned, a larger volume of soil requiring remediation in Site 39 was identified in the ROD Amendment (Army, 2009). While the remedial technology (Excavation and Onsite Placement at the Fort Ord Landfills Beneath a Cap) remained the same, the selected remedy identified in the Basewide RI Sites ROD was revised in the ROD Amendment to include ecological cleanup levels, the soil volumes identified based on the results of the Comprehensive BRA, ERA, and FS Addendum for the Site 39 Inland Ranges that were to be placed at the Fort Ord Landfills.

The four remedial alternatives considered for the Site 39 Inland Ranges in the ROD Amendment include:

- Remedial Alternative 1 – No Action.
- Remedial Alternative 2 – Remediation to Human Health Based Levels of Concern for Lead and Constituents of Explosives.
- Remedial Alternative 3 – Remediation to a Range-Wide Weighted Average for Lead and Constituents of Explosives, With Special Considerations for Ecological Receptors.
- Remedial Alternative 4 – Remediation to the Fort Ord Background Level for Lead and Non-Detectable for Constituents of Explosives.

Remedial Alternative 3 – "Remediation to Range-Wide Weighted Average for Lead and Constituents of Explosives, With Special Considerations for Ecological Receptors" was selected in the ROD Amendment. This alternative includes:

- Excavation of soil containing concentrations above the following ERA cleanup levels: a range-wide weighted average of 225 mg/kg for lead, and for constituents of explosives of 5.9 mg/kg for trinitrotoluene (TNT), 3.1 mg/kg for RDX, and 2.7 mg/kg for cyclotetramethylene tetranitramine (HMX). These cleanup levels are designed to be protective of ecological receptors and take into account the HMP and related requirements by incorporating special considerations to minimize destruction of potential CTS reproductive habitat and high quality habitat. These cleanup levels also are protective of human health, because they are lower than human health-based levels of concern identified in the Basewide RI Sites ROD for reuse of the areas as a habitat reserve (based upon risks to a habitat management worker and site visitor).
    - Special considerations for ranges near ponds which may provide reproductive habitat for the CTS (Ranges 28, 37 and 39/40), where all sample locations with lead concentrations above 225 mg/kg will be removed, and the range-wide weighted averages for constituents of explosives will be 0.59 mg/kg for TNT, 2.4 mg/kg for RDX, and 2.7 mg/kg for HMX.
    - Special consideration for ranges with large areas of very high quality chaparral habitat (Range 19) that include remediation of the target and firing lanes and all areas with greater than 10 percent spent small arms bullets distribution.
    - The approximate range-wide weighted average concentrations of lead that will remain on site under the selected remedy vary from 50 to 190 mg/kg, except for Range 19, which would result in a range wide weighted average of 355 mg/kg.
- Excavation of approximately 125,000 cy of soil and spent bullets based on current data to depths ranging from approximately 1 to 2 feet bgs over a total estimated remediation area of approximately 53 acres, resulting in a moderate amount of disturbance to the sensitive habitat including rare, threatened, and endangered species.
- The Army will continue to conduct characterization of metals and constituents of explosives in soil within the Site 39 Inland Ranges that are associated with former military munitions range uses, as munitions responses are completed within the Impact Area MRA. If there is evidence that military munitions recovered from the subsurface have degraded and released constituents of explosives or

metals into soils, these specific locations will be evaluated to determine if additional sampling or remediation for constituents of explosives or metals is necessary.

- Placement of the excavated soil and spent bullets within Fort Ord Landfills (Area E cell) above the existing geomembrane cover as described in Appendix B of the FS Addendum (MACTEC, 2008).

After remediation is completed under this alternative, no institutional controls (e.g., access management measures or land use restrictions) will be required related to residual chemical contamination in soil, based on the results of the Comprehensive BRA, ERA, and FS Addendum completed after the Basewide RI Sites ROD was signed in 1997. Details associated with implementation of the range-specific remedial approaches identified in the selected remedy were provided in the RAWP that was prepared for the Site 39 Inland Ranges (Shaw, 2009).

A description of re-vegetation and restoration efforts associated with the post-remediation cleanup is included in the September 2009 *Final Habitat Restoration Plan, Site 39 Inland Ranges, Former Fort Ord, California* (HRP; Duffy/Shaw, 2009). Habitat and wetland monitoring procedures were conducted in accordance with the September 2006 *Draft Wetland Monitoring and Restoration Plan, Former Fort Ord* (Burleson, 2006), and the March 2009 *Protocol for Conducting Vegetation Monitoring in Compliance with the Installation-Wide Multispecies Habitat Management Plan at Former Fort Ord* (Burleson, 2009), and the April 2015 update *Revisions of Protocol for Conducting Vegetation Monitoring for Compliance with the Installation-Wide Multispecies Habitat Management Plan, Former Fort Ord* (Tetra Tech, 2015). Results of monitoring will be documented in annual reports submitted to the U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife. Range-specific details regarding vegetation regrowth monitoring and restoration activities are described in detail in the HRP, including an assessment of the restoration potential for each range, and identify the specific HMP species that occur.

7.3.2.2 Remedy Implementation

The remedial alternative implemented at the Site 39 Inland Ranges based on the ROD Amendment was "Remediation to a Range-Wide Weighted Average for Lead and Explosive Compounds, with Special Considerations for Ecological Receptors." The rationale for this approach was to minimize the removal of very high quality habitat and to aid in post-remediation habitat restoration efforts, with special considerations for ecological receptors.

The HAs included in the Site 39 Inland Ranges remedial action under the ROD Amendment are slated as habitat reserve areas, a low-intensity land use. The remediation approach reduces the removal of very high quality habitat and aids in post-remediation habitat restoration efforts by leaving "islands" of very high quality habitat within the remediation areas to establish a vegetative base for re-growth. Most HAs were excavated to achieve a range-wide weighted average for the remaining lead concentration not to exceed 225 mg/kg. Some HAs were excavated to achieve range-wide weighted averages of 5.9 mg/kg for TNT, 3.1 mg/kg for RDX, and 2.7 mg/kg for HMX. Other HAs required special considerations for ecological receptors. At these HAs, all lead concentrations exceeding 225 mg/kg were removed, and soil containing explosives compounds was remediated to alternative range-wide weighted averages of 0.59 mg/kg for TNT, 2.4 mg/kg for RDX, and 2.7 mg/kg for HMX.

Confirmation samples were collected from excavation areas to confirm that remediation goals were met. Samples were analyzed for lead using EPA Method 6010B, for explosives constituents (TNT, RDX, and HMX) using EPA Method 8330A, and/or total petroleum hydrocarbons using EPA Method 8015M. The confirmation sampling schemes were based on historical range use, the mode in which the ranges were operated, and the observed patterns of contamination. Bias sample locations were identified by the Army and were collected from random locations after excavation, from sidewalls, or from disturbed areas. The remedial

action completed at the Site 39 Inland Ranges meets the RAOs established in the Basewide RI Sites ROD and the ROD Amendment for removal of soil contaminated with lead and/or explosives constituents.

The remedial actions at each HA differed depending on the contaminant (lead or explosives), habitat quality, and special ecological considerations as follows:

- HAs-18H, -22H, -23H, -26H, -27, -27A, -29, -34, -38, and -43: Excavated to a range-wide weighted average of 225 mg/kg or less for lead.
- HA-19H: Excavated the target and firing lanes and all areas with greater than 10 percent spent small arms bullets cover and not on individual lead concentration. The approach was to leave "islands" of very high quality habitat within the remediation areas to establish a vegetative base for re-growth. The post-remediation range-wide weighted average is 355 mg/kg.
- HA-33: Excavated to range-wide weighted averages or less of 5.9 mg/kg for TNT, 3.1 mg/kg for RDX, and 2.7 mg/kg for HMX.
- HAs-44 and -48: Excavated to range-wide weighted averages or less of 225 mg/kg for lead, 5.9 mg/kg for TNT, 3.1 mg/kg for RDX, and 2.7 mg/kg for HMX.
- HAs-28, -37, and -39/40/40A: Excavated by removing all areas with lead concentrations at or greater than 225 mg/kg for lead. These HAs were near ponds that may provide breeding habitats for the CTS.
- HA-36: Excavated to alternative range-wide weighted averages of 0.59 mg/kg for TNT, 2.4 mg/kg for RDX, and 2.7 mg/kg for HMX. This HA was near a pond that may provide breeding habitats for the CTS.

Approximately 150,000 cy of soil was excavated from an area of about 64 acres and transported via on-road trucks to Area E of the Fort Ord Landfills for final disposition. Soil was spread in thin lifts by a dozer and/or a loader. A UXO Technician inspected the soil as it was being off-loaded at the Fort Ord Landfills; no explosive hazards were noted. Excavated soil included 122,000 cy in accordance with the proposed volume identified in the Site 39 RAWP (Shaw, 2009), 2,000 cy from HA-38, and 26,000 cy of additional excavation required to meet the RAOs. Excavation depths ranged from 1 to 5 feet, dependent upon horizontal extent of contamination. A new cover consisting of a low permeability geomembrane and vegetative layer was placed over the foundation layer. Remediation of all soil remediation areas specifically identified in the ROD Amendment has been completed; these actions (and remediation of subsequently identified, additional HAs noted above) are described in the December 2014 *Final Remedial Action Completion Report, Site 39 Inland Ranges Habitat Reserve, Former Fort Ord, California* (ITSI Gilbane/CB&I, 2014). The Remedial Action Completion Report concluded that the remedial action objectives presented in the 2009 RAWP were achieved for each HA and that no further action is required for the HAs.

In accordance with the ROD Amendment (Army, 2009), investigation and characterization of HAs in the Site 39 Inland Ranges is ongoing. As munitions responses are completed within the Impact Area MRA, the Army has continued to conduct characterization of metals and explosives in soil within the Site 39 Inland Ranges in accordance with the June 2016 *Final Quality Assurance Project Plan, Volume 1, Appendix B, Soil Sampling, Basewide Range Assessment, Former Fort Ord, California* (KEMRON, 2016). From the ongoing investigation activities, the Army has identified areas for soil excavation and will perform remediation in these HAs following the requirements of the ROD Amendment.

7.3.2.3 System Operations and Maintenance

There are currently no O&M activities required for Site 39 based on the chemical contamination.

7.3.3 Progress Since the Last Five-Year Review

A summary of significant activities and associated documentation completed since the 4th Five-Year Review is presented in the table below.

Significant Activities Completed During the 5th Five-Year Review Period	
Document/Activity	**Date**
Final Sampling Results Technical Memorandum, Basewide Range Assessment Investigation, Site 39 Unit 23, Former Fort Ord, Monterey County, California (KEMRON, 2018)	3/28/2018
Final Sampling Results Technical Memorandum, Basewide Range Assessment Investigation, Site 39 Unit 5A and 9, Former Fort Ord, Monterey County, California (KEMRON, 2018a)	3/30/2018
Revised Final Technical Memorandum Evaluation of Lead Concentrations at Selected Sites, Former Fort Ord, Monterey County, California (KEMRON, 2019)	1/04/2019
Final Sampling Results Technical Memorandum, Basewide Range Assessment Investigation, Site 39 Unit 31 Phase 1, Former Fort Ord, Monterey County, California (KEMRON, 2019a)	1/25/2019
Final Sampling Results Technical Memorandum, Basewide Range Assessment Investigation, Site 39 Units 25 and 28, Former Fort Ord, Monterey County, California (KEMRON, 2019b)	5/17/2019
Final Sampling Results Technical Memorandum, Basewide Range Assessment Investigation, Site 39 Units 1, 2, 3, 7, 10, 33, and Watkins Gate Burn Area North and South, Former Fort Ord, Monterey County, California (KEMRON, 2020)	3/20/2020

In accordance with the Site 39 ROD Amendment (Army, 2009), BRA investigations were conducted at multiple locations during this Five-Year Review reporting period. Results of these investigations are summarized below.

Soil samples were collected from 20 locations in Unit 23, laboratory analysis included evaluation of lead in samples from 12 locations and explosive residue at 19 locations. Explosives were not detected in any samples and lead was detected in samples from all locations at concentrations below the protectiveness threshold specified in the Site 39 ROD Amendment. Based on the evaluation of site data and results of sample analyses, no further action was recommended. The investigation is detailed in the *Final Sampling Results Technical Memorandum, Basewide Range Assessment Investigation, Site 39 Unit 23, Former Fort Ord, Monterey County, California* (KEMRON, 2018).

Soil samples were collected at 11 locations in Unit 9, laboratory analysis included lead (at only 7 of the 11 locations) and explosive residue (at all 11 sample locations). Explosives were not detected in any samples and lead was detected at all 7 locations at concentrations below the protectiveness threshold specified in the Site 39 ROD Amendment. Based on the evaluation of site data and results of sample analyses, no further action was recommended for Unit 9. Based on the site reconnaissance and field evaluation, no samples were collected, and no further action was recommended for Unit 5A. The investigation is detailed in the *Final Sampling Results Technical Memorandum, Basewide Range Assessment Investigation, Site 39 Unit 5A and 9, Former Fort Ord, Monterey County, California (KEMRON, 2018a)*.

Soil samples were collected at 43 locations in Unit 31, laboratory analysis included lead in samples from 37 locations and explosive residue in 18 locations. While explosive residue was not detected in any samples, lead was detected at concentrations above the threshold criterion of 225 mg/kg in 9 of the 18 locations sampled for lead. Additional sampling to define the extent of lead contamination and subsequent removal was recommended. The investigation, which was related to HA-31 (and/or 31A), is detailed in the *Final Sampling Results Technical Memorandum, Basewide Range Assessment Investigation, Site 39 Unit 31 Phase 1, Former Fort Ord, Monterey County, California (KEMRON, 2019a)*.

Soil samples were collected from 12 locations in Unit 25, laboratory analysis included evaluation of lead in 5 locations and explosive residue at all 12 locations. Samples were collected from 9 locations in Unit 28, laboratory analysis included evaluation of lead in 5 locations and explosive residue in all 9 locations. Explosives were not detected in any samples and lead was detected in all samples at concentrations below the protectiveness threshold specified in the Site 39 ROD Amendment. Based on the evaluation of site data and results of sample analysis, no further action was recommended for both Unit 25 and 28. The investigation is detailed in the *Final Sampling Results Technical Memorandum, Basewide Range Assessment Investigation, Site 39 Units 25 and 28, Former Fort Ord, Monterey County, California (KEMRON, 2019b)*.

The investigation for Units 1, 2, 3, 7, 10, 33, and Watkins Gate Burn Area North and South is detailed in the *Final Sampling Results Technical Memorandum, Basewide Range Assessment Investigation, Site 39 Units 1, 2, 3, 7, 10, 33, and Watkins Gate Burn Area North and South, Former Fort Ord, Monterey County, California (KEMRON, 2020)* and summarized in the paragraphs below.

Soil samples were collected from 12 locations in Unit 1, laboratory analysis included evaluation of lead in 9 locations, explosive residue at 1 location, and lead and explosive residue at 2 locations. Explosives were not detected in any samples and lead was detected in samples at concentrations below the protectiveness threshold specified in the Site 39 ROD Amendment. Based on the evaluation of site data and results of sample analyses, no further action was recommended for Unit 1.

Soil samples were collected from 73 locations in Unit 2, laboratory analysis included evaluation of lead at all sample locations and explosive residue at 1 location. Explosive residue were not detected in any samples and lead was detected in samples at concentrations below the protectiveness threshold specified in the Site 39 ROD Amendment. Based on the evaluation of site data and results of sample analyses, no further action was recommended for Unit 2.

Soil samples were collected from 9 locations in Unit 3, laboratory analysis included evaluation of lead at all sample locations and explosives at 4 locations. Explosive residue were not detected in any samples and lead was detected in samples at concentrations below the protectiveness threshold specified in the Site 39 ROD Amendment. Based on the evaluation of site data and results of sample analyses, no further action was recommended for Unit 3.

Soil samples were collected from 20 locations in Unit 7, laboratory analysis included evaluation of lead at 19 locations and explosive residue at 6 locations. Explosive residue were not detected in any samples and lead was detected in samples at concentrations below the protectiveness threshold specified in the Site 39 ROD Amendment. Based on the evaluation of site data and results of sample analyses, no further action was recommended for Unit 7.

Soil samples were collected from 27 locations in Unit 10, laboratory analysis included evaluation of lead at all sample locations and explosive residue at 2 locations. Explosive residue were not detected in any samples and lead was detected in samples at concentrations below the protectiveness threshold specified in the Site 39 ROD Amendment. Based on the evaluation of site data and results of sample analyses, no further action was recommended for Unit 10.

At Unit 33, a total of 13 original soil sample locations were identified. Laboratory analysis included evaluation of lead only at all locations. One of the 13 original sample locations exceeded the protectiveness threshold specified in the Site 39 ROD Amendment. Subsequently, step out sampling was conducted from this one location to define the lateral and vertical extent of contaminated soil. Soil sampling was conducted at a total of 26 additional locations to define the extent of contamination. It was recommended that limited excavation be conducted in Unit 33 (downrange portion of Range 27) to remediate impacted soil.

Soil samples were collected from 9 locations in the Watkins Gate Burn Area North and South, laboratory analysis included evaluation of lead at 7 locations and explosive residue at 3 locations. Explosives were not detected in any samples and lead was detected in samples at concentrations below the protectiveness threshold specified in the Site 39 ROD Amendment. Based on the evaluation of site data and results of sample analyses, no further action was recommended for the Watkins Gate Burn Area North and South.

All of the development HAs were found to have a remaining lead concentration less than the DTSC residential soil screening level of 80 mg/kg, except for HA-18D and HA-23D. These two ranges were further investigated, and additional samples were collected at HA-23D to provide additional data for evaluation. The UCL for HA-18D was calculated at 99.4 mg/kg and a development-wide 95 percent UCL for HA-23D was calculated at 174.7 mg/kg. These concentrations are below the 400 mg/kg cleanup level established for the site, indicating that the remedy is protective of human health, as stated in the *Final Technical Memorandum Evaluation of Lead Concentrations at Selected Sites, Former Fort Ord, Monterey County, California* (KEMRON, 2017).

The January 2019 *Revised Final Technical Memorandum Evaluation of Lead Concentrations at Selected Sites, Former Fort Ord, Monterey County, California* noted the 95 percent UCL values at HA-18D and HA-23D exceed the DTSC residential soil screening level of 80 mg/kg. It was recommended that the Army and regulatory agencies work to develop an appropriate site-specific lead remediation goal for HA-18D and HA-23D to be memorialized in a decision document (KEMRON, 2019).

7.3.3.1 2017 Five-Year Review Protectiveness Statement

The 2017 Five-Year Review Report (Army, 2017) for Site 39 stated that:

"The overall remedy at Site 39 is protective of human health and the environment. The long-term protectiveness at sites HA-18D and HA-23D for potential future residential development is being further evaluated as indicated below."

"The Army will continue evaluating data in a timely manner following MEC removal to determine whether characterization sampling is required. If there is evidence of explosives or metals in soils, the June 2016 *Final Quality Assurance Project Plan, Volume 1, Appendix B, Soil Sampling, Basewide Range Assessment, Former Fort Ord, California* (KEMRON, 2016) will be implemented with Agency input and concurrence, and remedial actions subsequently will be planned and implemented, as needed."

"The Site 39 remedial actions performed for the development ranges are protective of current and future site users, for all HAs except HA-18D and HA-23D. At this time, sites HA-18D and HA-23-D are only protective as long as there is no residential development on these parcels. Further information will be obtained upon the conclusion of discussions between the regulatory agencies and the Army about the effect of the changes in the OEHHA benchmark change in blood lead concentration and the DTSC methodology for calculating risk-based soil preliminary remediation goals on the protectiveness of the human health-based cleanup levels. It is expected that these discussions will be completed by December 31, 2017 and, at that time, a determination of

what further actions, if any, will need to take place to ensure long term protectiveness for potential future residential use scenarios."

7.3.3.2 Status of the 2017 Five-Year Review Issues and Recommendations

No issues were identified or recommendations given in the 4th Five-Year Review Report.

While the remedy remains protective and is functioning as intended, agency concerns with lead concentrations exceeding the DTSC residential soil screening level of 80 mg/kg at HA-18D and HA-23D remain. HA-18D and HA-23D have always been slated for residential reuse. The proposed approach forward is documented in the *Revised Final Technical Memorandum Evaluation of Lead Concentrations at Selected Sites, Former Fort Ord, Monterey County, California* (KEMRON, 2019), in which it was recommended that the Army and agencies work to develop an appropriate site-specific lead remediation goal for HA-18D and HA-23D to be memorialized in a decision document.

Based on this recommendation, the Army and regulatory agencies are currently working on a revised residential cleanup level for lead. If a new residential cleanup level is agreed upon, it will be specified in an ESD.

7.3.4 Site 39 Five-Year Review Process

This Five-Year Review was performed in accordance with EPA Guidance (EPA, 2001) and with the process described in Section 4.0 of this document. The administrative and community involvement activities have been performed for Fort Ord, using a basewide approach and are detailed in Sections 4.1 and 4.2. Document review, data review, site inspection, and interviews, if applicable, have been conducted on a site-by-site basis, described in the following subsections.

7.3.4.1 Document Review

A list of relevant documents reviewed as part of this evaluation is presented in Appendix A.

7.3.4.2 Data Review

BRA investigations were conducted in several units during this Five-Year Review reporting period. The following table summarizes soil samples collected for each unit, provides a range of detected results, and indicates the number of sample locations which exceeded thresholds as specified in the Site 39 ROD Amendment (Army, 2009).

Summary of Site 39 Basewide Range Assessment Investigation Results				
Unit	**Number of Sample Locations**	**Analyte**	**Range of Results[1]**	**Number of Sample Locations Exceeding Threshold Concentrations[2]**
1	11	Lead	1.3J - 84.8	NA
	3	HMX, RDX, TNT	ND	NA
2	73	Lead	4.7J - 214	NA
	1	HMX, RDX, TNT	ND	NA
3	9	Lead	3.1 - 159J	NA
	4	HMX, RDX, TNT	ND	NA
7	19	Lead	1.8J - 136	NA
	6	HMX, RDX, TNT	ND	NA
9	7	Lead	5.0J - 15.3J	NA
	11	HMX, RDX, TNT	ND	NA
10	27	Lead	2.8 - 146	NA
	2	HMX, RDX, TNT	ND	NA
23	12	Lead	9.8 - 23.7	NA
	19	HMX, RDX, TNT	ND	NA
25	5	Lead	7.0 - 16.3	NA
	12	HMX, RDX, TNT	ND	NA
28	5	Lead	8.7 - 128	NA
	9	HMX, RDX, TNT	ND	NA
31	37	Lead	1.6J - 6,690	9
	18	HMX, RDX, TNT	ND	NA
33	39	Lead	ND - 932	16
	--	HMX, RDX, TNT	--	--
WGBA	9	Lead	6.7 - 130	NA
	3	HMX, RDX, TNT	ND	NA

Notes:

1) Concentrations in milligrams per kilogram

2) As specified in the *Final Record of Decision Amendment Site 39 Inland Ranges, Former Fort Ord, California* (Army, 2009)

J = Indicates a result greater than the method detection limit but less than the limit of quantitation

NA = Not applicable

ND = Non detect

WGBA = Watkins Gate Burn Area North and South

-- = No samples collected for these constituents

Explosive constituents HMX, RDX, and TNT were not detected in soil during BRA investigation activities. Concentrations of lead exceeding the 225 mg/kg threshold criterion specified in the Site 39 ROD Amendment were detected in soil in Units 31 and 33. Lead exceedances were detected in soil at nine locations in Unit 31. It was recommended to further characterize the lateral extent of contamination in the vicinity of two of the nine locations prior to excavation and to excavate an approximate total of three acres of contaminated soil in the vicinity of the remaining locations. In Unit 33, an exceedance of lead was detected in soil at one of the 13 original sampling locations. Based on this exceedance, step out sampling was conducted from this location to define the lateral and vertical extent of contamination. Step out samples were collected at a total of 26 locations, of which exceedances of lead was detected in soil at 15 of these locations. Based on the results, it was recommended that limited excavation be conducted to remediate impacts to soil. Currently excavation at Units 31 and 33 is planned to commence in fiscal year 2025, after munitions cleanup and BRA evaluation in the remaining units are completed.

7.3.4.3 Site Inspection and Interviews

An inspection of Site 39 was conducted on August 4, 2021, to assess the overall condition of the site as well as the current condition of the recently remediated HA-34, HA-37, and HA-38. The Fort Ord BRAC Environmental Coordinator, Mr. Bill Collins, was interviewed on the same day as the inspection to provide information on the site's operational activities. In general, observations verified that the site is delineated by fencing, gates are locked and in working order, signage was evident to prohibit entry/warn of munitions hazards, access roads were open and in good condition, and site restoration at HA-34, HA-37, and HA-38 was in good condition with no indication of vandalism or trespassing.

Site Inspection documentation and photographs are presented in Appendix B.

7.3.5 Technical Assessment

7.3.5.1 Question A

Is the remedy functioning as intended by the decision document?

Yes. The remedy is functioning as intended. (The Basewide RI Sites ROD provides for the protection of human receptors, and the ROD Amendment provides for the protection of ecological receptors).

7.3.5.2 Question B

Are the exposure assumptions, toxicity data, cleanup levels, and RAOs used at the time of the remedy selection still valid?

Yes. The August 2009 ROD Amendment for Site 39 established revised cleanup levels for the habitat portion of Site 39 and eliminated the need for institutional controls related to the chemical contamination for the habitat portion (that is, access management measures or land use restrictions will not be required). The revised cleanup level was a range-wide weighted average of 225 mg/kg for lead, 5.9 mg/kg for TNT, 3.1 mg/kg for RDX, and 2.7 mg/kg for HMX. These cleanup levels were designed to be protective of ecological receptors, incorporating special considerations to minimize destruction of potential California tiger salamander reproductive habitat and high quality habitat. At the time of the ROD Amendment, these cleanup levels were

also protective of human health, because they were lower than human health-based levels of concern that existed at the time.

In September 2009, OEHHA published a revised residential soil screening level, based on a revised change in blood lead level of 1 µg/dL. The current DTSC Leadspread model incorporated this revised change in blood lead level to calculate a human health-based residential soil screening level of 80 mg/kg in soil based on residential exposure assumptions. More recently (May 2021) USEPA updated their IEUBK model that is used to calculate preliminary remediation goals that includes a default blood lead level of concern of 5 µg/dL (down from the previous 1994 version of 10 µg/dL). This is based on current Centers for Disease Control and Prevention (CDC) recommendations. Using the current version of USEPA's IEUBK model, with this blood lead level of concern, results in a preliminary remediation goal of 200 mg/kg for residential exposures. However, because the 2009 ROD Amendment eliminated the need for institutional controls related to the chemical contamination in the habitat portion of Site 39 only, and the Basewide RI Sites ROD remedy for Site 39 includes deed restrictions limiting reuse, the exposure assumptions, toxicity data, cleanup levels, and RAOs used at the time of the remedy selection are still valid.

7.3.5.3 Question C

Has any other information come to light that could call into question the protectiveness of the remedy?

No additional information has come to light that could call into question the protectiveness of the remedy.

7.3.6 Issues

There are no issues affecting the protectiveness of the remedy at Site 39. The January 2019 *Revised Final Technical Memorandum Evaluation of Lead Concentrations at Selected Sites, Former Fort Ord, Monterey County, California* (KEMRON, 2019) noted that all of the development HAs were found to have a remaining lead concentration of less than 80 mg/kg, except for HA-18D and HA-23D. These two ranges were further investigated, and additional samples were collected at HA-23D to provide additional data for evaluation. The UCL for HA-18D was calculated at 99.4 mg/kg and a development-wide 95 percent UCL for HA-23D was calculated at 174.7 mg/kg. These values are below the preliminary remediation goal of 200 mg/kg for residential exposures from the current version of USEPA's IEUBK model with the blood lead level of concern at 5 µg/dL. It was recommended that the Army and regulatory agencies work to develop an appropriate site-specific lead remediation goal for HA-18D and HA-23D to be memorialized in a decision document (KEMRON, 2019). A residential use restriction was placed in the deed and will be removed when the site is cleaned up to the decided-upon residential cleanup level for lead, therefore protectiveness at the site is maintained.

7.3.7 Recommendations and Follow-Up Actions

The Army and regulatory agencies are currently working on a residential cleanup level for lead for HA-18D and HA-23D. Preparation of the ESD should begin in fiscal year 2022, as it is currently scheduled.

7.3.8 Protectiveness Statement

Protective in the short-term. The remedy at Site 39 currently protects human health and the environment because the LUCS are fully implemented. However, in order for the remedy to be protective in the long-term, the remedy will need to be fully implemented. Concentrations of lead exceeding the 225 mg/kg threshold criterion specified in the Site 39 ROD Amendment were detected in soil in Units 31 and 33. Based on these findings, it was recommended that limited excavation be conducted to remediate impacts to soil and mitigate exposure to ecological receptors. Currently excavation at Units 31 and 33 is planned to commence in fiscal year 2025, after munitions cleanup and BRA evaluation in the remaining units are completed.

The Army will continue evaluating data in a timely manner following MEC removal to determine whether characterization sampling is required. If there is evidence of explosive constituents or metals in soils, the June 2016 *Final Quality Assurance Project Plan, Volume 1, Appendix B, Soil Sampling, Basewide Range Assessment, Former Fort Ord, California* (KEMRON, 2016) will be implemented with Agency input and concurrence, and remedial actions subsequently will be planned and implemented, as needed.

The Site 39 remedial actions performed for the development ranges are protective of current and future site users. Currently, sites HA-18D and HA-23D are only protective as long as there is no residential development on these parcels, therefore, a deed restriction is in place for HA-18D and HA-23D prohibiting residential use. This deed restriction shall remain in place until an agreement on the lead cleanup level is reached and, if needed, remediation is complete.

7.4 Site 33

7.4.1 Site 33 Background

The selected remedies for the basewide RI sites, including Site 33, are described in the January 1997 *Record of Decision, Basewide Remedial Investigation Sites, Fort Ord, California* (Army, 1997a). Site 33 includes the golf course maintenance area, which consists of a pesticide mixing area, an unpaved surface drainage area, and a former pesticide storage area. The golf course was established in the early 1950s, and pesticides and herbicides have been used regularly since operations began. Pesticides, herbicides, and metals were detected in soil at concentrations below the PRGs set for reuse of this site.

The Human Health Risk Assessment for soil at Site 33 evaluated risk to a golf course maintenance worker from exposure to contaminants of potential concern (COPCs) detected at the site. Based on the assessment, adverse human health effects are not expected for the proposed reuse. A quantitative ERA also was performed (HLA, 1995). Ecological impacts were evaluated by collecting plants and animals and measuring chemical concentrations of COPCs in their tissues. Results of the ecological evaluation indicated that tissue concentrations in prey were not likely to produce adverse effects in animal populations, nor would tissue concentrations in plants within the surrounding habitat be adversely affected.

The Site 33 property was transferred to the City of Seaside in September 2004 under FOST 6 (Parcel F2.7.2; see Table 1). A deed restriction was implemented at the time of the land transfer to restrict the land use to non-residential.

7.4.2 Remedial Actions

The RAO in the ROD for Site 33 is to maintain a deed restriction allowing only uses other than residential (Army, 1997a).

7.4.2.1 Remedy Selection

A deed restriction on the property prohibiting residential use is the selected remedy for Site 33.

7.4.2.2 Remedy Implementation

The remedial action for the site was to maintain restrictions in the deed to ensure nonresidential uses.

7.4.2.3 System Operations and Maintenance

There are no system operations and maintenance requirements. Periodic reviews of the deed are necessary to ensure the restrictions remain consistent with ROD. The Deed was evaluated as part of this review and as of this time restrictions remain unchanged.

7.4.3 Progress Since the last Five-Year Review

The LUCs (prohibition against residential use) for Site 33 are still in place. There has been no change in the non-residential use status of the site during the last five years. The site remains a golf course maintenance area.

During the Five-Year Review period, the landowner at the time, Seaside Resort Development, LLC, completed further cleanup action, sampling and analysis, as documented in the *Final Remedial Action Completion Report Seaside* (GEM, 2021). Additional site characterization was conducted under the *Final, Sampling and Analysis Plan, Site 33 Maintenance Yard, Bayonet and Blackhorse Golf Course, 1 McClure Way, Seaside, California 93950* (GEM, 2016) prepared by GEM and accepted by the DTSC on January 26, 2016. The additional site characterization was conducted to confirm, evaluate, and delineate the pesticides and metal contamination identified during the RI/FS.

The combined 1993 and 2016 analytical results indicated the presence of a 0.28-acre area that required excavation to allow future unrestricted (e.g., residential) use. Pre-remediation human health risk calculations were conducted to guide soil remedial activities at Site 33. Results of the risk calculations indicated that hotspot removal at designated locations would achieve cleanup goals for unrestricted land use. A Removal Action Workplan for this work dated August 1, 2018 was prepared by GEM and approved by DTSC.

The following Remedial action objectives RAOs were established in the Remedial Action Workplan:

- Reduce concentrations of chemicals of concern in soil to minimize the human health-based risks associated with soil to achieve unrestricted land use

- Provide a site that is acceptable for regulatory closure under unrestricted scenario.

Approximately 1,731.15 tons (~ calculated 1,290 cubic yards) of soil was excavated from a total combined area of 0.35 acres to depths ranging from 1.0 to 7.0 feet below ground surface. Excavated soil was transported to John Smith Road Landfill in Hollister, CA. Confirmation samples were collected to verify that soil left in place did not contain chemicals of concern above the target screening levels. (Chemicals of concern and associated screening levels used in the sampling program were as follows: Dieldrin [0.034 mg/Kg], Chlordane [0.43 mg/Kg], DDT [1.9 mg/Kg], Lead [80mg/Kg], and Mercury [0.89 mg/Kg]). Confirmation samples that exceeded screening levels were over excavated. Additional samples were collected as necessary to confirm that soil left in place were below the screening levels. Site restoration activities started after completion of excavation activities and analytical results of confirmation samples showed that elevated chemicals of concern had been removed. The post-remediation human health risk evaluation concluded that the RAOs and site closure for residential land use were met with no further action recommended (GEM, 2021). In a letter to the

property developer dated July 9, 2021, DTSC approved the completion report for Site 33 and indicated that DTSC would prepare a CRUP termination document. DTSC terminated the CRUP in 2022. The Army is working with the other agencies to determine if it is acceptable to remove the deed restriction.

7.4.3.1 2017 Five-Year Review Protectiveness Statement

The protectiveness statement from the 2017 Five-Year Review Report (Army, 2017) stated that:

"The remedy at Site 33 is protective of human health and the environment.

The remedy is protective and is consistent with the designated uses for the property. Potential exposure pathways that could result in unacceptable risks are being controlled by the LUCs."

7.4.3.2 Status of 2017 Five-Year Review Issues and Recommendations

There were no unresolved issues for Site 33 in the 2017 Five-Year Review (Army 2017).

7.4.4 Site 33 Five-Year Review Process

This Five-Year Review was performed in accordance with EPA Guidance (EPA, 2001) and with the process described in Section 4.0 of this document. The administrative and community involvement activities have been performed for Fort Ord, using a basewide approach and are detailed in Sections 4.1 and 4.2. Document review, data review, site inspection, and interviews, if applicable, have been conducted on a site-by-site basis, described in the following subsections.

7.4.4.1 Document Review

A list of relevant documents reviewed as part of this evaluation is included in the Site 33 section of the reference list (see Appendix A, Site 33).

7.4.4.2 Data Review

The COCs identified in the 2016 SAP by GEM Group, Inc for Seaside Resort and Development, LLC, include dieldrin, chlordane, DDT (including breakdown products DDD and DDE), cadmium, lead and mercury. Cadmium and breakdown products DDD and DDE did not show concentrations above the screening levels during initial site characterization, therefore, these were not considered a COC during the remediation (GEM, 2016). Chemicals of concern and associated screening levels used in the remediation were as follows: Lead (80mg/Kg), Mercury (0.89 mg/Kg), DDT (1.9 mg/Kg), Chlordane (0.43 mg/Kg), and Dieldrin (0.034 mg/Kg). Confirmation samples that exceeded screening levels were over-excavated. Additional samples were collected as necessary to confirm that soil left in place were below the screening levels. The maximum concentrations after excavation in the sidewalls for lead, mercury, 4,4'-DDT, chlordane, and dieldrin were 13 mg/kg, 0.29 mg/kg, <0.017 mg/kg, 0.091 mg/kg, and 0.019 mg/kg, respectively. The maximum concentrations after material removal at the base of the excavation for lead, mercury, 4,4'-DDT, chlordane, and dieldrin were 19 mg/kg, 0.86 mg/kg, 0.048 mg/kg, 0.63 mg/kg, and 0.21 mg/kg, respectively (GEM, 2021).

Human health risk calculations were performed as part of the RACR to evaluate post remedial concentrations of COCs to confirm that residual soil concentrations of COCs are protective of human health and that excavation activities met RAOs to support site closure under the DTSC unrestricted land use criteria. (GEM, 2021).

Appendix A of the September 1995 *Final Remedial Investigation/Feasibility Study, Fort Ord, California, Volume I-VI - Site 33* (HLA, 1995) stated that no ARARs were presented for Site 33 because it is a no action site; therefore, no review of the ARARs was needed for this Five-Year Review.

7.4.4.3 Site Inspection and Interviews

A site inspection was performed on August 5, 2021 to verify the current use of the site. The BRAC Environmental Coordinator for Fort Ord, Mr. Bill Collins, was interviewed on the same day as the inspection, and he suggested that we contact the City of Seaside to check on any additional cleanup or development projects that may be in planning for the site. Ms. Sheri Damon, City of Seaside attorney, was contacted on August 13, 2021 and then followed up with on Sept 8, 2021, however no additional information was gained. For more information on the interview and site inspection, see Appendix B, Field Documentation of Site Inspections and Interviews.

Field observations verified that the site continues to be used as a golf course maintenance area. There is a fence around the area; access is limited to the gate, which was open on the date of inspection. No signs to prohibit/control entry were observed. The Bayonet/Blackhorse Golf Course groundskeepers are currently using the site as an equipment washout work area. It was visually confirmed on the date of inspection that only industrial and maintenance uses were occurring, and it was verified that there were no residential uses at the site.

7.4.5 Technical Assessment

7.4.5.1 Question A

Is the remedy functioning as intended by the decision document?

The remedy is functioning as intended by maintaining deed restrictions to protect human health and the environment.

7.4.5.2 Question B

Are the exposure assumptions, toxicity data, cleanup levels, and RAOs used at the time of the remedy selection still valid?

Yes. The RAO for Site 33 is to maintain a deed restriction allowing only uses other than residential. The exposure assumptions and RAOs used at the time of remedy selection are still valid. After the soil removal in the early 1990s, the maximum lead concentrations in confirmation samples was 85 mg/kg which is lower than industrial/commercial screening levels. As noted above, recent characterization and removal activities have been conducted by the landowner resulting in maximum lead concentrations in confirmation samples of 19 mg/kg. This value is below all proposed residential lead screening levels (see Site 39 for a discussion on residential lead screening levels) and therefore, with regulatory concurrence, the residential use restriction could be removed.

7.4.5.3 Question C

Has any other information come to light that could call into question the protectiveness of the remedy?

No additional information has been identified that could call the protectiveness of the remedy into question.

7.4.6 Issues

There are no issues affecting the protectiveness of the remedy at Site 33.

7.4.7 Recommendations and Follow-Up Actions

Based on remediation work done by the landowner, DTSC terminated the CRUP in 2022. The Army is working with the other agencies to determine if it is acceptable to remove the deed restriction.

7.4.8 Protectiveness Statement

Protective. The remedy at Site 33 is protective of human health and the environment.

The remedy is protective and is consistent with the designated uses for the property. Potential exposure pathways that could result in unacceptable risks are being controlled by the LUCs. As discussed in Sections 7.4.3 and 7.4.5.2, the remaining COCs are consistent with removal of the land use controls. The Army is working with the regulatory agencies to remove the residential land use restrictions.

8.0 SITE 3 ROD

This section presents background information on Site 3. This site has completed remediation, met RAOs and fulfilled the necessary documentation process. This section also provides a summary of remedial actions and a technical assessment of the actions taken, identifies any issues related to the protectiveness of the remedy, and presents recommendations and follow-up actions, if any, to address issues identified during the review. This section also provides a statement regarding the protectiveness of the remedy.

8.1 Site 3 Background

Site 3, the Beach Trainfire Ranges, extends approximately 3.2 miles along the coastline of Monterey Bay at the western boundary of Fort Ord (Plate 2) and was used for small-arms training beginning in the 1940s. In general, trainees fired small-arms weapons from firing lines in the eastern portion of the site toward targets spaced at various intervals to the west. Spent ammunition[13] accumulated on the east-facing (leeward) sides of the sand dunes that formed the "backstops" for the targets. Site 3 includes four contiguous parcels totaling 979.46 acres transferred in September 2006 to the Department of Interior and conveyed to the State of California, Department of Parks and Recreation (DPR) for use as a public park and public recreation area. These lands currently include open space, hiking trails, and ancillary facilities; campgrounds are planned for the future. The excavation of contaminated soil (Army, 1997c) on this site is complete. The post-remediation ERA and HHRA were also completed (HLA, 1998, and IT, 2000, respectively). Additionally, the Army has completed a proposed plan, public participation process, and ROD (Army, 2005a) addressing ecological risks at this site, as described in Sections 8.2.2 and 8.3.2. Site 3 was also evaluated as part of MRS-22 for munitions response (see Section 12.0 Track 1 ROD, no further action regarding munitions response).

8.2 Remedial Actions

The RAOs for the protection of human health at Site 3 are to reduce potential adverse health effects associated with non-carcinogenic, site-related chemicals by remediation to health-based levels of concern (Army, 1997c).

8.2.1 Remedy Selection

A human health-based level of concern of 1,860 mg/kg was developed for lead in soil for Site 3. Concentrations of lead above 1,860 mg/kg occurred mainly in areas where greater than 10 percent of the surface was covered by spent ammunition. Although some areas with moderate bullet distribution contain lead above the human health-based level of concern, the ERA recommended remediation only in areas of heavy bullet distribution to minimize impacts to the sensitive ecological habitat. Therefore, the SRU for Site 3 is defined by those areas of heavy bullet distribution (greater than 10 percent surface coverage by bullets).

The following alternative remedies were evaluated, as summarized in the Interim ROD (Army, 1997c):

- Alternative 1: No Further Action
- Alternative 2: Excavation, screening and soil treatment
- Alternative 3: Excavation, screening and on-site disposal

[13] For the purpose of the Site 3 investigation and remedial actions, spent ammunition refers to individual cartridge casings from an artillery piece or firearm in which the propellant (powder) has been ignited and vaporized (fired), and all that remains is the casing that contained the powder.

Alternative 3 was the selected remedy and consisted of mechanical and hand excavation of soil in areas with greater than 10 percent coverage of spent ammunition, followed by mechanical separation using screens and gravity-feed separation techniques.

8.2.2 Remedy Implementation

The Army has completed the remedial action at Site 3 in accordance with CERCLA and the Site 3 Interim ROD (Army, 1997c). The remedial action included excavation of soil contaminated with lead and associated spent ammunition. Approximately 162,800 cy of impacted soil were removed from Site 3, of which approximately 129,200 cy were transported to the screening plant for separation of spent ammunition from soil. The remaining 33,600 cy, composed of approximately 26,700 cy of vegetation and 6,900 cy of soil from over-excavated areas (containing little spent ammunition), were not screened and were used as general fill at the OU2 Landfills, Cell E. Of the screened material, approximately 42,000 cy were used for the foundation layer at Cell E; 49,200 cy were used for the foundation layer at Cell F; and 38,000 cy were used as general fill at Cell E. Approximately 719,000 pounds of spent ammunition recovered from the screening operations were recycled and reclaimed at an off-site facility.

After excavation, confirmation soil samples were collected, and the dunes were re-contoured to provide a more natural appearance. All final confirmation samples had reported lead concentrations of less than 1,860 mg/kg and, therefore, met the human health-based cleanup level of 1,860 mg/kg for lead, as defined in the ROD. The post-remediation HHRA stated that unacceptable human health risks and hazards are considered unlikely to be associated with future recreational, commercial, or residential development of Site 3 under the exposure conditions evaluated (IT, 2000). The post-remediation ERA concluded that significant risks to herbivorous birds and carnivorous/omnivorous mammals from exposure to residual chemicals remaining in the soil at Site 3 are not expected (HLA, 1998). Potentially significant risks were identified for two "hot spot" areas where chemical concentrations in soil were elevated. However, significant risks to populations of small mammals and plants from exposure to residual chemicals in soil are not expected. The soil remediation resulted in the site being available for unrestricted reuse.

The Site 3 Interim ROD (Army, 1997c) was subsequently finalized as part of the March 2005 *Record of Decision, No Further Action Related to Munitions and Explosives of Concern-Track 1 Sites*; *No Further Remedial Action with Monitoring for Ecological Risks from Chemical Contamination at Site 3 (MRS-22)* (Army, 2005a). The Interim ROD deferred evaluation of ecological risks, which are addressed in this ROD. The 2005 ROD stipulates that Site 3 is protective of ecological receptors and that no further action is necessary and ecological monitoring will be conducted to confirm the results of the ecological risk assessments/evaluations conducted in the 1990's (HLA, 1995, 1998; IT, 2000). The ROD also requires this data be evaluated during five-year reviews to assess the need for continued ecological monitoring and to ensure the decision remains protective to the environment. Ecological data was collected annually until 2016 when the *Final 2016 Annual Biological Monitoring Report, Fort Ord Dunes State Park, Former Fort Ord, California* (Chenega, 2016) determined that no additional monitoring was recommended. Federal and state agencies have concurred with this recommendation (Army, 2017).

The area of former Site 3 is now a state park called Fort Ord Dunes State Park. The Army has agreed that, provided the California State Parks and Recreation staff collect spent bullets and notify the Army, the Army would either recycle the material or properly dispose of it through the Army's hazardous waste disposal process (Army, 2006a).

8.2.3 System Operations and Maintenance

There are presently no CERCLA O&M requirements identified for Site 3.

8.3 Progress Since the last Five-Year Review

8.3.1 2017 Five-Year Review Protectiveness Statement

The protectiveness statement from the 2017 Five-Year Review Report (Army, 2017) stated that:

> "Protective. The remedy at Site 3 is protective of human health and the environment.
>
> Ecological monitoring indicates no adverse ecological impacts at the site. The LUCs and access restrictions in effect for the State Park continue to provide human health protection."

8.3.2 Status of 2017 Five-Year Review Issues and Recommendations

There were no issues affecting the protectiveness of Site 3 listed in the 2017 Five Year Review Report. Therefore, there were no recommendations or follow up actions.

8.4 Five-Year Review Process

This Five-Year Review was performed in accordance with EPA Guidance (EPA, 2001) and with the process described in Section 4.0 of this document. The administrative and community involvement activities performed for Fort Ord, using a basewide approach, are detailed in Sections 4.1 and 4.2. Relevant documents and data have been reviewed on a site-by-site basis and are described in the following subsections.

8.4.1 Document Review

A list of relevant documents reviewed as part of this evaluation is included in the Site 3 section of the reference list (see Appendix A, Site 3).

8.4.2 Data Review

Reevaluation of Lead

In response to changes to the OEHHA health guidance value for lead in blood and the new methodology used to calculate the human health-based cleanup levels (Cal/EPA, 2007 and 2009; DTSC, 2011a), the Army reevaluated lead data and the overall protectiveness of the remedies at 17 lead-impacted sites including Site 3. Lead concentrations for the left-in-place samples remaining at the Site did not meet the industrial use criterion for lead at the time (320 mg/kg) (since this time the industrial use criterion for lead was changed to 500 mg/kg), and the site has left-in-place samples that do not meet this either). However, the land use restrictions, as described in the November 2007 *Memorandum of Understanding and Land Use Covenant between DTSC and the California Department of Parks and Recreation,* limited general access to approximately 858 acres of the total 980 acres of the Beach Ranges at the former Fort Ord (referred to as the "Restricted Property") in which former firing training was conducted. The remaining approximately 122 acres of the Site consist of two unrestricted use areas that are not subject to the LUCs and have no record or evidence of being used as firing ranges. Therefore, Site 3 was deemed protective of human health as described in the January 2019 *Technical Memorandum Evaluation of Lead Concentrations at Selected Sites Former Fort Ord, Monterey County, California* (Kemron, 2019) and 4th Five Year Review.

8.4.3 Site Inspections and Interviews

A visual site inspection was performed on August 3, 2021. The site is a limited access state park. There was evidence of vandalism on some structures since the last five year review, but all gates surrounding the structure were locked. The site vegetation appeared to be in good condition. Gates restrict vehicle access at the

site and barrier wires indicate where public entry is allowed. Trails are marked. Markers are in place indicating areas closed to the public, protecting revegetation from damage. Mr. Stephen Bachman, a Senior Park and Recreation Specialist with the California Department of Parks and Recreation, was interviewed virtually. Information about the site inspection and interview is provided in Appendix B, Field Documentation of Site Inspections and Interviews.

8.5 Technical Assessment

8.5.1 Question A

Is the remedy functioning as intended by the decision document?

Yes, the remedy is functioning as intended. In the November 2007 *Fort Ord Dunes State Park Memorandum of Understanding and Land Use Covenant* (DTSC, 2007), land use is defined as a limited access State Park, which restricts groundwater use and prohibits residential, day care, hospital, school, and campground uses of the restricted State Park property. The land use restrictions apply to approximately 858 acres of the total 980 acres of the Beach Ranges. Public and employee safety will be implemented by restricting public access within dune habitat areas to designated trails and public use areas. The remaining approximately 122 acres of the State Park consist of two unrestricted use areas that are not subject to the LUCs. These areas had no record or evidence of use as firing ranges and are planned for use as a campground and other park visitor activities.

Yes, the 2005 ROD stipulates that Site 3 is protective of ecological receptors and that no further action is necessary and ecological monitoring will be conducted to confirm the results of the ecological risk assessments/evaluations (Army, 2005a). The September 2016 *Final 2016 Annual Biological Monitoring Report, Fort Ord Dune State Park, Former Fort Ord, California* (Chenega, 2016) documents the high survivorship at both remediated and non-remediated sites during the 2015/2016 monitoring season, and that no further monitoring is recommended. Federal and state agencies have concurred with this recommendation.

8.5.2 Question B

Are the exposure assumptions, toxicity data, cleanup levels, and RAOs used at the time of the remedy selection still valid?

Yes. The property was transferred in 2009 for public park and public recreation purposes, and with residential use restriction. The area is currently being used for this purpose, and future planned uses including a campground and interpretative and visitor facilities are consistent with the deed. Since property transfer, all relevant exposure assumptions, toxicity data, cleanup levels and RAOs are still valid. The RAOs for Site 3 are the protection of human health, specifically to reduce potential adverse health effects associated with non-carcinogenic, site-related chemicals by remediation to health-based levels of concern. As discussed in Section 8.2.2, land use restrictions, as described in the November 2007 Memorandum of Understanding and Land Use Covenant between DTSC and the California Department of Parks and Recreation, limited general access to approximately 858 acres of the total 980 acres of the Beach Ranges at the former Fort Ord (referred to as the "Restricted Property") in which former firing training was conducted. The remaining approximately 122 acres of the Site consist of two unrestricted use areas that are not subject to the LUCs and have no record or evidence of being used as firing ranges. Therefore, Site 3 was deemed protective of human health as described in the subsequent January 2019 Technical Memorandum Evaluation of Lead Concentrations at Selected Sites Former Fort Ord, Monterey County, California (Kemron, 2019) and 4th Five Year Review.

8.5.3 Question C

Has any other information come to light that could call into question the protectiveness of the remedy?

No. The LUCs defined in 2007 will establish and assure the continued protection of visitors and staff at the Fort Ord Dunes State Park. Extensive ecological monitoring has indicated there are no adverse ecological impacts at the site.

8.6 Issues

There are no issues affecting the protectiveness of the remedy at Site 3.

8.7 Recommendations and Follow-Up Actions

None: the established limited access State Park remedy will continue to function as intended. Based on the results of this Five-Year Review, this site will be included in future Five-Year Reviews until such time as all land-use controls have been removed.

8.8 Protectiveness Statement

Protective. The remedy at Site 3 is protective of human health and the environment.

Past ecological monitoring indicates no adverse ecological impacts at the site. The LUCs and access restrictions in effect for the State Park continue to provide human health protection.

9.0 INTERIM ACTION SITES ROD

The IA sites are those sites with a limited volume and extent of contaminated soil and, as a result, the soils were excavated as interim actions. A ROD for the IA Sites (*Interim Action Record of Decision* (IAROD)*, Contaminated Surface Soil Remediation, Fort Ord, California*) was signed in March 1994 (Army, 1994a). The IAROD was based on the IA feasibility study (HLA, 1993) and proposed plan (Army, 1993a). The IAROD established the following criteria that a site must meet to qualify as an IA site and described the approval process for implementing IAs:

- Contaminated soil generally consists of sand and/or silty sand from fine to medium grain size
- Groundwater is relatively deep (typically more than 60 feet bgs)
- Contaminated soil is of limited extent, generally 500 to 5,500 cy
- Contaminated soil to be excavated is not more than 25 feet bgs
- Contamination is generally a result of routine operations
- Chemicals in the contaminated soil are likely to be petroleum hydrocarbons, solvents, oils, metals and pesticides

The 4th Five Year Review found that IA sites' remedy is functioning as intended and no further evaluations are required and can be eliminated from future five-year reviews (Army, 2017).

The remedy for the IA Sites is protective of human health and the environment.

Regulatory concurrence of the confirmation reports and the results of the reevaluation of lead at the fourteen lead-impacted sites clarifies that the remedy has performed as intended, RAOs have been achieved, and the remedy remains protective of human health and the environment (KEMRON, 2017).

10.0 OPERABLE UNIT CARBON TETRACHLORIDE PLUME (OUCTP) ROD

This section presents background information on the OUCTP; summarizes remedial actions; provides a technical assessment of the remedial activities performed at this site to date; identifies any issues related to the protectiveness of the remedies based on the review; presents recommendations and follow-up actions, if needed, to address any issues identified during the review; and provides a statement regarding the protectiveness of the site remedies.

10.1 OUCTP Background

Carbon tetrachloride (CT) was originally identified in groundwater in 1992 as part of the basewide groundwater monitoring activities associated with OU2. The results from the initial investigation of CT were presented in the November 1999 *Draft Final Carbon Tetrachloride Investigation Report* (HLA, 1999). Subsequent investigation activities and studies of OUCTP were conducted as part of the April 2006 *Final Operable Unit Carbon Tetrachloride Plume Groundwater Remedial Investigation/Feasibility Study, Former Fort Ord, California* (MACTEC, 2006).

Groundwater contamination issues at OUCTP concern the upper three groundwater aquifers (A-Aquifer, Upper 180-Foot Aquifer, and Lower 180-Foot Aquifer) that are described in the August 1995 *Final Remedial Investigation/Feasibility Study, Fort Ord, California, Volume II - Remedial Investigation Introduction and Basewide Hydrogeologic Characterization* (HLA, 1995). None of these three aquifers within the OUCTP are used as a direct source for drinking water; however, the Lower 180-Foot Aquifer outside of the OUCTP boundary is a significant source of potable water for the former Fort Ord and the City of Marina (Army, 2008).

The apparent former source of the CT was located in the vicinity of what is now Lexington Court, a residential area in the northern portion of the former Fort Ord (MACTEC, 2006). Site investigations indicated that CT was present in groundwater within the A-Aquifer, Upper 180-Foot Aquifer, and Lower 180-Foot Aquifer. Elevated concentrations of CT in soil vapor also were identified in the vicinity of the apparent source area, but have been remediated as part of a soil vapor extraction pilot study, as described in Section 10.4.2.2 (Shaw, 2006a).

Based on the results of the investigations performed at the site, the Final ROD (Army, 2008) established the remedial criteria to be implemented for site restoration. Between 2006 and 2008, an enhanced in situ bioremediation (EISB) pilot study was completed in the A-Aquifer of the OUCTP to enhance the natural attenuation of the plume. The pilot study confirmed the effectiveness of this approach and full implementation of active EISB at five deployment areas within the A-Aquifer was completed between September 2009 and June 2012. For more information on the pilot study, see the August 2009 *Final Operable Unit Carbon Tetrachloride Plume Enhanced in situ Bioremediation Pilot Study Completion Report* (Shaw, 2009a). The EISB remedial action has proven to be effective in reducing groundwater contamination in the previously treated areas of the A-Aquifer; however, CT concentrations continued to increase in the groundwater divide area and show continued migration to the north towards the Marina Municipal Airport. Therefore, an additional EISB remedial action has been implemented (Deployment Area 3A) in this area, as described in the July 2016 *Final Operable Unit Carbon Tetrachloride Plume Remedial Action Work Plan Addendum* (Ahtna, 2016h), see Plate 7b. Long-term monitoring is continuing as part of the remedial action to evaluate changes in contaminant concentrations and groundwater geochemistry over time and compare site conditions to the model predictions to ensure remediation is progressing as designed.

Remedial actions for the Upper 180-Foot Aquifer included installation of one extraction well (EW-OU2-09-180) to extract groundwater from the downgradient edge of the plume in that aquifer to remove contaminant mass and to minimize further impact to the Lower 180-Foot Aquifer by capturing the contaminated groundwater before it reaches the area of vertical communication through the Intermediate 180-Foot Aquitard.

Installation of the extraction well was completed on July 29, 2010 and evaluation of performance was documented in the September 2012 *Final Operable Unit Carbon Tetrachloride Plume Upper 180-Foot Aquifer Remedial Action Construction Completion Report* (Shaw, 2012a). Effluent from extraction well EW-OU2-09-180 is processed by the OU2 groundwater treatment system and performance of extraction well EW-OU2-09-180 continues to be evaluated regularly in quarterly OU2 GWTS reports.

The selected remedies for the Lower 180-Foot Aquifer, as identified in the ROD, are Monitored Natural Attenuation (MNA) with a wellhead treatment contingency to be implemented if COCs associated with the OUCTP are detected at concentrations over the ACL in potable water supply wells, and institutional controls such as Monterey County Code Title 15, Chapter 15.08.140 which prohibits construction of water wells within the Prohibition Zone. See Plates 2 and 4 for the current Prohibition and Consultation Zones.

10.2 Remedial Actions

The RAOs and the remedy for OUCTP are described in the ROD for this site (Army, 2008). The primary RAO for OUCTP groundwater impacted by VOCs is to comply with ARARs such as federal and state laws and regulations. There is no unacceptable human health risk that has been demonstrated since the exposure pathway for contaminated groundwater is not complete. Restricting access to contaminated groundwater and remediating the contaminated groundwater are both needed to assure that the pathway does not become complete. Groundwater at OUCTP is designated as drinking water, industrial water, and agricultural water source under the RWQCB Basin Plan, but is not currently used for these purposes. Achievement of the RAOs will restore the uses of groundwater within and adjacent to OUCTP. Aquifer cleanup levels for CT and several other VOCs were developed based on (1) an assessment of ARARs including federal and state MCLs for groundwater; and (2) the results of the HHRA (MACTEC, 2006).

10.2.1 Remedy Selection

The following four alternatives were evaluated in the OUCTP Feasibility Study Report (MACTEC, 2006).

- Alternative 1: No Action with Monitoring.
- Alternative 2: Enhanced In Situ Bioremediation (EISB) (A-Aquifer); Groundwater Extraction and Treatment within the OU2 Groundwater Treatment and Extraction System (Upper 180-Foot Aquifer); Monitored Natural Attenuation with Wellhead Treatment Contingency (Lower 180-Foot Aquifer).
- Alternative 3: In Situ Permeable Reactive Barrier (A-Aquifer); Groundwater Extraction and Treatment within the OU2 Groundwater Treatment and Extraction System (Upper 180-Foot Aquifer); Monitored Natural Attenuation with Wellhead Treatment Contingency (Lower 180-Foot Aquifer).
- Alternative 4: Groundwater Extraction and Treatment (A-Aquifer); Groundwater Extraction and Treatment within the OU2 Groundwater Treatment and Extraction System (Upper 180-Foot Aquifer); Monitored Natural Attenuation with Wellhead Treatment Contingency (Lower 180-Foot Aquifer).

Alternative 2 was the selected remedy, and the ROD includes the following components in addition to those specified above:

- Monitoring of up to 30 additional wells for 30 years.
- All aquifers - Institutional controls, such as deed restrictions, local ordinances (Monterey County Code Title 15, Chapter 15.08) to prevent access to or use of the groundwater within the OUCTP area for any purpose until cleanup levels are met, and to maintain the integrity of any current or future remedial or monitoring system including monitoring, extraction, and injection wells.

The ROD also specifies the COCs for each of the affected aquifers, as follows:

- A-Aquifer: CT, TCE, PCE, 1,1- DCE, chloroform, 1,2-DCE, methylene chloride, and VC
- Upper 180 Foot-Aquifer: CT
- Lower 180 Foot-Aquifer: CT and 1,2-DCA.

10.2.2 Remedy Implementation

In 2008, an EISB Pilot Study was conducted to evaluate methods of distributing substrate within the A-Aquifer and to evaluate the effectiveness of large-scale implementation of EISB at the site. The pilot study included the installation of 15 extraction wells and 7 injection wells to recirculate groundwater and distribute the substrate (sodium lactate) in the subsurface. The well layout was defined by a preliminary substrate distribution model. A tracer test was conducted following system construction to evaluate the flow conditions between the injection and extraction wells. The data from well installation and hydrogeologic testing were used to refine the substrate distribution model and develop system extraction and injection rates as well as substrate injection rates. Approximately 7,000 gallons of sodium lactate were injected into the subsurface and distributed using the groundwater recirculation system. Groundwater monitoring (from separate monitoring wells located within the pilot study area and from the extraction well effluents) was conducted to monitor substrate distribution, the development of reducing conditions due to bioactivity, and biodegradation of CT.

The A-Aquifer remedial action, based on the results of the EISB Study, focused the EISB treatment on two treatment areas within the OUCTP. These treatment areas included the upper plume (source area) and the middle plume (high concentration area). Three separate deployments within the source area (Treatment Area 1) treated residual contaminants introduced into the groundwater prior to the source removal. Two separate deployments within the middle-plume (Treatment Area 2) treated the area that historically exhibited the highest CT concentrations between 2009 and 2011. The treatment areas are shown on Plates 7a and 7b. A total of six deployments of EISB (Pilot Study, Deployment Areas 1A, 1B, 1C, 2A, and 2B) were conducted within the source and the middle plume areas (Ahtna, 2012a). In January 2016, it was determined the A-Aquifer CT Plume had migrated further to the east of the groundwater divide and north into the FONR than previously defined. Therefore, an additional EISB Deployment Area 3A was implemented in September 2016 and completed substrate injections and recirculation in August 2017. More information about Deployment Area 3A can be found in Section 10.3.2.

Extraction well EW-OU2-09-180 was installed in 2010 (Ahtna, 2016i) to extract groundwater from the downgradient edge of the plume in the Upper 180-Foot Aquifer to remove contaminant mass and to minimize further impact to the Lower 180-Foot Aquifer by capturing the contaminated groundwater before it reaches the area of vertical migration through the Intermediate 180-Foot Aquitard. Piping connections to tie the new extraction well into the OU2 treatment system was completed in September 2011. In October and November 2018, the OU2 groundwater treatment plant was transitioned to a new facility located at the OU2 Landfills. EW-OU2-09-180 was offline during the transition period until the new OU2 groundwater treatment plant was brought online on November 30, 2018 (Ahtna, 2020h).

From December 8, 2010 to February 5, 2011, four OUCTP Lower 180-Foot Aquifer multi-port wells were installed to provide additional data on the potential migration of the CT plume into the Lower 180-Foot Aquifer and towards the production wells FO-29, FO-30, and FO-31 (Ahtna, 2011). The wells are monitored in the groundwater monitoring program for OUCTP as part of the MNA remedy.

10.2.3 System Operations and Maintenance

Operation and Maintenance costs incurred from 2017 to 2021 are presented in Table below.

OUCTP O&M Cost	
Year[1]	**Cost**
2017	$1,914K[2]
2018	$496K
2019	$461K
2020	$308K
2021	$285K

1 Yearly cost information is based on contract year which starts in August and ends in July.

2 The Army 2008 Record of Decision, Operable Unit Carbon Tetrachloride Plume, Former Fort Ord, California estimates an operation and maintenance cost range of $560,000 to $786,000 (Army, 2008). The higher costs in 2017 are associated with the EISB Deployment Area 3A.

Additional information on routine O&M activities is found in Appendix B Site Inspections and the following documents:

- Routine O&M activities related to the A-Aquifer remedy are described in the July 2016 *Final Operable Unit Carbon Tetrachloride Plume Remedial Action Work Plan Addendum, Former Fort Ord, California* (Ahtna, 2016h).
- Routine O&M activities related to the Upper 180-Foot Aquifer remedy are described in the August 2009 *Final Operations and Maintenance Manual, Volume I, Operable Unit 2 (OU2) Groundwater Remedy, Former Fort Ord, California* (Ahtna, 2009).
- Routine O&M activities related to the Lower 180-Foot Aquifer remedy are described in the February 2021 *Quality Assurance Project Plan, Former Fort Ord, California, Volume I, Appendix A, Final Revision 8, Groundwater Remedies and Monitoring at Operable Unit 2, Sites 2 and 12, and Operable Unit Carbon Tetrachloride Plume* (Ahtna, 2021o).

Current O&M procedures appear consistent with approved O&M plans and are effective in maintaining both short- and long-term operations.

10.3 Progress Since the Last Five-Year Review

The A-Aquifer EISB Deployment Area 3A was completed and operational during the transitional timeframe of the 4th and 5th Five-Year Review reporting periods (2016-2017). More information about the deployment can be found in Section 10.3.2. Comprehensive monitoring and evaluation of remedial action performance of all deployment areas have been completed quarterly and/or annually since 2011. Groundwater samples are analyzed for OUCTP COCs, by a Department of Defense Environmental (DoD) Laboratory Accreditation Program (ELAP) certified laboratory, and analytical results are compared to their ACLs, as presented in the February 2008 *Record of Decision, Operable Unit Carbon Tetrachloride Groundwater Study, Former Fort Ord, California* (Army, 2008) to assess site cleanup progress. A description of remediation progress for each of the aquifers impacted by OUCTP follows.

A-Aquifer

Quarterly groundwater monitoring has continued since the completion of EISB implementation in Treatment Areas 1 and 2. In Deployment Areas 1A and 1B, the CT concentration have been below the ACL since First Quarter 2015 and Fourth Quarter 2014, respectively, resulting in their removal from the quarterly groundwater monitoring program in 2018. CT concentrations in Deployment Area 1C have been below ACL at all locations

except, EW-BW-109-A, which has generally remained above ACL, but is on a decreasing trend. In Deployment Area 2A and 2B, CT concentrations have generally been on a decreasing trend for all wells, with the exception of MW-BW-26-A, but remain at or above the ACL (Ahtna, 2021k).

Deployment Area 3A was implemented in September 2016, completed treatment in August 2017, and the EISB treatment system was decommissioned in January 2019. At the completion of the treatment, extraction and monitoring wells within the treatment area showed significant decreases in CT concentrations, with concentrations reduced to near or below the ACL in most of the wells. Post treatment monitoring of the area is performed as part of the quarterly groundwater monitoring program (Ahtna, 2020g). More information about the deployment can be found in following sections.

Upper 180-Foot Aquifer

The Upper 180-Foot Aquifer groundwater remedy has been in operation since September 2011 (Ahtna, 2016i) and includes one groundwater extraction well (EW-OU2-09-180) connected to the OU2 GWTS where extracted groundwater is treated with GAC, as described in Section 6.0 OU2 ROD – Fort Ord Landfills. CT was first observed in well EW-OU2-09-180 during the Third Quarter 2014 groundwater monitoring event and has had intermittent detections at concentrations below the ACL since then, demonstrating the relative inefficiency of this well. The flow rate for well EW-OU2-09-180 has historically been relatively low, but has improved, averaging 56 gpm as of Third Quarter 2021 (Ahtna, 2021b). This is, however, still less than the flow rate of 100 gpm estimated in the OUCTP RI/FS Report (MACTEC, 2006) and OUCTP Remedial Design (Shaw, 2010) that is required to remove most of the mass of CT from the Upper 180-Foot Aquifer and intercept CT prior to its downward migration to the Lower 180-Foot Aquifer.

Lower 180-Foot Aquifer

The remedy for the Lower 180-Foot Aquifer is monitored natural attenuation with a contingency for wellhead treatment of groundwater being extracted from potable water supply wells if CT associated with OUCTP is detected at concentrations above its ACL. The contingency procedure is described in the *Final Operable Unit Carbon Tetrachloride Plume Lower 180-Foot Aquifer Remedial Design, Former Fort Ord, California. Revision 0* (Shaw, 2010). CT has been detected in at least one of the potable water supply wells since 2016, though this may be attributed to the change in analytical method from USEPA Method 524.2 to USEPA Method 8260 Selected Ion Monitoring (SIM). As of Third Quarter 2020, the CT concentrations have not exceeded the ACL (Ahtna, 2021k). Extraction well EW-OU2-09-180 was installed in July 2010 with the objective of extracting groundwater from the downgradient edge of the western plume of the Upper 180-Foot Aquifer to remove contaminant mass and to capture the CT groundwater plume before it reaches the area of vertical communication through the Intermediate 180-Foot Aquitard to minimize further impact to the Lower 180-Foot Aquifer. Groundwater monitoring continues to evaluate the effectiveness of this remedy.

10.3.1 2017 Five-Year Review Protectiveness Statement

The 2017 Five-Year Review Report (Army, 2017) states the following regarding the protectiveness of the OUCTP remedy:

> "**Will be Protective**. The remedy at OUCTP is expected to be protective of human health and the environment upon completion. In the interim, ongoing remedial activities and groundwater use prohibitions continue to adequately address all exposure pathways that could result in unacceptable risks.
>
> Specific controls include groundwater prohibitions provided by Chapter 15.08 of Title 15, Monterey County Code, deed restrictions, and the CRUP."

10.3.2 Status of 2017 Five-Year Review Issues and Recommendations

The 2017 Five-Year Review Report did not identify any issues that affect the protectiveness of the OUCTP remedy. The report did, however, make recommendations for proposed monitoring and remediation modifications to improve performance, reduce costs, and increase the likelihood of achieving cleanup goals. The specific recommendations and their current status are discussed below:

A-Aquifer

Two new monitoring wells were recommended to further delineate the A-Aquifer CT plume, as described below:

- In between wells MW-BW-36-A and MW-BW-89-A to define the CT plume to the north.
- In between wells MW-BW-89-A and MW-BW-90-A to define the CT plume to the north near the groundwater divide.

Three monitoring wells were initially installed in September 2018 to further delineate the CT plume. An additional well, MW-BW-94-AR, was installed in January of 2019 to replace MW-BW-94-A (Ahtna, 2019d). The wells can be seen on Figure 2 of the June 2021 *Operable Unit Carbon Tetrachloride Plume Fourth Quarter 2019 through Third Quarter 2020 Groundwater Monitoring Report Former Fort Ord, California* (Ahtna, 2021k):

- MW-BW-93-A: Located between MW-BW-88-A and MW- BW-89-A, northwest of EISB Deployment Area 3A, west of the groundwater divide, and north of the currently defined CT plume extent.
- MW-BW-94-A/MW-BW-94-AR: Located northeast of MW-BW-90-A, northeast of EISB Deployment Area 3A, east of the groundwater divide, and northeast of the currently defined CT plume extent. Because MW-BW-94-A was unable to produce enough water, an additional well, MW-BW-94-AR, was installed 45 feet west of MW-BW-94-A. MW-BW-94-AR was able to sustain water levels and was, therefore, incorporated into the groundwater monitoring program in place of MW-BW-94-A.
- MW-BW-95-A: Located between MW-BW-89-A and MW-BW-36-A, and north of the currently defined CT plume extent.

Upper 180-Foot Aquifer

Up to three new monitoring wells were recommended to delineate the Upper 180-Foot Aquifer CT plume to the east between the existing monitoring well network and Reservation Road. Additionally, a new OUCTP Upper 180-Foot Aquifer extraction well was recommended to enhance containment and control of the OUCTP in the Upper 180-Foot Aquifer in accordance with the OUCTP ROD.

Two Monitoring wells were installed in September 2018 to further delineate the CT plume (Ahtna, 2019d):

- MW-BW-57-180: Located north of the southern CT plume, east of MW-BW-51-180 and southwest of Reservation Road.
- MW-BW-58-180: Located east of the southern CT plume, northeast of MW-OU2-67-180 and south of Reservation Road.

An additional extraction well was not installed within this review period though it is still recommended based on sampling results.

Lower 180-Foot Aquifer

TCE has been detected in the Lower 180-Foot Aquifer intermittently above the MCL since 2004 and concentrations increased above the MCL in well MW-OU2-82-180 during the reporting period covered by the 4th Five Year Review; therefore, two new monitoring wells were recommended to further delineate the Lower 180-Foot Aquifer TCE plume, as described below.

- Upgradient of well MW-OU2-82-180 and adjacent to existing well MW-OU2-28-400 to delineate TCE in the Lower 180-Foot Aquifer.

- Downgradient of well MW-OU2-82-180 and south of well MW-OU2-72-180.

MW-BW-59-180 was installed upgradient of MW-OU2-82-180 and adjacent to MW-OU2-28-180 (Ahtna, 2019d). The monitoring wells downgradient of MW-OU2-82-180 have been consistently under the MCL for TCE. Therefore, additional monitoring wells are not necessary at this time.

TCE is not currently monitored in the Upper 180-Foot Aquifer in the OUCTP because it is not a COC; however, it was recommended, as part of the 4th Five Year Review, that existing TCE data for the Upper 180-Foot Aquifer in the OUCTP and OU2 be reviewed and evaluated for a probable source of TCE to the Lower 180-Foot Aquifer. This has yet to be implemented and is still recommended.

Well Decommissioning

The following four monitoring wells were recommended for decommissioning at OUCTP in the Upper 180-Foot Aquifer.

1. MW-BW-20-180: sampling no longer conducted and water levels unnecessary.

2. MW-BW-22-180: sampling no longer conducted and water levels unnecessary.

3. MW-BW-26-180: sampling no longer conducted and water levels unnecessary.

4. MW-BW-29-180: sampling no longer conducted and water levels unnecessary.

MW-BW-20-180, MW-BW-22-180, MW-BW-29-180 were decommissioned from August 23rd-August 26th, 2018 (Ahtna, 2018d). MW-BW-26-180 was not decommissioned because the USACE determined, in June 2017, groundwater elevation data from this well was needed as an input to the Fort Ord groundwater model.

Additional EISB Deployment Area

The 4th Five Year Review recommended an additional EISB deployment area (Deployment Area 3A) to be constructed in the area of the groundwater divide north of Reservation Road and west of Imjin Parkway. Similar to past deployments, the Deployment Area 3A followed four monitoring phases: Baseline Sampling and Analysis, Performance (Treatment) Monitoring, Performance (Post-Treatment) Monitoring, and Long Term Monitoring.

From September until November 2016, Deployment Area 3A, consisting of ten extraction wells and ten injection wells was installed north of Reservation Road and west of Imjin Parkway, as recommended. Groundwater samples were collected from the extraction wells as well as the monitoring wells located within the Deployment Area 3A Area as part of the Baseline Sampling and Analysis.

The baseline data indicated a range in alkalinities from 45 to 120 mg/L in groundwater, with an average of 91 mg/L. These concentrations were twice the concentrations measured at the EISB Pilot Study area, which averaged 41 mg/L. The concentrations were also higher than the baseline alkalinities measured in Deployment Areas 1A, 1B, and 1C which averaged 48 mg/L, 84 mg/L, and 81 mg/L (adjusted), respectively. The baseline

field parameter measurements (pH, DO, ORP, conductivity, and temperature) were consistent across Deployment Area 3A. DO concentrations ranged from 5.8 to 10.5 mg/L, with an average concentration of 7.4 mg/L, which indicates an oxidized environment. ORP levels were all positive and most were above 300 millivolts (mV). The concentrations of the electron acceptors, nitrate and sulfate, were also consistent across Deployment Area 3A. Nitrate concentrations ranged from 4.6 to 8.3 mg/L, with an average concentration of 6.8 mg/L; nitrite was not detected at any sampling location. Sulfate concentrations ranged from 23.1 to 40.5 mg/L, with an average concentration of 32.1 mg/L. The average nitrate concentration for Deployment Area 3A was more than the average concentration at the EISB Pilot Study area (7.8 mg/L). No nitrites (the reduced form of nitrate) were detected, which was consistent with oxidized conditions. The average sulfate concentration for Deployment Area 3A was similar to the average concentration at the EISB Pilot Study area (33.9 mg/L). Dissolved metals (Arsenic, Iron, Manganese) detections in groundwater at Deployment Area 3A were estimated concentrations, generally below the limit of detection but greater than the detection limit. Methane, Ethane, and VOAs were not detected in any of the baseline groundwater samples. Arsenic, Methane, and Ethane are measured to ensure that generation of these compounds as part of the remediation process are not generated in quantities that could pose a potential risk to human health (Ahtna, 2020g).

Samples collected from the monitoring wells were also analyzed to determine if sufficient anaerobic heterotrophic bacteria were present in the aquifer. The data indicated a range of bacteria resides in the groundwater from approximately 15 most probable number per milliliter (MPN/mL) to >738 MPN/mL, which was considered low in comparison to the EISB Pilot Study, but likely still sufficient enough to support EISB (Ahtna, 2020g).

CT was detected in all the extraction and monitoring wells with the exception of MW-BW-91-A. The baseline CT concentration in groundwater across the deployment area ranged from non-detect to 1.7 µg/L. The highest CT concentrations were measured in extraction wells EW-BW-166-A (1.7 µg/L), EW-BW-167-A (1.7 µg/L), and EW-BW-168-A (1.3 µg/L). These wells are located near the center of the deployment area. Chloroform was also detected in most of the wells, though at low estimated concentrations, indicating some limited degradation may have been occurring under background conditions (Ahtna, 2020g).

The initial injection of 89,869 pounds of substrate as part of the Performance (Treatment) Monitoring Phase was conducted from December 1, 2016 to January 27, 2017. Recirculation was performed until August 4, 2017. Performance (Post-Treatment) Monitoring started on August 30, 2017 and was performed in conjunction with the quarterly sampling event. Results of both Performance Monitoring Phases are discussed below in Section 10.4.2.1 (Ahtna, 2020g).

The EISB system including the processing system container, wellhead valves and fittings, aboveground piping and conduit, and extraction well pumps were removed from Deployment Area 3A from January 8 to 16, 2019. Long Term Monitoring will continue until the criteria for terminating the groundwater remedy, as defined by the QAPP, are met (Ahtna, 2020g).

10.4 OUCTP Sites Five-Year Review Process

This Five-Year Review was performed in accordance with EPA Guidance (EPA, 2001) and with the process described in Section 4.0 of this document. The administrative and community involvement activities performed for Fort Ord, using a basewide approach, are detailed in Sections 4.1 and 4.2. Document and data review have been conducted on a site-by-site basis and are described in the following subsections.

10.4.1 Document Review

Documents reviewed in this evaluation included the ROD, the previous Five-Year Review Report, quarterly and annual groundwater monitoring reports, plume evaluation reports, data summary reports, system

operations reports, construction completion reports, and other documents included in the administrative record. A list of the references reviewed during completion of this 5th Five-Year Review Report is presented in Appendix A.

10.4.2 Data Review

During this 5th Five-Year Review, analytical data from groundwater monitoring of the A-Aquifer, Upper 180-Foot Aquifer, and Lower 180-Foot Aquifer were evaluated to determine current site conditions and data trends that have occurred during this review period. Table 4 lists the ACLs for OUCTP groundwater COCs as stated in the *Record of Decision, Operable Unit Carbon Tetrachloride Plume, Former Fort Ord, California* (OUCTP ROD; Army, 2008).

10.4.2.1 Groundwater

A-Aquifer Groundwater

Quarterly and annual groundwater monitoring has occurred since the completion of the last Five-Year Review. Monitoring well identification numbers and locations are shown in the figure after the 2020-2021 monitoring period.

Groundwater Monitoring October 2016 through September 2017

CT concentrations were below the ACL in EISB Deployment Areas 1A and 1B, though elevated CT concentrations persisted in EISB Deployment Area 1C in the areas of EW-BW-109-A and MW-BW-24-A. The CT plume extent in the EISB Pilot study area and downgradient of the City of Marina was also reduced during the reporting period, with the CT plume no longer extending under the City of Marina. The CT plume extent in a portion of EISB Deployment Area 3A and downgradient areas east of the groundwater divide was reduced to the south; however, the plume area expanded to the northeast in the area of the groundwater divide during the Third Quarter 2017 (Ahtna, 2018c).

Two of the eight OUCTP A-Aquifer COCs were detected at concentrations exceeding their respective ACLs during the reporting period (CT and chloroform). The remaining six OUCTP A-Aquifer COCs were detected at concentrations at or below their respective ACLs or were ND in the OUCTP A-Aquifer. The highest CT concentration during the reporting period was 6.8 µg/L, located southeast of EISB Deployment Area 2A and northwest of EISB Deployment Area 1C at MW-BW-24-A. This location consistently yielded the highest concentration except for the Third Quarter 2017 in which the concentration was the highest at EISB-EW-09. The highest concentration of chloroform was 23.9 µg/L, located downgradient of EISB Deployment Area 2B at MW-BW-31-A. It was the only location with chloroform above the ACL during the reporting period but appeared to be on a decreasing trend (Ahtna, 2018c).

This reporting period encompasses the completion of the installation of the EISB Deployment Area 3A as well as the entirety of the Performance (Treatment) Monitoring phase and the beginning of the Performance (Post-Treatment) Monitoring Phase. During the Performance (Treatment) Phase including injection and recirculation, alkalinity increased above baseline in all extraction wells indicating that the substrate had been distributed to the area. DO fluctuated, but did decrease by at least 2.0 mg/L, indicating anaerobic conditions, in all wells except EW-BW-164-A and EW-BW-169-A, which ranged from 6.0 mg/L to 9.0 mg/L for the entirety of the Treatment Phase. ORP decreased for all of the extraction and monitoring wells in the deployment area indicating reducing conditions. All other field parameters remained consistent with baseline values. Nitrate concentration reduction to below baseline was observed in all extraction wells with the exception of EW-BW-169-A which remained relatively stable. Sulfate concentrations also decreased in almost all wells that had observed nitrate reductions except in EW-BW-160-A and EW-BW-168-A. Concentrations of arsenic increased, ranging from 1.5J to 18.1 µg/L. Methane and Ethane were not analyzed during the Treatment Phase (Ahtna, 2020g).

CT reduction was noted during recirculation in all wells with the exception of EW- BW-160-A and MW-BW-91-A. CT was not initially detected in MW-BW-91-A during the baseline monitoring, but concentrations fluctuated above and below the ACL throughout the Treatment Phase. Chloroform was also detected in groundwater samples from several extraction wells, mostly at estimated concentrations (Ahtna, 2020g).

Starting the Third Quarter of 2017, the wells were converted from weekly to quarterly monitoring as part of the Post-Treatment Monitoring Phase. There were no significant changes in any of the parameters previously measured. Methane concentrations were under 3 µg/L for all wells except EW-BW-165-A and MW-BW-16-A which had concentrations of 104 µg/L and 584 µg/L, respectively. Ethane was not detected in any of the wells (Ahtna, 2020g).

Groundwater Monitoring October 2017 through September 2018

CT concentrations continued to be below the ACL in EISB Deployment Areas 1A and 1B, but remained elevated in EISB Deployment Area 1C in the areas of EW-BW-109-A and MW-BW-24-A. The CT plume extent in a portion of EISB Deployment Area 3A and downgradient areas east of the groundwater divide was reduced. CT concentrations in the EISB Pilot Study area and downgradient areas in the City of Marina during the reporting period fluctuated above and below the ACL resulting in variability in the CT plume extent (Ahtna, 2019e).

Similar to previous reporting periods, only CT and chloroform exceeded their respective ACLs during the reporting period. The remaining six OUCTP A-Aquifer COCs were detected at concentrations at or below their respective ACLs or were ND. The highest CT concentration was 6.9 µg/L, located in the EISB Deployment Area 2A, MW-BW-26-A which was the well with the highest CT concentration for the entire reporting period. The highest chloroform concentration was 2.6 µg/L, located downgradient of EISB Deployment Area 2B at MW-BW-31-A during the Fourth Quarter of 2017. This was one of two times in which the Chloroform ACL was exceeded within the reporting period. The second time was in the Third Quarter 2018 in which the concentration was 2.3 µg/L at MW-BW-36-A, which is upgradient from MW-BW-31-A (Ahtna, 2019e).

There were no significant changes in any of the parameters measured as part of the Post-Treatment Monitoring Phase of Deployment Area 3A during the reporting period except in the Third Quarter of 2018 when DO decreased for a majority of the wells (Ahtna, 2020g).

Groundwater Monitoring October 2018 through September 2019

Sampling was discontinued after the previous reporting period in EISB Deployment Areas 1A and 1B because post treatment monitoring showed CT concentrations consistently under the ACL. CT concentrations were still above the ACL at EISB Deployment Area 1C well EW-BW-109-A, but the concentrations have been on a decreasing trend since 2014. The overall CT plume extent in a portion of EISB Deployment Area 3A and downgradient areas east of the groundwater divide was reduced due to treatment at EISB Deployment Area 3A (Ahtna, 2021j).

Similar to previous reporting periods, only CT and chloroform exceeded their respective ACLs during the reporting period. The remaining six OUCTP A-Aquifer COCs were detected at concentrations at or below their respective ACLs or were ND. CT concentration trends in the central part of the CT plume, including EISB Deployment Areas 2A and 2B and downgradient areas may indicate an overall reduction in CT mass, though this area consistently had the maximum detected concentrations of CT (MW-BW-26-A) and chloroform (MW-BW-35-A) for the OUCTP A-Aquifer during the reporting period. The maximum concentrations were 6.2 µg/L during the Fourth Quarter of 2018 and 8.5 µg/L during the First Quarter 2019 for CT and chloroform, respectively. While CT concentrations at MW-BW-26-A initially declined as a result of EISB at Deployment Area 2A, they have been on an increasing trend since the completion of recirculation, indicating an upgradient source of CT that was not completely remediated by EISB at Deployment Area 2A.

CT concentrations in the EISB Pilot Study area and downgradient areas in the City of Marina also increased during the reporting period (Ahtna, 2021j).

The last quarter of the Post-Treatment Monitoring Phase for Deployment Area 3A was Fourth Quarter 2018. There were no significant changes in any of the parameters measured except at EW-BW-166-A, where there was an increase in DO (Ahtna, 2021j).

Groundwater Monitoring October 2019 to September 2020

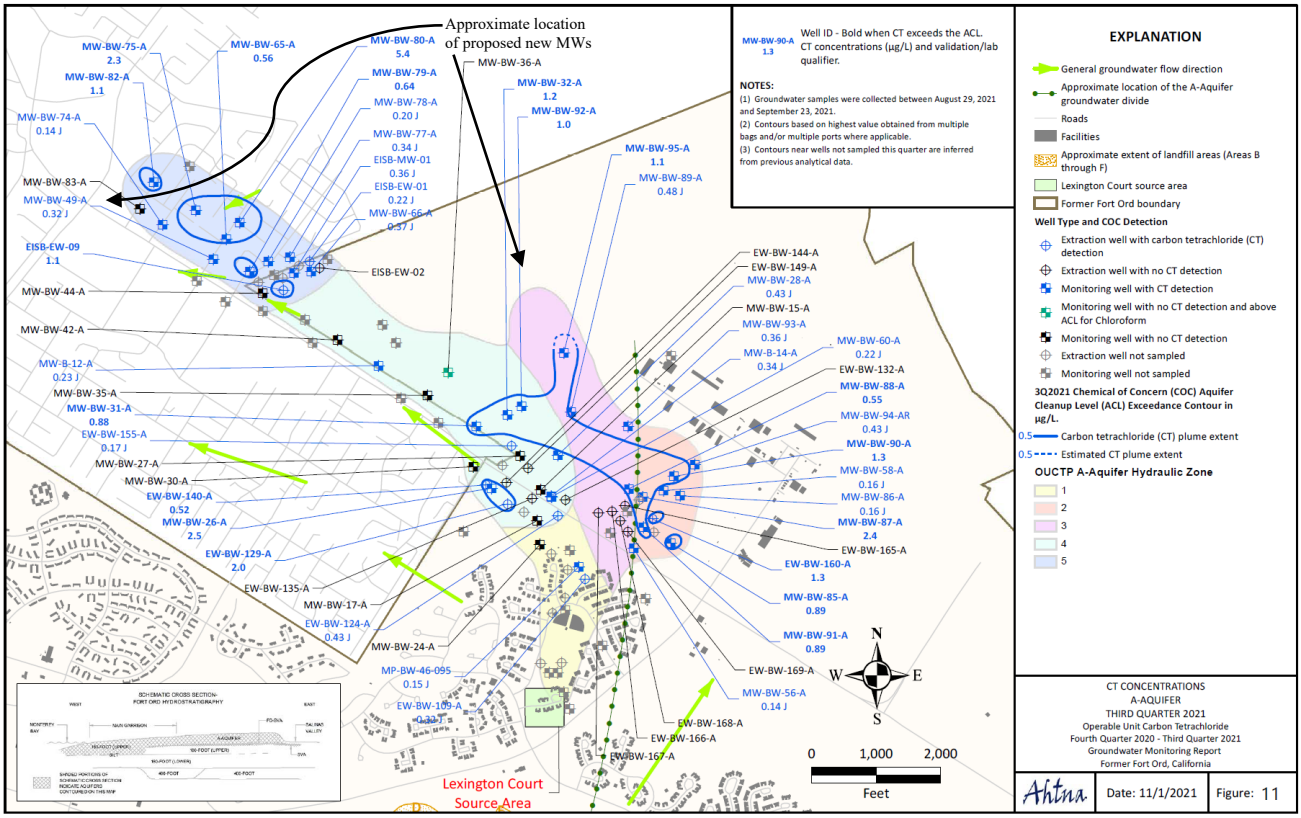
CT concentrations continued to be elevated at EISB Deployment Area 1C well EW-BW-109-A, though CT concentrations have been on a declining trend since 2014. CT concentrations in the Deployment Area 2A, EISB Pilot Study area and downgradient areas in the City of Marina continue to be on an increasing trend. The overall CT plume extent in a portion of EISB Deployment Area 3A and downgradient areas east of the groundwater divide was reduced due to treatment at EISB Deployment Area 3A. However, the CT concentrations downgradient of EISB Deployment Area 3A have increased above the ACL at well MW-BW-94-AR. The CT plume extent in a portion of EISB Deployment Area 3A and downgradient areas west of the groundwater divide remained consistent during the reporting period. (Ahtna, 2021k).

Similar to previous reporting periods, only CT and chloroform exceeded their respective ACLs during the reporting period. The remaining six OUCTP A-Aquifer COCs were detected at concentrations at or below their respective ACLs or were ND. The maximum concentration for CT was 4.9 µg/L at MW-BW-26-A during the First Quarter 2020. The maximum concentration for Chloroform was 21.6 µg/L at MW-BW-35-A during the Second Quarter 2020. Both wells consistently had the highest concentrations for their respective COCs during this reporting period (Ahtna, 2021k).

Groundwater Monitoring October 2020 to September 2021

The CT plume in EISB Deployment Areas 1A, 1B, and 1C remained the same until the Third Quarter 2021 when the CT concentrations in Deployment Area 1C well EW-BW-109-A decreased to below the ACL. CT concentrations also generally decreased for EISB Deployment Areas 2A and 2B, decreasing the size of the plume. The overall CT plume extent in EISB Deployment Area 3A and downgradient areas was reduced due to treatment at EISB Deployment Area 3A. CT concentrations at well MW-BW-94-AR, downgradient of EISB Deployment Area 3A, continued to increase above the ACL until the Second Quarter 2021 when it decreased to below the ACL. CT concentrations in the EISB Pilot Study area and downgradient in the City of Marina increased above the ACL, increasing the plume size (Ahtna, 2022).

Similar to previous reporting periods, only CT and chloroform exceeded their respective ACLs during the reporting period. The remaining six OUCTP A-Aquifer COCs were detected at concentrations at or below their respective ACLs or were ND. The highest concentrations of CT were detected at EW-BW-129-A (Fourth Quarter 2020 and First Quarter 2021) and MW-BW-80-A (Second Quarter 2021 and Third Quarter 2021). The maximum concentration for CT was 5.4 µg/L during the Third Quarter 2021. The highest concentrations of Chloroform were consistently detected at MW-BW-36-A except for Second Quarter 2021 when highest concentration was detected at MW-BW-35-A. The maximum concentration for Chloroform was 9.6 µg/L during the Fourth Quarter 2020 (Ahtna, 2022). Contours showing CT plume extent in the A-aquifer during the Third Quarter 2021 monitoring event are shown below (Ahtna, 2022). The approximate location of proposed new monitoring wells to ensure delineation of the plume downgradient of existing exceedances of the ACL are also shown.



Upper 180-Foot Aquifer

Groundwater Monitoring October 2016 through September 2017

CT was detected at concentrations above the ACL at wells MP-BW-46-170, MP-BW-41-231 (only in the Fourth Quarter 2016 and First Quarter 2017), MW-BW-52-180, MW-OU2-64-180, and MW-OU2-67-180 (only sampled in Third Quarter 2017). MW-OU2-64-180 consistently yielded the highest concentrations during the reporting period with the exception of the second quarter of 2017 in which the highest concentration detected was at MP-BW-46-170. The highest concentration was 8.8 µg/L during the Third Quarter 2018 at well MW-OU2-64-180 (Ahtna, 2018c).

Groundwater Monitoring October 2017 through September 2018

CT was detected at concentrations above the ACL at wells MP-BW-46-170, MW-BW-52-180, MW-OU2-64-180 and MW-OU2-67-180 (only during the Second Quarter 2018) with well MW-OU2-64-180 consistently yielding the highest concentrations during the reporting period. The highest CT concentration was 8.5 µg/L during the Fourth Quarter 2017 (Ahtna, 2019e).

Groundwater Monitoring October 2018 through September 2019

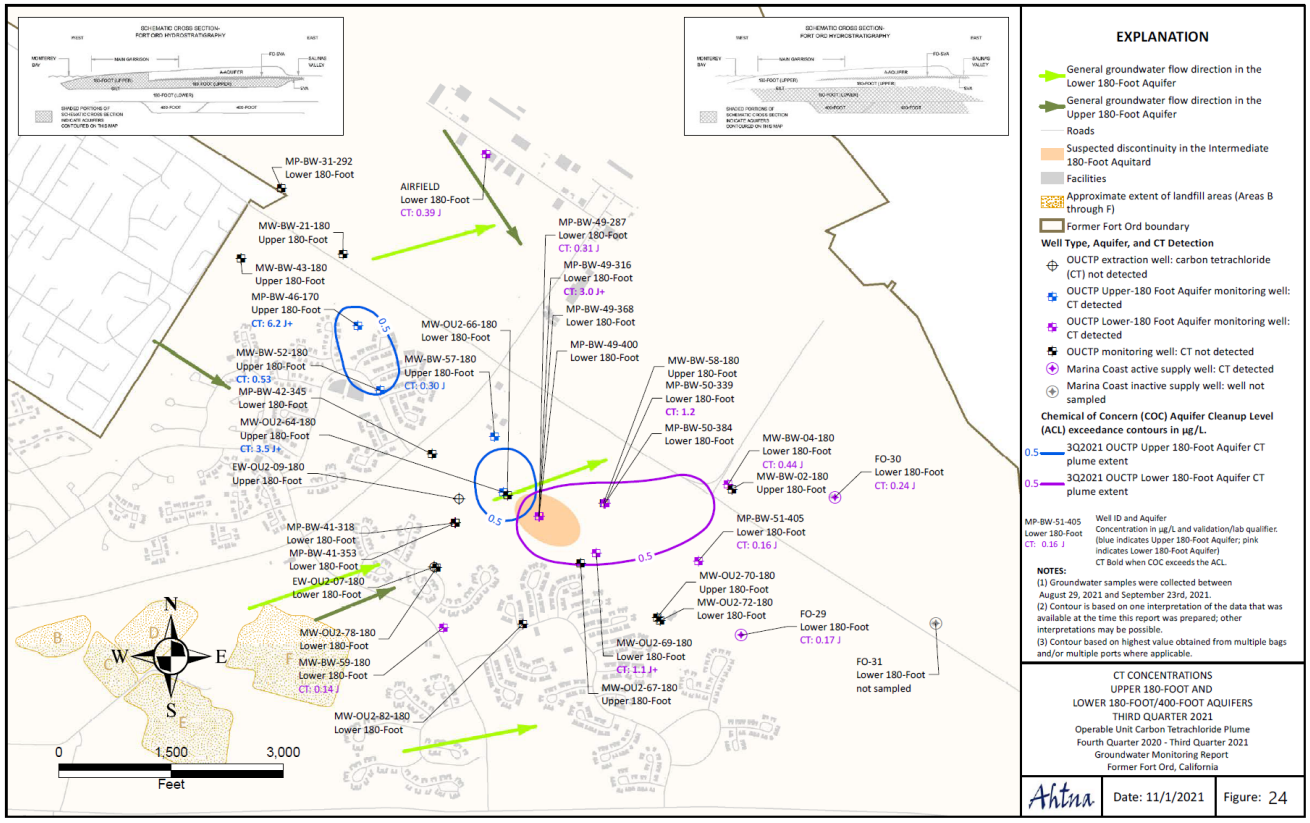
CT was detected at concentrations above the ACL in wells MP-BW-46-170, MW-BW-52-180 (only during the Second and Third Quarter 2019), and MW-OU2-64-180 during the reporting period. Both MP-BW-46-170 and MW-OU2-64-180 were consistently the highest concentrations. Well MP-BW-46-170 defines the northern extent of the northern CT plume, and CT concentrations at this location have been above the ACL since it was installed in 2003, with an overall increasing CT concentration trend that reached a historical maximum of 8.9 µg/L during the First Quarter 2019, indicating an upgradient source of CT (Ahtna, 2021j).

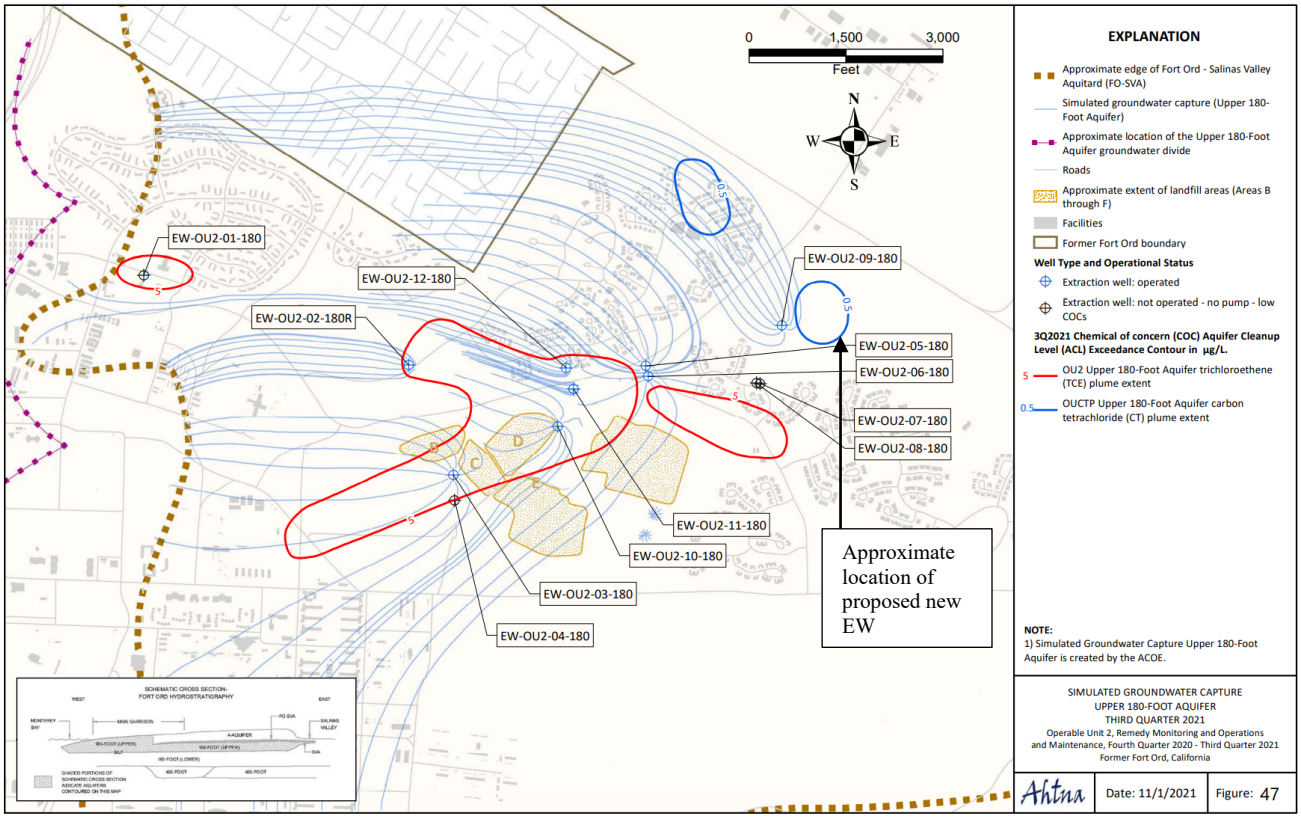
Groundwater Monitoring October 2019 to September 2020

CT was detected at concentrations above the ACL in wells MP-BW-46-170, MW-BW-52-180, MW-BW-57-180 and MW-OU2-64-180 during the reporting period. Well MW-OU2-64-180 consistently yielded the highest concentrations during the reporting period with the exception of the Second Quarter 2020 in which the highest concentration detected was at well MP-BW-46-170. The highest concentration was 8.8 µg/L during the First Quarter 2019 (Ahtna, 2021k).

Groundwater Monitoring October 2020 to September 2021

CT was detected at concentrations above the ACL in wells MP-BW-46-170, MW-BW-52-180, MW-BW-57-180 (except Third Quarter 2021) and MW-OU2-64-180 during the reporting period. Well MW-OU2-64-180 consistently yielded the highest concentrations during the reporting period with the exception of the Third Quarter 2021 in which the highest concentration detected was at well MP-BW-46-170. The highest concentration was 8.7 µg/L during the First Quarter 2021 (Ahtna, 2022). Contours showing CT plume extent in the Upper 180-Foot aquifer during the Third Quarter 2021 monitoring event (in blue) are shown below (Ahtna, 2022). The second figure below shows the simulated capture zones of the EWs that go to the OU2 GWTP (Ahtna, 2021b). In the upper right of the figure, you can see that the more southernly blue CT plume seems to be out of the capture zone of EW-OU2-09-180, or any other EW. As discussed further in Section 10.7, a new EW is recommended to capture this plume.





Lower 180-Foot Aquifer

Groundwater Monitoring October 2016 through September 2017

1,2-DCA was not detected in any of the monitoring wells during the reporting period. CT was detected at concentrations above the ACL in the Airfield monitoring well in the northern monitoring area, and wells MP-BW-50-339, MP-BW-49-287, MP-BW-49-316, and MW-OU2-69-180 in the southern monitoring area. The maximum CT concentration detected was 2.1 µg/L at well MP-BW-49-316 during the Second Quarter 2017. CT was also detected in the water supply wells FO-29, FO-30 and FO-31, but these detections of CT in the supply wells during the reporting period were likely due to the change in analytical method and they are below the CT ACL of 0.50 µg/L with no evidence of an increasing trend. TCE is not a COC for OUCTP in the Lower 180-Foot Aquifer, but TCE concentrations are monitored to evaluate potential impacts to downgradient Fort Ord supply wells FO-29, FO-30, and FO-31. TCE was only detected at concentrations above the MCL in well MW-OU2-82-180 with a maximum concentration of 7.1 µg/L detected in the Fourth Quarter 2016 (Ahtna, 2018c).

Groundwater Monitoring October 2017 through September 2018

1,2-DCA was not detected in any of the monitoring wells during the reporting period. CT was detected at concentrations above the ACL in the Airfield monitoring well in the northern monitoring area, and wells MP-BW-50-339, MP-BW-49-287, MP-BW-49-316, and MW-OU2-69-180 in the southern monitoring area. The maximum CT concentration detected during the reporting period was 2.8 µg/L at well MP-BW-49-316 during the First Quarter 2018. CT was also detected in the water supply wells FO-29, FO-30 and FO-31, but they are below the CT ACL of 0.50 µg/L with no evidence of an increasing trend. TCE was only detected at concentrations above the MCL in well MW-OU2-82-180 with a maximum concentration of 6.3 µg/L detected in the Fourth Quarter 2017 and Third Quarter 2018 (Ahtna, 2019e).

Groundwater Monitoring October 2018 through September 2019

1,2-DCA was not detected in any of the monitoring wells during the reporting period. CT was detected at concentrations above the ACL in the Airfield monitoring well (only during the Second Quarter 2019) in the northern monitoring area, and wells MP-BW-50-339 (only in the Second and Third Quarter 2019), MP-BW-49-287, MP-BW-49-316, and MW-OU2-69-180 in the southern monitoring area. The maximum CT concentration detected during the reporting period was 2.4 µg/L at MP-BW-49-316 during the Third Quarter of 2019. CT was also detected in the water supply wells FO-29, FO-30 and FO-31, reaching historical maximum concentrations during the reporting period but they are below the CT ACL of 0.50 µg/L with no evidence of an increasing trend. TCE was only detected at concentrations above the MCL in well MW-BW-59-180 with a maximum concentration of 11.3 µg/L in the Second Quarter 2019 (Ahtna, 2021j).

Groundwater Monitoring October 2019 to September 2020

1,2-DCA was not detected in any of the monitoring wells during the reporting period. CT was detected at concentrations above the ACL in the MP-BW-50-339 (excluding the Second Quarter of 2020), MP-BW-49-287 (only the First Quarter of 2020), MP-BW-49-316, and MW-OU2-69-180 in the southern monitoring area. The maximum CT concentration detected during the reporting period was 3.1 µg/L at MP-BW-49-316 during the Second Quarter 2020. CT was also detected in the water supply wells FO-29, FO-30 and FO-31, reaching historical maximum concentrations but they are below the CT ACL of 0.50 µg/L. TCE was only detected at concentrations above the MCL in MW-BW-59-180 with a maximum concentration during the reporting period of 10.9 µg/L in the Second Quarter 2020 (Ahtna, 2021k).

Groundwater Monitoring October 2020 to September 2021

1,2-DCA was only detected in EW-OU2-07-180 at 0.044 J µg/L during the Fourth Quarter 2020. CT was detected at concentrations above the ACL in MP-BW-49-287 (only the First Quarter 2021), MP-BW-49-316, MP-BW-50-339 (except the Fourth Quarter 2020), and MW-OU2-69-180 in the southern monitoring area. The maximum CT concentration detected during the reporting period was 4.1 µg/L at MP-BW-49-316 during the First Quarter 2021. CT was also detected in the water supply wells FO-29, FO-30 and FO-31, reaching historical maximum concentrations but below the CT ACL of 0.50 µg/L. There is an apparent increasing trend in CT concentrations seen in FO-29 and FO-30, however all of the results have been J flagged meaning they are below the laboratories limit of quantitation, and thus are estimated results. TCE was detected at concentrations above the MCL in MP-BW-49-400 (only the First Quarter 2021), MW-BW-59-180, and MW-OU2-82-180 (only the Third Quarter 2021) with a maximum concentration of 10.9 µg/L at MW-BW-59-180 in the Second Quarter 2021 (Ahtna, 2022). Contours showing CT plume extent in the Lower 180-Foot aquifer during the Third Quarter 2021 monitoring event (in purple) are shown in the figure above (Ahtna, 2022).

10.4.2.2 Soil Vapor

In March 2004, indoor air and probe monitoring was performed in the source area and concluded that the concentrations of VOCs present in the indoor air sample were within the range of ambient concentrations measured during ambient air monitoring activities conducted at Fort Ord, suggesting that subsurface vapors from the CT plume were not contributing significantly to VOCs in indoor air (Shaw, 2004). In addition, the OUCTP RI/FS concluded that the SVE pilot study, conducted as part of the RI, effectively removed all CT mass from within the vadose zone and future contributions to the A-Aquifer were not likely or anticipated. The results determined that soil vapor did not pose a significant risk to human health and the environment, and no additional remedial activity is required or recommended (MATEC, 2006). The 3rd Five Year Review evaluated the results of the study as well and concurred with the determination and recommendations (Army, 2012).

10.4.3 Site Inspection and Interviews

A site inspection was performed on August 3, 2021, by Ms. Charity Meakes and Nancy Lam (Sacramento District-USACE, Environmental Engineers) to assess the overall condition of the remedy as it relates to effectiveness including physical condition of the site, site security and access controls. Mr. Derek Lieberman (Ahtna Program Manager) was interviewed on the same day as the inspection to provide information on the site's operational activities. He, Mark Fisler, the Ahtna Senior Treatment System Operator, and Bridget Floyd, the USACE Fort Ord Technical Lead, also helped facilitate the site inspection. Detailed inspection forms and site photographs are included in Appendix B. For the OUCTP remedy, the inspection focused on Deployment Area 3A, the Upper-180 Foot Aquifer Extraction System and the new groundwater monitoring wells.

10.5 Technical Assessment

10.5.1 Question A

Is the remedy functioning as intended by the decision document?

Yes. The exposure pathway for contaminated groundwater is not complete. Access to groundwater has been restricted through the implementation of land use controls. Groundwater at OUCTP is designated as drinking water, industrial water, and agricultural water under the RWQCB Basin Plan, but is not currently used for those purposes. Achievement of the RAOs will restore the groundwater within and adjacent to the OUCTP to its intended purposes.

10.5.2 Question B

Are the exposure assumptions, toxicity data, cleanup levels and RAOs used at the time of the remedy selection still valid?

Yes. Though several EPA human health risk assessment-based exposure assumptions and associated toxicity data have changed since the 2008 ROD, the potential use of OUCTP groundwater as tap water, industrial water and agricultural water remains valid. Many of the Aquifer Cleanup Levels are based on the more restrictive of EPA or California MCLs, meaning changes to the toxicity values are not directly relevant to the protectiveness of the remedy. No changes have been made to MCLs for any of the COCs. Several of the groundwater cleanup levels are based on carcinogenic tap water risk calculations. However, although exposure assumptions and toxicity values may have changed, individually, the estimated excess cancer risk using the existing Aquifer Cleanup Levels is within the acceptable risk range of 10^{-4} to 10^{-6}, based on current exposure assumptions and toxicity data. The cumulative risk is also within the acceptable risk range, and therefore cleanup levels continue to be protective. Restricting access to contaminated groundwater and remediating the contaminated groundwater are the RAOs used during remedy selection and are still valid.

Soil vapor associated with OUCTP was assessed by the USACE as part of this Five-Year Review using current soil vapor screening levels (EPA May 2021 Vapor Intrusion Screening Levels). The OUCTP A-Aquifer COCs were included in this assessment. The results show that, individually, the estimated excess cancer risk to a resident is within the acceptable risk range of 10^{-4} to 10^{-6}, based on current exposure assumptions and toxicity data. The cumulative risk is also within the acceptable risk range, and therefore the Aquifer Cleanup Levels for groundwater COCs are health-protective of indoor air exposures and remain valid.

10.5.3 Question C

Has any other information come to light that could call into question the protectiveness of the remedy?

No. The remedy is protective of human health and the environment. Potential exposure pathways that could cause unacceptable risks are currently controlled. Controls include groundwater use prohibitions, deed restrictions and the CRUP.

10.6 Issues

As detailed in 10.4.2.1 there is a section of the Upper 180-Foot Aquifer CT plume that is currently outside the simulated capture area of existing extraction wells. Concentrations of CT in downgradient water supply wells do not exceed the Maximum Contaminant Level for drinking water, and the groundwater use prohibitions are still in place, so the remedy is currently protective. However, a new EW is recommended to ensure capture of this area of the plume to ensure protectiveness in the future, as described in the next section.

10.7 Recommendations and Follow-Up Actions

The following proposed monitoring and remediation modifications are recommended to improve performance, reduce costs, and increase the likelihood of achieving cleanup goals.

A- Aquifer

Because CT concentrations at A-Aquifer groundwater monitoring well MW-BW-95-A exceed the ACL by an order of magnitude and all other groundwater wells associated with OU1 have been decommissioned, it is recommended two new A-Aquifer groundwater monitoring wells be installed at downgradient locations: one in the area of former monitoring well MW-OU1-88-A, and one in the area of former monitoring well MW-OU1-85-A, approximately halfway between MW-OU1-88-A and the former Fort Ord boundary.

Additionally, due to increasing CT concentrations downgradient of the EISB Pilot Study area in the City of Marina, one to three monitoring wells are recommended to be installed and monitored to better assess the extent of the CT plume downgradient of MW-BW-75-A, MW-BW-80-A, and MW-BW-82-A.

Upper 180-Foot Aquifer

A new OUCTP Upper 180-Foot Aquifer extraction well is recommended East of EW-OU2-09-180, between Upper 180-foot Aquifer well MW-OU2-64-180 and Lower 180-foot aquifer well MP-BW-49 to enhance containment and control of the OUCTP in the Upper 180-Foot Aquifer in accordance with the OUCTP ROD (Army, 2008).

Lower 180-Foot Aquifer

TCE in the Lower 180-Foot Aquifer above the ACLs in wells MP-BW-49-400, MW-BW-59-180, and MW-OU2-82-180 will be evaluated as part of the OU2 Area as described in Section 6.7.

10.8 Protectiveness Statement

Protective. The remedy at OUCTP currently protects human health and the environment because the ongoing remedial activities continue to adequately address all exposure pathways that could result in unacceptable risks. Areas of the plume that are currently out of capture zones are not currently being used by any potential receptors, and potential exposure pathways are also being controlled by the restrictions of Chapter 15.08 of Title 15, Monterey County Code, and the CRUP.

The protectiveness statement has changed from "will be protective" in the 4th Five Year Review to "protective" in this 5th Five Year Review, based on the reclassification of the remedy as 'operating" from "under construction". Since an additional EISB deployment may or may not be required and there has been no

deployment since 2016, the remedy is considered operating. Per the EPA's June 2001 Comprehensive Five-Year Review Guidance, operating remedies with "yes" answers to questions A and B and "no" answers to questions C should be considered protective.

Potable drinking water on the Former Fort Ord is provided by the Marina Coast Water District (MCWD), and drinking water supplied by the MCWD meets all Federal and State regulatory standards. MCWD regularly tests drinking water quality and reports the results in an annual Consumer Confidence Report that is provided to customers and found at https://www.mcwd.org/. Water quality data and operational information are also available at MCWD.

11.0 TRACK 0 ROD

Per the 3rd Five-Year Review Report (Army, 2012), the Track 0 ROD's No Action remedy (Army, 2002) is protective of human health and the environment, and the Track 0 areas, which have no physical or documented evidence of military munitions-related training, meet the UU/UE criteria. As stated in the 3rd Five-Year Review Report, Track 0 was not required to be included in the 4th Five-Year Review or in future reviews.

12.0 TRACK 1 ROD

The selected remedy for the Track 1 sites is NFA. In the 4th Year Five Year Review (Army, 2017) the Track 1 remedy was deemed protective of human health and the environment. The NFA remedy allows for unrestricted use; therefore, Track 1 sites will be omitted from future five-year reviews.

Site Summary

The Record of Decision, No Further Action Related to Munitions and Explosives of Concern – Track 1 Sites, No Further Action with Monitoring for Ecological Risks from Chemical Contamination at Site 3 (MRS-22), Former Fort Ord, California (Track 1 ROD) was signed in April 2005 (Army, 2005a). The ROD addressed 21 Track 1 MRSs that were suspected to have been used for training with military munitions, but no further response action is required based on remedial investigation.

- MRS-1 - Flame Thrower Range
- MRS-5 - South of East Garrison
- MRS-6 - Mine and Booby Trap Training Area
- MRS-13A - Practice Mortar Range
- MRS-20 - Recoilless Rifle Training Range
- MRS-22 (Site 3) - Beach Trainfire Ranges
- MRS-24B - Practice Hand Grenade Range
- MRS-24D - Booby Traps
- MRS-24E - Practice Rifle Grenade Range
- MRS-27X - Training Site 24
- MRS-27Y - Training Site 25
- MRS-32A - Oil Well Road Training Area
- MRS-32B - Oil Well Road Training Area II
- MRS-39 - Mine and Booby Trap Area
- MRS-49 - Former Rifle Grenade Range
- MRS-59A - Unnamed
- MRS-62 - Laguna Seca Open Space
- MRS-63 - Canyon Training Area
- MRS-66 - Signal Corps Small Arms
- MRS-69 - Unnamed
- MRS-70 - Unnamed

Additional areas have been identified as Track 1 sites and were documented through submittal of Approval Memoranda as part of the Track 1 Plug-In process. With the receipt of written concurrence from USEPA, and acknowledgement from the DTSC, these memoranda serve as the decision documents stating that no further action regarding munitions response is required.

The following three Track 1 Plug-In Approval Memoranda were finalized between 2002 and 2007, as reported in the 2nd Five-Year Review Report:

- *Track 1 Plug-In Approval Memorandum, MRS-6 Expansion Area, Former Fort Ord, California* (Army, 2005b).
- *Track 1 Plug-In Approval Memorandum, East Garrison Areas 2 and 4 NE, Former Fort Ord, California* (Army, 2006b).
- *Track 1 Plug-In Approval Memorandum, Multiple Sites, Groups 1 – 5, Former Fort Ord* (Army, 2006c).

The following Track 1 Plug-In Approval Memorandum was finalized in 2010, as reported in the 3rd Five-Year Review Report:

- *Track 1 Plug-In Approval Memorandum, County North Munitions Response Area, Former Fort Ord, California* (Army, 2010a).

The following three Track 1 Approval Memoranda were reported in the 4th Five-Year Review Report:

- *Track 1 Plug-in Approval Memorandum, BLM-Headquarters and MRS-35, Former Fort Ord, California* (Army, 2011a).
- *Track 1 Plug-in Approval Memorandum, MRS-24A, MRS-24C, and Parcel E20c.1, Former Fort Ord, California* (Army, 2011b).
- *Track 1 Plug-in Approval Memorandum BLM Area A, Former Fort Ord, California* (Army, 2012a).

One additional Track 1 Plug-in Approval Memorandum was finalized since the 4th Five-Year Review:

- *Track 1 Plug-In Approval Memorandum, Bureau of Land Management (BLM) Area C, Former Fort Ord, California* (Army, 2018)

The MRS Security Program for the former Fort Ord munitions sites includes the Army's recommendation for the munitions recognition and safety training program. Notices regarding the Army's recommendation for munitions recognition and safety training have been included in transfer documents for parcels containing Track 1 MRSs. For properties that had been transferred at the time the Track 1 ROD was signed, owners of those properties were notified about the training program in August 2005.

The Army also maintains a program to collect, and report to the regulatory agencies, any munitions-related items found within the Track 1 sites. Should any munitions-related item be reported within any of the areas addressed in the Track 1 ROD, the Army will take appropriate action and submit a plan for appropriate follow-on action to EPA and DTSC within 90 days of the discovery. A summary of incidental munitions discoveries reported during the period of this Five-Year Review is provided in Section 4.7.

13.0 PARKER FLATS MUNITIONS RESPONSE AREA, TRACK 2 ROD

This section presents background information on the Parker Flats MRA, Track 2 MR ROD (Parker Flats ROD); provides a summary of remedial actions; identifies any issues related to the protectiveness of the remedies based on the review; presents recommendations and follow-up actions, if needed, to address any issues identified during the review; and provides a statement regarding the protectiveness of the site remedies. A glossary of MMRP terms is provided in Appendix D.

13.1 Parker Flats Munitions Response Area Background

Track 2 sites are those sites where MEC was found and an MEC removal was conducted. The Track 2 site known as the Parker Flats MRA contains all or portions of several MRSs that were believed to have been used for military training with military munitions.

The *Final Record of Decision, Parker Flats Munitions Response Area Track 2 Munitions Response Site, Former Fort Ord, California*, was signed on August 26, 2008 (Army, 2008a). The Parker Flats MRA is approximately 758 acres in size and is located in the central part of the former Fort Ord between the former Fort Ord Main Garrison and the historical Impact Area.

The Parker Flats MRA includes all or portions of 13 MRSs as shown on Plate 8 (MRS-3, MRS- 04B, MRS-13B, MRS-27A, MRS-27B, MRS-27G, MRS-37, MRS-40, MRS-50/50EXP, MRS-52, MRS-53/53EXP, MRS-54EDC, and MRS-55 [including portions of MRS-27A and MRS-27B]), many of which were used for live-fire training (e.g., artillery, mortar) and other training that may have included the use of military munitions. The northern portion of the Parker Flats MRA consists entirely of MRS-13B (Practice Mortar Range), and is separated from the southern portion of the Parker Flats MRA. The southern portion of the Parker Flats MRA includes the remaining MRSs. The 13 MRSs were investigated and MEC removals were completed by the Army's munitions response contractors.

The Army's Track 2 Parker Flats MRA was investigated, and all MEC items detected were removed. These removal actions included Quality Control and Quality Assurance requirements that evaluated the adequacy of the removal action. The munitions response was designed to address MEC to a depth of four feet bgs; however, all anomalies (i.e., ferromagnetic material), even those deeper than four feet, were investigated and all MEC items encountered were removed. Although not expected, it is possible that some MEC may not have been detected and might remain present. For the Track 2 Parker Flats MRA, 'removal to four feet bgs' should be understood to include the investigation of all detected anomalies to the depth of detection, regardless of their depth bgs. Because a future land user (e.g., worker, resident, or visitor) may encounter MEC at the Parker Flats MRA, the Army conducted the Parker Flats MRA RI/FS to evaluate remedial alternatives to address this potential risk.

Munitions constituents were addressed as part of the HTW RI/FS program. No restrictions related to munitions constituents in soil were recommended following completion of a literature review, site reconnaissance, and soil sampling (MACTEC, 2006a).

The majority of the Track 2 Parker Flats MRA is included in the ESCA, and is referred to as "the Parker Flats MRA Phase I" under the ESCA Remediation Program. Under the ESCA, FORA is responsible for implementation of the Parker Flats MRA Track 2 ROD except for Parcels F2.6, L2.4.1, and L2.3. The parcels subject to the ESCA were transferred to FORA in 2009.

13.2 Remedial Actions

The primary RAOs for the Track 2 Parker Flats MRA reuse areas, based on EPA RI/FS Guidance (EPA, 1988), are to achieve the EPA's threshold criteria of "Overall Protection of Human Health and the Environment" and "Compliance with ARARs."

13.2.1 Remedy Selection

MEC removal actions have been completed at the Parker Flats MRA, significantly reducing the risks to human health and the environment. However, there is a potential for MEC to remain in the site because detection technologies may not detect all MEC present and some areas contain barriers (e.g., pavement, buildings) that, while providing protection against any MEC potentially present, preclude the use of detection technologies.

To manage the risk to future land users from MEC that potentially remain in the property, the Army evaluated the following three remedial alternatives for the Parker Flats MRA reuse areas in the Parker Flats MRA FS (Volume III; MACTEC, 2006a):

- Alternative 1: No Further Action
- Alternative 2: Land Use Controls
- Alternative 3: Additional MEC Remediation

The Track 2 Parker Flats MRA RI/FS identified two areas (i.e., "California State University [CSU] Expansion Area" and "MRS-13B Habitat Reserve Area") (approximately 2 acres) that are not included in the Track 2 Parker Flats MRA ROD. These areas have been addressed in separate decision documents. The CSU Expansion Area is included in the ESCA Group 2 ROD, and the MRS-13B Habitat Reserve Area is included in the ESCA Group 1 ROD. Of the 758 acres comprising the Parker Flats MRA that was evaluated in the RI/FS, the reuse areas included in the ROD total approximately 756 acres. All of the proposed reuse scenarios could result in ground disturbing or intrusive activities (e.g., during construction/excavation).

Selected Remedy

On August 26, 2008, the Army and the EPA, in consultation with the DTSC, recorded the final decision in the Track 2 Parker Flats MRA ROD documenting the selected remedial alternative of LUCs for managing the risk to future land users from MEC that potentially remain in the Parker Flats MRA.

The selected remedy includes the following LUCs:

1) Munitions recognition and safety training for workers that will conduct ground disturbing or intrusive activities;
2) Construction monitoring during ground disturbing or intrusive activities; and
3) Restrictions against residential use.

Based on the RI/FS, it is the Army's position that the additional layer of protection from a residential use restriction is not necessary for the Parker Flats MRA; however, in consideration of regulatory input, the selected remedy includes a LUC prohibiting residential use. For the purpose of the Parker Flats MRA ROD, residential use includes, but not limited to: single family or multi-family residences; childcare facilities; nursing homes or assisted living facilities; and any type of educational purpose for children or young adults in grades kindergarten through 12. Any proposal for residential development in the Parker Flats MRA will be subject to regulatory review. It should be noted that, per the *Fort Ord Base Reuse Plan* (FORA, 1997), only the "development reserve" within the northern portion of MRS-50EXP and the southeastern portion of MRS-13B (approximately 36 acres total) could include residential development as a potential future use. While the

Army does not consider California laws and regulations concerning Land Use Covenants to be potential ARARs, after the Parker Flats MRA ROD was signed, the Army entered into State Land Use Covenants (i.e., CRUPs) that document the land use restrictions selected as part of the remedy. For the parcels subject to the ESCA, the Army entered into a State CRUP at the time the property was transferred.

In addition, long-term management measures comprising a federal deed restriction, CRUPs, annual monitoring and reporting, and five-year review reporting will be implemented for all reuse areas within the Parker Flats MRA Phase I.

13.2.2 Remedy Implementation

Parcels E19a.5 and L32.1 and portions of Parcels E18.1.1, E18.1.2, E19a.1, E19a.3, and E19a.4 were transferred by the Army to FORA in May 2009 as part of the ESCA. FORA classifies this area of the Parker Flats MRA as 'Phase I' (discussed in Section 13.2.2.1).

Implementation of the selected remedy for Parcels F2.6, L2.4.1, and L2.3 is the Army's responsibility. The Army has prepared an RD/RA Work Plan for the implementation of the LUCs for these parcels (*Final Remedial Design/Remedial Action Work Plan, Parker Flats Munitions Response Area, Former Fort Ord, California, Revision 1* [MACTEC/Shaw, 2009a]).

In a letter dated July 27, 2009, EPA determined that all remedial actions have been implemented and completed at the Track 2 Parker Flats MRA (EPA, 2009).

LUC monitoring of Parcels F2.6, L2.4.1, and L2.3 were conducted by the Army since 2009. Parcels L2.4.1 and L2.3 remain unused. Parcel F2.6 remains used by U.S. Army Garrison, POM for light industrial and municipal purposes. No evidence of ground-disturbing activity (e.g., new construction or redevelopment) or residential use was detected, as documented in the various *Reports of Annual Monitoring of Land Use Controls* (Fort Ord BRAC, 2017a, 2018a, 2019a, 2020a, and 2021a). However, the report for the 2019 reporting period noted one ground-disturbing activity that occurred in Parcel F2.6, for which BRAC arranged on-call construction support.

The following information regarding MEC incidents and safety training at the Track 2 Parker Flats MRA was available from the *Fort Ord MRS Security Program Annual Reports* for calendar years 2016, 2017, 2018, 2019, and 2020 (Fort Ord BRAC, 2017, 2018, 2019, 2020, and 2021).

- Munitions recognition and safety training was provided by the BRAC Fort Ord Field Office to POM DPW construction workers on 08/12/2019. No other training requests were received during the reporting period.
- BRAC Fort Ord Field Office coordinated on-call construction support for a backflow preventer installation project by POM DPW in Parcel F2.6 in CY2019. No other requests were made for construction support during the reporting period.
- BRAC Fort Ord Field Office received notification of intrusive action from POM DPW in CY2019 (installation of backflow preventer in Parcel F2.6). No other notice of intrusive actions on Track 2 Parker Flats MRA parcels were received during the reporting period.
- No MEC incidents were reported on Track 2 Parker Flats MRA parcels.

The results of monitoring described above indicate that the land uses in the subject parcels are consistent with the LUCs that were selected in the Track 2 Parker Flats MRA ROD.

For the FOST 11 parcels (L2.3 and L2.4.1), deeds for transferring property will contain a notice that includes: a statement notifying future property owners that MEC were found and removed from the property; information for the future property owners describing the selected remedy; and an outline of the appropriate procedures to be followed in the event that MEC are encountered. The restrictions will be documented in the federal deeds, will be recorded with the county recorder's office, and will run with the land in perpetuity unless modified in the future. For Parcel F2.6, the Army (BRAC) informed the POM regarding the MR remedy and the fact that, although not expected, the potential remains that some MEC are present within the parcel in a March 2010 Memorandum (Army, 2010b).

13.2.2.1 ESCA Parker Flats MRA Phase I

The Phase I area of the Parker Flats MRA, including Parcels E19a.5 and L32.1 and portions of Parcels E18.1.1, E18.1.2, E19a.1, E19a.3, and E19a.4, were transferred by the Army to FORA in May 2009 as part of the ESCA. FORA prepared the *Final Remedial Design/Remedial Action, Land Use Controls Implementation, and Operation and Maintenance Plan, Parker Flats Munitions Response Area Phase I, Former Fort Ord, Monterey County, California* (RD/RA LUCI O&M Plan; ESCA RP Team, 2009) for the implementation of the selected remedy (LUCs) for these parcels. The LUCs described in the ROD and RD/RA LUCI O&M Plan include requirements for: (1) munitions recognition and safety training for workers that will conduct ground-disturbing or intrusive activities, (2) construction monitoring for ground-disturbing or intrusive activities to address MEC that potentially remains in the subsurface, and (3) restrictions against residential use to preclude residential development or modification to residential restrictions without approval by EPA in coordination with DTSC. Implementation of the selected remedy is the responsibility of FORA, or its successor.

The RD/RA LUCI O&M Plan was reviewed and approved by the EPA in July 2009. Based on review of the RD/RA Work Plan, RD/RA LUCI O&M Plan, and relevant deeds, and supporting documentation, the EPA determined that all remedial actions have been implemented and completed at the Parker Flats MRA Phase I. The completion of the remedial actions was documented in a letter from the EPA to the Army dated July 27, 2009 (EPA, 2009).

Per the Track 2 ROD, any proposal for residential development will be subject to regulatory review. A residential quality assurance process was conducted concurrently at the Parker Flats MRA Phase I and Phase II area and is summarized in Sections 19.1.1, Residential Quality Assurance, and 19.1.3, Parker Flats MRA Phase II. The *Final Residential Protocol Implementation Technical Report, Parker Flats Munitions Response Area, FORA ESCA Remediation Program , Former Fort Ord, Monterey County, California* (FORA, 2017a) presents the results of the residential quality assurance activities and provides additional documentation to support modifying the existing DTSC CRUPs to remove the residential use restrictions from the designated future residential use portions of the Parker Flats MRA Phase I.

FORA's additional residential quality assurance activities (FORA, 2017a) successfully confirmed the quality and effectiveness of the previous removal actions and demonstrated that potential technical challenges had been addressed. FORA's additional residential quality assurance activities provided new information sufficient to address the uncertainty of MEC remaining in the subsurface, and support removal of the residential use restriction from the 36 acres of the Development Reserve Reuse Area of the Track 2 Parker Flats MRA.

The Track 2 Parker Flats ROD required additional regulatory review, which was completed and documented in the *Final Residential Protocol Implementation Technical Report, Parker Flats Munitions Response Area, FORA ESCA Remediation Program, Former Fort Ord, Monterey County, California* (FORA, 2017a). Based on review of the evaluation, the regulatory agencies approved removal of the residential use restriction from the 36 acres that make up the Development Reserve Reuse Area (referred to as the "designated residential reuse area" in FORA ESCA Remediation Program documentation) within the Track 2 Parker Flats MRA, as detailed in *Explanation of Significant Differences No. 1 Record of Decision, Parker Flats Munitions Response*

Area, Track 2 Munitions Response Site, Former Fort Ord California (Parker Flats Track 2 ESD; Army, 2018a).

In December 2019, a revision to the ESCA Group 1 LUCIP/OMP (ESCA, 2019) incorporated the ESCA Parker Flats MRA Phase I to streamline the LUC implementation activities. In December 2019 the CRUPs for the ESCA Parker Flats MRA properties were modified by DTSC to remove the residential use restriction from the designated residential use parcels. In a correspondence dated April 14, 2020, EPA certified the site-wide remedial action completion for the ESCA Remediation Program. In the June 2020 deed release documents, the Army removed the deed restriction from the designated residential use parcels and provided the CERCLA warranty. Subsequently in 2020 FORA transferred the remaining ESCA properties to the designated recipient.

13.2.3 System Operations and Maintenance

O&M associated with implementation, inspections, and reporting of the LUCs are the responsibilities of the Army and FORA (or its ESCA successor).

MRS Security Program annual reports for 2016 through 2020 were reviewed as part of this Five-Year Review (Fort Ord BRAC, 2017, 2018, 2019, 2020, and 2021). No MEC incidents were reported in Parcels F2.6, L2.4.1, and L2.3 for the review period.

Annual LUC monitoring and reporting were also performed by the Army as part of the Remedial Action required in the Parker Flats MRA ROD. Annual reports for 2016 through 2020 were reviewed as part of the Five-Year Review (Fort Ord BRAC, 2017a, 2018a, 2019a, 2020a, and 2021a). Construction support and munitions recognition and safety training were available during the reporting period and provided by the BRAC Fort Ord Field Office when warranted. No munitions item discoveries were reported during the reporting period.

13.2.3.1 ESCA Parker Flats MRA Phase I

The Parker Flats MRA Phase I property has been transferred to MPC, the City of Seaside, and the County of Monterey for non-residential development and/or habitat reserve as identified in the Base Reuse Plan (FORA, 1997) and Track 2 ROD (Army, 2008a). The designated uses stated in the Base Reuse Plan (FORA, 1997) and the Track 2 ROD (Army, 2008a) include residences, business park/light industrial offices/research and development, and a Veterans Cemetery. The first phase of the CCCVC development, located at 2900 Parker Flats Road, Seaside, California, was completed in September 2016. The second phase of the CCCVC development was completed in January 2021. The remaining ESCA Parker Flats MRA Phase I properties (including areas designated for residential use) were transferred from FORA to the designated recipients in 2020.

The actions stated in the RD/RA LUCI O&M Plan remain applicable to the Parker Flats MRA Phase I area subsequent to FORA transferring the property, until determined by the Army, DTSC, and EPA that one or more of the LUCs is no longer needed. Local jurisdictions will continue to perform annual LUC monitoring and FORA (or its approved successor) will continue to compile and submit the reports to the Army, EPA, and DTSC in compliance with reporting requirements as stated in the RD/RA LUCI O&M Plan.

Annual LUC inspections, including review of records from the local building and planning departments, and review of local 911 records of MEC observations and responses, have been conducted by Monterey County and the City of Seaside to confirm continued compliance with the LUC objectives. Inspections for fiscal years 2015-2016, 2016-2017, 2017-2018, and 2018-2019 were reported by Monterey County and City of Seaside to FORA for Parker Flats MRA Phase I, which includes Parcels E19a.5 and L32.1 and portions of Parcels E18.1.1, E18.1.2, E19a.1, E19a.3, and E19a.4, in accordance with the MOA with DTSC (DTSC, 2008). At the

time of FORA's dissolution, the responsibility to coordinate and submit the annual LUC inspection reports was acquired by Monterey County. Inspections for fiscal year 2019-2020 were reported by the City of Seaside to Monterey County. Annual LUC inspections indicated no compliance issues with regard to the LUC objectives. The results of the annual monitoring activities were reported to the EPA, DTSC, and the Army by FORA (FORA, 2017, 2018a, 2018b, and 2019). The results of the annual monitoring activities were reported to the EPA, DTSC, and the Army by Monterey County (Monterey County Department of Health, 2020). The results of monitoring indicate that the land uses in the subject parcels are consistent with the LUCs that were selected in the Track 2 ROD. Actual costs associated with LUC inspections and reporting conducted for the ESCA parcels are not available.

During the October 2016 through September 2021 reporting period, munitions recognition and safety training was conducted for workers involved in ground-disturbing or intrusive activities within portions of Parcel E18.1.1 during development of the CCCVC. A grading/construction permit was issued by the City of Seaside for the CCCVC project and a State approved UXO Construction Support Plan was in place.

During the 2019-2020 reporting period, an illegal BMX bicycle course was reported on Veterans Cemetery Property Parcel E18.1.2. In December 2020, City of Seaside staff met with Monterey County staff regarding grading to remove or block the BMX course. On 12 January, ESCA staff visited the track site to monitor remediation progress. The tracks had been closed off with soil at the entry points to prevent usage and additional signage had been placed at the bottom and top of the trailheads leading to the site by CCCVC personnel. The illegal BMX course was graded by CCCVC personnel and additional mitigation efforts on allowing entry via cones and road barriers were completed. No munitions incidents were recorded during the grading efforts. Veteran's Cemetery staff, in coordination with local law enforcement, continue to patrol the area around the CCCVC illegal BMX track on a regular basis. As of September 2021, the patrols were being conducted bi-weekly.

13.2.4 Property Transfer

As of September 30, 2021, a total of 698 acres have been transferred. These acreages partially or wholly occupy seven parcels that are part of the Parker Flats MRA Track 2 ROD. The Parcels E19a.5 and L32.1 and portions of Parcels E18.1.1, E18.1.2, E19a.1, E19a.3, and E19a.4 were transferred by the Army to FORA in May 2009 as part of the ESCA. FORA classifies this area of the Parker Flats MRA as 'Phase I.' In December 2019, the CRUPs for the ESCA Parker Flats MRA properties were modified by DTSC to remove the residential use restriction from the designated residential use parcels. In the June 2020 deed release documents, the Army removed the deed restriction from the designated residential use parcels and provided the CERCLA warranty. FORA transferred the remaining ESCA properties to the designated recipients in 2020.

Parcels L2.3 and L2.4.1 are in the process of being transferred.

Parcel F2.6 will continue to be Army property and will be used for maintenance and support for the Ord Military Community, which is part of the U.S. Army Garrison POM.

13.3 Progress Since the Last Five-Year Review

This section includes the protectiveness determinations and statements from the last Five-Year Review Report, as well as the recommendations from the last Five-Year Review Report, and the current status of those recommendations.

13.3.1 2017 Five-Year Review Protectiveness Statement

The protectiveness statement from the 2017 Five-Year Review Report (Army, 2017) for the Parker Flats MRA stated that:

> "The remedy for the Parker Flats MRA is protective of human health and the environment."

13.3.2 Status of 2017 Five-Year Review Issues and Recommendations

The 2017 Five-Year Review Report did not identify any issues that affect the protectiveness of the Track 2 Parker Flats MRA remedy.

13.4 Parker Flats Munitions Response Area Five-Year Review Process

13.4.1 Document Review

Documents reviewed for this evaluation included, but were not limited to, the MRS Security Program Annual Reports, and Annual Monitoring of Land Use Control Reports. The references are listed in Appendix A.

13.4.2 Data Review

Data from the Land Use Covenant Annual Reports, MRS Security Program Annual Reports, and Annual Monitoring of Land Use Control Reports was reviewed to assess the effectiveness of the remedy. The results indicate that the land uses in the subject parcels are consistent with the land use controls that were selected in the Track 2 Parker Flats MRA ROD.

13.4.3 Site Inspection and Interviews

A visual site inspection was performed on July 21-22, 2021, around the perimeter of Parker Flats MRA Phase I Parcels and Parcels F2.6, L2.1.4, and L2.3. Additionally, the Track 2 Parker Flats MRA is inspected annually by the Army and local jurisdictions for compliance with the LUCs.

A copy of the Site Inspection Form and associated photographs are presented in Appendix B, Field Documentation of Site Inspections and Interviews.

13.5 Technical Assessment

13.5.1 Question A

Is the Remedy functioning as intended by the Decision Documents?

Parcels F2.6, L2.4.1, and L2.3

Based on the review of the annual reports, the Track 2 Parker Flats MRA remedy is functioning as intended

ESCA Parker Flats MRA Phase I Parcels

For the parcels subject to the ESCA, the current remedy meets the RAOs specified in the ROD.

13.5.2 Question B

Are the Exposure Assumptions, Toxicity Data, Cleanup Levels, and Remedial Action Objectives used at the time of remedy selection still valid?

Parcels F2.6, L2.4.1, and L2.3

Yes. There have been no changes in the assumptions, toxicity data, cleanup levels or RAOs used at the time of the remedy selection for the Track 2 Parker Flats MRA. The primary RAOs for the Track 2 Parker Flats MRA reuse areas remain valid. These RAOs are: (1) to achieve the EPA's threshold criteria of "Overall Protection of Human Health and the Environment" and (2) "Compliance with ARARs."

ESCA Parker Flats MRA Phase I Parcels

Yes. For the parcels subject to the ESCA, the exposure and toxicity criteria used to evaluate human health risks are still valid. Land use assumptions made at the time of the remedy selection continue to be appropriate for the Parker Flats MRA Phase I area. The Parker Flats Track 2 ESD modified the LUC component by removing the residential use restriction in the Development Reserve Reuse Area; therefore, LUCs included in the remedy selection, and modified by the Parker Flats Track 2 ESD, continue to be effective.

13.5.3 Question C

Has any other information come to light that could call into question the Protectiveness of the Remedy?

No new information has been identified that could call the protectiveness of the remedy into question.

13.6 Issues

Parcels F2.6, L2.4.1, and L2.3

There are no unresolved issues in relation to parcels F2.6, L2.3, and L2.4.1 that have been identified in regard to the protectiveness of human health and the environment.

ESCA Parker Flats MRA Phase I Parcels

No issues affecting the protectiveness of the remedy at Parker Flats MRA Phase I have been identified.

13.7 Recommendations and Follow-Up Actions

Parcels F2.6, L2.4.1, and L2.3

Based on the results of the inspections and monitoring conducted during this review period, as documented in the annual reports, there have been no reports of soil disturbance or intrusive activities due to property development since the last review period. However, the report for the 2019 reporting period noted one ground-disturbing activity that occurred in Parcel F2.6 where the BRAC Fort Ord Field Office coordinated on-call construction support for a backflow preventer installation project by POM DPW. There was no report of incidental munitions encountered during the project. The munitions recognition and safety training and construction monitoring program will continue to be implemented, subject to evaluation during future five-year reviews, or as appropriate.

ESCA Parker Flats MRA Phase I Parcels

The LUCs described in the Track 2 ROD, and modified by the Parker Flats Track 2 ESD, will continue to be implemented, subject to evaluation during future five-year reviews, or as appropriate. During the next review period, the Army, in consultation with EPA and DTSC, should review MEC-related data collected during the property's development to determine whether munitions recognition and safety training and construction monitoring should continue. If further evaluation indicates that the LUCs are no longer necessary, the program may be discontinued with regulatory approval.

13.8 Protectiveness Statement

Protective. The remedy at the Track 2 Parker Flats MRA is protective of human health and the environment.

Remedial actions have been completed at the MRA. Furthermore, protectiveness is assured by long-term management measures including: implementing, monitoring, and enforcing the selected LUCs.

14.0 INTERIM ACTION SITES MUNITIONS RESPONSE ROD

The *Record of Decision, Interim Action for Ordnance and Explosives at Ranges 43-48, Range 30A, and Site OE-16, Former Fort Ord, California* (Interim Action Sites Munitions Response ROD; Army, 2002a) was signed in September 2002 and addressed sites where MEC with sensitive fuzes were present on the ground surface in close proximity to residential neighborhoods and schools with a history of trespassing incidents: Ranges 43-48, Range 30A, and MRS-16 (previously referred to as OE-16). The interim remedial actions were conducted in Ranges 43-48 and MRS-16. As reported in the 4th Five-Year Review (Army, 2017), final remedies have been selected for the three Interim Action munitions response sites. The selection of final remedies has completed the interim action program under the 2002 Interim Action Sites Munitions Response ROD (Army, 2002a). Per the 4th Five-Year Review (Army, 2017), the Interim Action MR Sites is not required to be reviewed in this 5th Five-Year Review or in future reviews.

Site Summary

Ranges 43-48 covers approximately 499 acres to the south of Eucalyptus Road within the historical Fort Ord Impact Area. In accordance with the IA MR ROD (Army, 2002a), the interim remedial action was conducted from 2002 to 2005. The southern portion of MRS-Ranges 43-48 was subsequently evaluated as part of the Track 3 Impact Area MRA RI/FS and included in the Track 3 ROD for the Impact Area MRA (Army, 2008b) (see Section 15). The northern portion of MRS-Ranges-43-48 interim action site was evaluated as part of the ESCA. The final remedy was selected in *Record of Decision, Interim Action Ranges Munitions Response Area, Former Fort Ord, California* (IA Ranges MRA ROD; Army, 2017a) (see Section 23).

MRS-16 includes approximately 80 acres immediately north of the historical Impact Area, between Eucalyptus Road and Parker Flats Road and bounded by Watkins Gate Road to the east. In accordance with the IA MR ROD (Army, 2002a), the interim remedial action was conducted from 2006 to 2008. The site was subsequently evaluated as part of the Track 2 BLM Area B and MRS-16 RI/FS and included in the *Final Record of Decision, Track 2, Bureau of Land Management Area B and Munitions Response Site 16* (Army, 2017b) (see Section 18).

Range 30A includes approximately 388 acres located in the southeastern portion of the historical Impact Area, approximately 1,500 feet north of South Boundary Road and to the west of Barloy Canyon Road. The interim action was not conducted in Range 30A. The final remedy for Range 30A was evaluated as part of the Track 3 MR RI/FS, and was selected in the Track 3 ROD for the Impact Area MRA (Army, 2008b) (see Section 15).

The 4th Five-Year Review recommended completion of RD/RA, LUCIP/OMP, or similar document for the IA Ranges MRA, following the CERCLA process. The follow-up action has been completed and is addressed in Section 23.

15.0 IMPACT AREA MUNITIONS RESPONSE AREA, TRACK 3 ROD

This section presents background information on the Impact Area MRA, Track 3 MRA ROD; provides a summary of remedial actions; identifies any issues related to the protectiveness of the remedies based on the review; presents recommendations and follow-up actions, if needed, to address any issues identified during the review; and provides a statement regarding the protectiveness of the site remedies. A glossary of MMRP terms is provided in Appendix D.

15.1 Impact Area Munitions Response Area Background

The Impact Area MRA is a Track 3 site. Track 3 includes areas at the former Fort Ord where MEC is known or suspected to be present, but MEC investigations have not yet been completed at the time the MR RI/FS program was initiated. The Impact Area MRA contains all of MRS-BLM and the southern portion of MRS-Ranges 43-48 (Range 30A is part of MRS-BLM). The Impact Area MRA consists of the 6,560-acre portion of the 8,000-acre historical Impact Area that is entirely within the natural resources management area described in the *Installation-Wide Multispecies Habitat Management Plan for Former Fort Ord, California* (USACE, 1997) and is identified for transfer to BLM. The historical Impact Area is an area bounded by Eucalyptus Road to the north, General Jim Moore Boulevard to the west, South Boundary Road to the south, and Barloy Canyon Road to the east. Residential and commercial properties are located within one mile of the Impact Area MRA (Plate 8).

Former land use included live-fire training with military munitions. Multiple firing ranges operated within the historical Impact Area, and weapon firing generally was directed toward the center of the historical Impact Area. Training activities at the Impact Area MRA ceased after the closure of Fort Ord in 1994. Over the years, munitions used during training activities within the Impact Area MRA included hand grenades, mortars, rockets, practice land mines, artillery projectiles, and small arms.

The Impact Area MRA is fenced, warning signs are posted, and access is controlled by the Army. The perimeter of the historical Impact Area is patrolled to detect and prevent trespassing.

The Impact Area MRA is currently identified for transfer to the BLM and is to be managed as a "habitat reserve" by BLM in the future. The Impact Area MRA is covered by dense vegetation, and the dominant plant community is CMC. This plant community is host to several threatened or endangered species and many other rare species identified by the State of California and federal government.

The Impact Area MRA is currently undeveloped. While the remedial action is ongoing, habitat management activities such as invasive weed and erosion control are implemented on a routine basis. Other activities include ecological monitoring, such as plant and animal studies. These activities are conducted under the supervision of the Army and require specific training and may require UXO escort. No accidents involving MEC have occurred during these ongoing activities.

Based on the data collected during previous investigations, MEC is known or suspected to be present. Therefore, there is a potential for a future land user (e.g., habitat monitor, habitat worker, or visitor) to encounter MEC at the Impact Area MRA. Accordingly, the Army conducted the Impact Area MRA RI/FS (MACTEC, 2007), which evaluated remedial alternatives to address the potential risk from MEC at the Impact Area MRA to future land users. The Track 3 ROD (Army, 2008b) was signed in 2008 and remedy implementation is underway.

The Impact Area MRA evaluated in the Track 3 MR RI/FS Report includes two areas previously evaluated in the Interim Action program: the southern portion of MRS-Ranges 43-48 and Range 30A. The 2002 IA Sites

MR ROD is described in Section 14. The Track 3 Impact Area MRA ROD, described herein, is the final ROD for both the southern portion of MRS-Ranges 43-48 and Range 30A.

15.2 Remedial Actions

The Track 3 Impact Area MRA ROD was signed in April 2008. The primary RAOs for the Impact Area MRA, based on EPA RI/FS Guidance (EPA, 1988), are to achieve the EPA's threshold criteria of "Overall Protection of Human Health and the Environment" and "Compliance with ARARs."

15.2.1 Remedy Selection

The selected remedy addresses the explosives safety risks posed by the presence of MEC at the Impact Area MRA. Based on many years of site experience, the presence of MEC in the Impact Area MRA does not appear to be a concern in terms of explosive safety risks to ecological receptors. Potential human health and ecological risks related to any soil contamination from small arms and military munitions ranges are being addressed under the Basewide Range Assessment program and the Site 39 ROD Amendment, as further described in Section 7.3.

The Army evaluated four remedial alternatives described below that could potentially mitigate and manage risks from MEC that could still be present in the Impact Area MRA.

- Alternative 1: No Further Action
- Alternative 2: Technology-aided Surface MEC Remediation and Land Use Controls
- Alternative 3: Subsurface MEC Remediation and Land Use Controls
- Alternative 4: Technology-Aided Surface MEC Remediation, with Subsurface MEC Remediation in Selected Areas and Land Use Controls.

The Track 3 Impact Area MRA ROD selected Alternative 4 as the final remedy to address MEC risks at the portion of the historical Impact Area that is currently designated for transfer to BLM as Habitat Reserve in the *Fort Ord Base Reuse Plan* (FORA, 1997), as well as the HMP (USACE, 1997). The planned response action for this MRA will be the final remedy for protection of human health and the environment regarding explosive safety risks posed by MEC.

The selected remedy - Technology-Aided Surface MEC Remediation, Subsurface MEC Remediation in Selected Areas, and LUCs - includes the components listed below.

- Planned prescribed burning in a series of small burns to clear vegetation and provide access to conduct MEC removals, up to 800 acres per year.
- Technology-aided surface removal throughout the entire Impact Area MRA.
- Subsurface removal in selected areas. These areas include: (1) regularly maintained fuel breaks and access roads essential to habitat management activities; (2) a 100-foot-wide (minimum) safety buffer area along the habitat side of the development border of the Impact Area MRA that will act as an additional safety zone for subsurface activity and enhance firefighters' ability to fight wildfires from the border-buffer area; and (3) in other limited areas that may require subsurface removal for specific purposes to support the reuse (e.g., proposed future landowner habitat restoration areas).
- Digital mapping to provide a record of remaining anomalies and to assist future property users in identifying areas with specific MEC safety support requirements (e.g., on-site construction support) for ground-disturbing or intrusive activities.

- Implementation of LUCs: munitions recognition and safety training; construction support for ground-disturbing or intrusive activities and UXO-qualified personnel support; access management measures including regular security patrols and maintaining a perimeter fence (a four-strand barbed wire fence with concertina wire in some portions) and signs; helicopter support for select future habitat management prescribed burns; weed abatement support; land use restrictions, including the prohibition of unrestricted land use.
- Habitat monitoring within the areas of subsurface removal or other disturbances (e.g., mechanical clearance of vegetation) to collect data on species and habitats described in the HMP (USACE, 1997), and to perform mapping, data management and evaluation, and reporting; and habitat restoration as needed.

At the completion of the remedial action, including the initial implementation of LUCs, the following long-term management measures will be implemented: a land transfer document that outlines any land use restrictions, such as prohibition of unrestricted land use; annual monitoring and reporting; and five-year review reporting required under CERCLA.

The HMP allows a maximum of 800 acres to be burned per year within habitat reserve containing CMC and contiguous areas must not exceed 400 acres unless approved by the USFWS. In order to accomplish the remedial action, the Impact Area MRA has been segmented into units based on existing fuel breaks and roads.

Site-specific work plans will be developed for each phase of the work in units or groups of units and they will outline planned vegetation clearance methods (e.g., prescribed burning), surface and subsurface removal methodologies, and habitat monitoring protocols. In accordance with the *Army Memorandum for Record - Minor Change to the Selected Remedy, Fort Ord Track 3 Impact Area MRA* (Army, 2011c), in locations where prescribed burning is too difficult to implement (i.e., where conditions preclude the Army's ability to conduct a safe prescribed burn), the vegetation will be cut. The subsurface remediation areas are identified and confirmed during the development of RAWP and the technical memorandum following the completion of surface removal and DGM in the units.

The property will not be transferred until all MEC remedial actions have been completed.

The remedial action within the Impact Area MRA is expected to take several years. Prior to property transfer and during the implementation of the remedial action, the Army will provide munitions recognition and safety training as needed; UXO-qualified personnel support for intrusive work or escort as needed; and site security and access management (maintain gates, fences, and signs). These activities will be reported to the regulatory agencies as part of the MRS Security Program annual reports.

At the completion of the remedial action, the Army will evaluate the work completed to date against planned reuse activities and the suitability of the selected LUCs. The Army, in coordination with the future landowner and the regulatory agencies, will develop a detailed LUC implementation plan that will be available at the time the property is to be transferred.

LUCs will be maintained until EPA and DTSC concur that, from an explosives safety perspective, the site is protective of human health and the environment regarding explosives safety risks posed by MEC. This decision will be based on:

1) Post-remediation site evaluation incorporating new information (e.g., geophysical mapping); and/or
2) Where clearance to depth has adequately addressed potential of MEC remaining in soil.

15.2.2 Remedy Implementation

The *Final Work Plan, Remedial Design (RD)/Remedial Action (RA) Track 3 Impact Area Munitions Response Area (MRA) Munitions and Explosives of Concern (MEC) Removal, Former Fort Ord, California* (USACE, 2009) is intended to describe the implementation of the selected remedial actions identified in the ROD for MEC in the Impact Area MRA by specifying the general requirements to accomplish prescribed burning/vegetation removal, technology-aided surface MEC remediation, and limited subsurface MEC remediation. The RD/RA Work Plan also discussed implementation of munitions recognition and safety training, construction support, and access management, prior to property transfer and during the implementation of the remedial action. The RD/RA Work Plan was updated in 2018 (KEMRON, 2018g) to summarize the RAs completed to date and incorporate current guidance on military munitions response actions that applied to the remaining work under the Track 3 ROD.

Summary of Planned and/or Implemented ICs

Media, engineered controls, and areas that do not support UU/UE based on current conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Soil	Yes	Munitions Recognition and Safety Training Construction Support/UXO-Qualified Personnel Support Helicopter Support for Selected Future Habitat Management Prescribed Burns Weed Abatement Support Access management Prohibited Reuses and Activities or Restrictions	F1.13 F1.13.1 F1.7.4	Overall protection of human health	Track 3 RD/RA Work Plan (USACE, 2009) Track 3 RD/RA Work Plan Update (KEMRON, 2018g)

In order to accomplish the remedial action, the Impact Area MRA has been segmented into units utilizing existing fuel breaks and roads to achieve a defensible size burn. Vegetation cutting that is needed to conduct the remedial action has been coordinated with USFWS, in accordance with the requirements of the *Reinitiation of Formal Consultation for Cleanup and Property Transfer Actions Conducted at the Former Fort Ord, Monterey County, California* (USFWS, 2017). Consistent with the requirements in the Biological Opinion, the Army has been conducting baseline and follow-up habitat monitoring.

Each remedial action will involve individual units within the MRA and will be identified in a site-specific work plan approved by the regulatory agencies. The site-specific work plans will identify features that correspond to the specific unit, such as historical use, known ranges, most probable munitions, and pertinent site conditions.

Remedial Actions listed as completed in the 3rd Five-Year Review Report include Units 18 and 22; 14 and 19; and 15, 21, 32, and 34.

- *Final MRS-BLM Units 18 and 22 Munitions and Explosives of Concern, Remedial Action Report, Former Fort Ord, California* (Shaw, 2011a)

- *Final MRS-BLM Units 14 and 19 Munitions and Explosives of Concern, Remedial Action Report, Former Fort Ord, California* (Shaw, 2011b)
- *Final MRS-BLM Units 15, 21, 32, and 34 Munitions and Explosives of Concern, Remedial Action Report, Former Fort Ord, California* (ITSI Gilbane, 2013a)

Remedial actions described as completed in the 4th Five-Year Review Report included Watkins Gate Burn Area (WGBA); Units 1, 2, and 3; 4, 11, and 12; 5A and 9; and 6, 7, 10, and 33. At the time, final reports had been issued for the following units:

- *MRS-BLM Watkins Gate Burn Area MEC Remedial Action Technical Memorandum, Former Fort Ord, California* (KEMRON, 2015a)
- *Final MRS-BLM Units 4, 11 and 12, Munitions and Explosives of Concern, Remedial Action Report, Former Fort Ord, California* (ITSI Gilbane, 2014)
- *Draft Final of MRS-BLM Units 6, 7, 10, and 33, MEC Remedial Action Report, Former Fort Ord, California* (KEMRON, 2015b)

During the period of this Five-Year Review, additional work was conducted in Units 1, 2, 3; and 5A and 9. Remedial actions were completed in Units 23, 25, and 28; and MRS-Ranges 43-48 South. Remedial actions remain to be conducted in Units 5, 31, 13, 17, and 20. These and other activities conducted at the Impact Area MRA are briefly described below.

MRS-BLM Units 1, 2, and 3

Units 1, 2, and 3 are located in the southwestern section of the Impact Area MRA. Unit 1 totals approximately 125 acres, Unit 2 totals approximately 166 acres, and Unit 3 totals approximately 142 acres. Vegetation in Units 1, 2, and 3 were masticated in their entirety.

Surface removal and DGM at Units 1, 2, and 3 are complete. The *MRS-BLM Units 1, 2, and 3, MEC Remedial Action Technical Memorandum, Former Fort Ord, California* (KEMRON, 2016a) details the remedial action. Surface removal and DGM survey occurred in all grids within Units 1, 2, and 3 as part of the remedial action with the exception of 24 grids in Unit 2 including target boxes, soil backstops, and military targets that precluded the completion of surface removal and DGM survey until BRA evaluation could be completed.

The technical memorandum recommended limited subsurface anomaly investigation/removal within a small portion of Unit 3, completion of field work in the 24 grids, and subsurface removal in identified areas (e.g., temporary fuel breaks and administrative access areas) that support planned reuse by the BLM.

Remedial action (vegetation removal, surface removal, DGM, and subsurface removal in select areas) at Units 1, 2, and 3 is complete. The *Final, MRS-BLM Units 1, 2, and 3, Munitions and Explosives of Concern, Remedial Action Report, Revision 1, Former Fort Ord, California* (KEMRON, 2018f) details the remedial action. The Units 1, 2, and 3 remedial action included a limited subsurface removal in an area of interest (AOI) in Unit 3 to reduce the probability that an unknown filler item would be encountered in the future. Additional anomaly investigation was performed in the remainder of Unit 3 to remove anomalies that had the potential to be MEC items with unknown fillers. The *Addendum to Final, MRS-BLM Units 1, 2, and 3, Munitions and Explosives of Concern, Remedial Action Report, Revision 1, Former Fort Ord, California* (KEMRON, 2019g) details the remedial action.

MRS-BLM Units 5A and 9

Units 5A and 9 are located in the southeastern section of the Impact Area MRA. Unit 5A totals approximately 30 acres and Unit 9 totals approximately 68 acres. Units 5A and 9 were masticated in their entirety.

Vegetation removal, surface removal, and DGM in Units 5A and 9 are complete. The *MRS-BLM Units 5A and 9, MEC Remedial Action Technical Memorandum, Former Fort Ord, California* (KEMRON, 2016e) details the remedial action. Surface removal and DGM survey occurred in all grids within Units 5A and 9 as part of the remedial action; however, certain areas were inaccessible to DGM survey due to the presence of a significant stand of oak trees in the eastern portion of the unit (approximately 9 acres of Unit 9 were not surveyed). Subsurface removal to the depth of instrument detection was completed within the 100-foot buffer in Units 5A and 9.

A 1.2-acre borrow pit extending beyond the 100-foot buffer in Unit 5a was identified for subsurface MEC remediation during the Army-BLM post-remediation joint inspection. A limited subsurface removal in the 1.2-acre area was performed and is detailed in the *Draft Final, MRS-BLM Units 5a and 9, Munitions and Explosives of Concern, Remedial Action Report, Former Fort Ord, California* (KEMRON, 2017f). Remedial action objectives have been met and the remedial action is complete for the whole of Units 5A and 9.

MRS-BLM Unit 23

A Site-Specific Work Plan (SSWP) was prepared for a MEC remedial action at MRS-BLM Unit 23 (KEMRON, 2015c). Unit 23 is 388 acres and is centrally located in the Impact Area MRA. The same large MEC items that precluded prescribed burning in Units 11 and 12 were found in Unit 23; therefore, it was masticated in its entirety.

Remedial action (vegetation removal, surface removal, and DGM) at Unit 23 was completed in October 2016. The *MRS-BLM Unit 23, MEC Remedial Action Technical Memorandum, Former Fort Ord, California* (KEMRON, 2017a) was issued in December 2016 and details the remedial action. The Technical Memorandum recommends an evaluation to address munitions with sensitive fuzes, limited subsurface removal to address large projectiles at shallow depths to support future prescribed burning, and limited subsurface removal to address future ground-disturbing activities associated with habitat restoration or erosion control.

A MEC risk reduction was also completed at Unit 23. USACE safety personnel determined that removal of 155mm projectiles, 8-inch projectiles, and larger MEC items to one and two foot depths within Unit 23 was required to reduce the high-impact risk during future prescribed burning. Subsurface anomalies that could potentially be 155mm projectiles, 8-inch projectiles, or larger were intrusively investigated to 1-foot depth in the interior of Unit 23 (436 feet or more from the perimeter of the 45-foot wide fuel break) and 2-foot depth in the outer zone of each prescribed burn area (within 436 feet of the perimeter of the 45-foot wide fuel break) (KEMRON, 2020e).

The MEC remedial action for Unit 23 is complete and detailed in the *Draft Final, MRS-BLM Unit 23, Munitions and Explosives of Concern, Remedial Action Report, Former Fort Ord, California* (KEMRON, 2020d). An evaluation to address munitions with sensitive fuzes is in progress as described under 'Other Activities'.

MRS-BLM Unit 28

A SSWP was prepared for a MEC remedial action at MRS-BLM Unit 28 (KEMRON, 2016b). Unit 28 is 107 acres and is located in the northeastern portion of the Impact Area MRA. The MOUT Site abuts Unit 28 to the southeast. Prescribed burning is not planned at Unit 28 due to the shape, size, and terrain of the unit. Therefore, vegetation within Unit 28 was removed manually and mechanically. Vegetation clearance could not be conducted in portions of the unit where it was unsafe for manual crews and/or UXO teams and/or where site conditions could exacerbate erosion potential that could destabilize the soil surface.

Surface removal and DGM at Unit 28 were completed in 2017. The *MRS-BLM Unit 28, MEC Remedial Action Technical Memorandum, Former Fort Ord, California* (Unit 28 TM; KEMRON, 2017g) details the remedial

action. Steep terrain in Unit 28 precluded surface removal in 12 acres and DGM survey in 39 acres. The Technical Memorandum recommended an evaluation to address munitions with sensitive fuzes and limited subsurface removal to address erosion features and re-routing of a road to support future reuse by the BLM.

The MEC remedial action for Unit 28 is complete and detailed in the *Draft Final, MRS-BLM Unit 28, Munitions and Explosives of Concern, Remedial Action Report, Former Fort Ord, California* (KEMRON, 2018e). An evaluation to address munitions with sensitive fuzes is in progress as described under 'Other Activities'.

MRS-BLM Units 25 and 31

Unit 25 is 95 acres and is located in the southeastern portion of the MRA, within the MRS-BLM. Unit 31 is 103 acres and lies to the southwest of Unit 25. A SSWP was prepared for a MEC remedial action at MRS-BLM Units 25 and 31 (KEMRON, 2016c). In addition, a Prescribed Burn Plan for Units 25 and 31 was prepared (POM Fire Department, 2016) for implementation.

During prescribed burn preparation, steep and difficult terrain were encountered in portions of the containment area in Unit 25 (approximately 8 acres). Due to safety concerns vegetation cutting was not conducted in the areas of difficult terrain and surface removal was not conducted. The terrain issues precluded the firefighters' ability to control the fire from the perimeter of the unit. Therefore, vegetation in Unit 25 was masticated to conduct the remedial action as documented in the field work variance for the site-specific work plan (KEMRON, 2016d). Surface removal and DGM at Unit 25 were completed in 2018. The *MRS-BLM Unit 25, MEC Remedial Action Technical Memorandum, Former Fort Ord, California* (Unit 25 TM; KEMRON, 2018b) details the remedial action. Steep terrain in Unit 25 precluded surface removal in 9 acres and DGM survey in 20 acres. Remedial action objectives have been met for the whole of Unit 25 and no additional remediation was recommended in the Unit 25 TM (KEMRON, 2018b). The MEC remedial action for Unit 25 is complete as documented in the *Final, MRS-BLM Unit 25, Munitions and Explosives of Concern Remedial Action Report, Former Fort Ord, California* (KEMRON, 2019c). Portions of Unit 25 were identified for further evaluation regarding munitions with sensitive fuzes.

The planned prescribed burn in Unit 31 did not occur in 2016. The required combination of weather conditions and other factors did not occur, and the burn was postponed to 2017.

The planned RA at Unit 31 consisted of surface MEC remediation and DGM of the entire site following a prescribed burn. The prescribed burn planned for Unit 31 was not conducted in 2017 or 2018 due to unfavorable weather conditions during the burn season, and the Army was unable to conduct the prescribed burn in 2019 due to fiscal constraints. *Draft Final, MRS-BLM Unit 31 MEC Remedial Action Technical Information Paper, Former Fort Ord, California* (KEMRON, 2020c) documents the remedial actions that have been conducted as part of burn containment line preparation for Unit 31. Surface removal (approximately 57 acres) and DGM (approximately 54 acres) have been completed in grids within the primary burn containment line in Unit 31. Steep terrain within the primary burn containment line precluded DGM survey in 3 acres. Completion of the remaining RA within Unit 31 is pending a prescribed burn.

MRS-BLM Units 13, 17, and 20

Units 13, 17, and 20 have a total combined area of 927 acres, not including fuel breaks, and are located along the eastern boundary of the Impact Area MRA. Unit 13 totals approximately 157 acres, Unit 17 totals approximately 562 acres, and Unit 20 totals approximately 208 acres.

The physical characteristics of Units 13, 17, and 20 differ from the remainder of the Impact Area MRA, with higher elevations, steeper slopes, and frequent prominent rocky outcropping and deep ravines. The terrain and vegetation present significant challenges implementing the Track 3 ROD remedy. Units 13/17/20 were therefore identified for further evaluation to acquire additional information to assist in planning the

implementation of the remedial action. As described in *Technical Memorandum, Phase I Field Evaluation, MRS-BLM Units 13/17/20, Former Fort Ord, California* (KEMRON, 2017h), the evaluation included a review of historical documentation regarding former site use. Field reconnaissance was conducted in 2017. Based on the evaluation, a focused transect investigation plan was developed for further evaluation of Unit 17 based on Visual Sample Plan (VSP; Pacific Northwest National Laboratory) UXO module.

The focused transect survey was implemented in 2018. The Phase II evaluation also included a detailed analysis of feasibility of conducted prescribed burns, and an analysis of risk of soil erosion associated with vegetation cutting (mechanical equipment use). The *Final, Field Evaluation Report, Munitions Response, MRS-BLM Units 13/17/20* (KEMRON, 2019f) concluded that prescribed burns in Units 13, 17, and 20 are not feasible. The report also identified that in areas of slope 30 degrees or higher (present in portions of the units), surface removal and DGM would be difficult to conduct due to safety or accessibility considerations, and that alternative procedures may need to be developed.

In 2016, surface removal was conducted in portions of Units 13, 17 and 20 as part of preparation for the planned prescribed burn in Unit 31. This work is documented in *Draft Final, MRS-BLM Unit 31 MEC Remedial Action Technical Information Paper, Former Fort Ord, California* (KEMRON, 2020c).

Digital geophysical mapping had been conducted in Pond 16 in Unit 31 in 2016 when the pond was dry and accessible. This data was used to conduct a geophysical anomaly investigation in 2018 to allow safe access during future biological surveys. The results are described in *Pond 16 Impact Area MRA Geophysical Anomaly Investigation Technical Information paper, Former Fort Ord, California* (KEMRON, 2019e)

MRS-BLM Unit 5

Unit 5 is 129.5 acres and is in the southern portion of the MRA, adjacent to Units 4, 5A, 7, and 23. Due to the potential presence of large high explosive projectiles on the ground surface in Unit 5, and the close proximity of Unit 5 to populated areas, prescribed burning will not be conducted in Unit 5 prior to surface MEC removal. Vegetation within Unit 5 will be cut manually and mechanically. The scope of work includes surface MEC removal, DGM, and subsurface MEC removal in selected areas. As of September 30, 2021, this work was in planning stages.

MRS-Ranges 43-48 South

MRS-Ranges 43-48 South consists of the southern portion of the Interim Action (IA) site, MRS-Ranges 43-48 (see Section 14). An interim remedial action was conducted at MRS-Ranges 43-48 in 2003-2005 based on the *Record of Decision Interim Action for Ordnance and Explosives at Ranges 43-48, Range 30A, and Site OE-16 Former Fort Ord, California* (Army, 2002a). The interim remedial action included vegetation clearance by prescribed burning, surface and subsurface MEC removal, and detonation of MEC using engineering controls. The southern portion of MRS-Ranges 43-48 (MRS-Ranges 43-48 South) was subsequently included in the Track 3 Impact Area MRA.

Surface MEC removal was completed in MRS-Ranges 43-48 South during the IA. Subsurface removal was conducted in portions of the site. MRS-Ranges 43-48 South includes some of the Special Case Areas (SCAs), and Non-Completed Areas (NCAs). As described in *Final MRS Ranges 43-48 Interim Action Technical Information Paper, Former Fort Ord, California* (Parsons, 2007), the Range 48 SCA was designated as such because heavy metallic debris left over from training activities prevented the Schondstedt magnetometers from detecting individual anomalies, which potentially represent MEC in the subsurface. Removing the metallic clutter to complete the subsurface MEC removal would require an intensive effort such as scraping and sifting, and exceeded the time and funding available to the contract at that time of the IA.

In 2016 an 11-acre portion of the Range 48 SCA was identified for the Munitions with Sensitive Fuzes Field Study (MSFFS; KEMRON, 2020b). This study was conducted under the *Final, Work Plan, Munitions with Sensitive Fuzes Field Study, Former Fort Ord, California* (KEMRON, 2017j). To conduct the study, vegetation was cut and a near surface removal (to a depth of six inches) was conducted. A total of 111 surface and near-surface MEC items were removed during the near surface removal. To address the potential for MEC items to be similarly present on the surface in the vicinity of the study area that is closest in proximity to the public, the Army initiated an additional near-surface MEC removal (followed by DGM) in the northern portion of the Range 48 fan area (approximately 32 acres), where surface removal had been conducted prior to the Track 3 ROD. This additional work was identified in the *Technical Memorandum MEC Remedial Action, Track 3 Impact Area MRA, MRS-Ranges 43-48 South, Former Fort Ord, California* (Ranges 43-48 South TM; KEMRON, 2019d), which evaluated all previous work in aggregate, including subsurface MEC removal in the Broadway Bypass fuel break that ran through the site.

The Ranges 43-48 South TM recommended the following: 1) the remainder of the Range 48 fan (excluding where additional near-surface removal was conducted) should continue to be evaluated under the annual surface monitoring program 2) if additional MEC removal is conducted with vegetation clearance in portions of the site, DGM survey should be considered in the area while accessible, and 3) the Range 48 fan area should be evaluated along with other "candidate areas" for possible subsurface MEC removal after completing the MSFFS. The near-surface removal and DGM in the 32-acre additional work area were completed in 2019. MEC remedial action for MRS-Ranges 43-48 South is complete as described in the *Draft Final, MRS-Ranges 43-48 South Munitions and Explosives of Concern Remedial Action Report, Former Fort Ord, California* (KEMRON, 2020q). Portions of the Range 48 fan area are subject to further evaluation regarding munitions with sensitive fuzes.

Non-Burn Areas

Non-Burn Areas are permanent fuel breaks, designated 100-foot buffer zones, and areas identified as those dominated by non-CMC vegetation types. The overall scope work in "Non-Burn Areas" includes vegetation clearance, technology-aided surface and/or subsurface MEC removal in selected areas, and DGM in an approximate area of up to 509 acres located within the Impact Area MRA. Work is being conducted in accordance with the *Final Site-Specific Work Plan, Munitions and Explosives of Concern Remedial Action, Non-Burn Areas, Former Fort Ord, California* (Shaw E&I, 2010).

The Non-Burn Areas were subdivided into three groups.

- Group 1 provides a 100-foot buffer area between the habitat and development border around the BLM compound (Parcel F1.12), around the MOUT site (Parcel F1.7.2), and the western Impact Area MRA boundary. MEC remedial actions for Group 1 include vegetation clearance, technology-aided surface removal, and subsurface removal. Remediation for the 100-foot buffer is complete (Army, 2015a).
- Group 2 includes 45-foot wide permanent fuel breaks within the MRA. The MEC remedial action for Group 2 includes subsurface removal.
- Group 3 entails technology-aided surface removal across approximately 365 acres of grasslands, CMC, Oak Woodland, and wetland areas. MEC remedial actions for Group 3 include vegetation clearance, technology-aided surface removal, and DGM.

Permanent fuel breaks have generally had technology-aided surface removal and subsurface removal. The *Volume 1, Technical Information Paper, Fuel Breaks, Impact Area Munitions Response Area, Former Fort Ord, California* (KEMRON, 2020i) details the remedial actions conducted. Under the Final SSWP (Shaw E&I, 2010), DGM data collection was the first step in the RA. This data was used to determine where DGM-based subsurface removal was conducted. Segments of the fuel breaks have been added, removed, or realigned since the SSWP (Shaw E&I, 2010), based on further coordination with BLM, resulting in the system described in

the Volume I TIP (KEMRON, 2020i). In areas where DGM-based subsurface removal could not be conducted (high anomaly density areas), analog based subsurface MEC removal was performed. The Final SSWP (Shaw E&I, 2010) noted that in areas where removal to depth was previously conducted, DGM data would undergo the QC/QA process. The supplemental QC investigation was reported in *Technical Information Paper, Supplemental Quality Control Investigation, Impact Area Munitions Response Area, Permanent Fuel Breaks, Former Fort Ord, California* attached to FWV 017 (KEMRON, 2018d). Based on this work, supplemental subsurface removal was recommended in 25.5 acres of the Impact Area MRA fuel breaks to address the possibility of MEC items remaining in areas where 81-millimeter (mm) mortar projectiles were previously recovered, and where pre-subsurface anomaly density was highest. Details of the supplemental subsurface MEC removal are presented in *Volume 2, Technical Information Paper, Supplemental Subsurface MEC Removal, Fuel Breaks, Impact Area Munitions Response Area, Former Fort Ord, California* (KEMRON, 2020h). The supplemental work resulted in the identification of 11,416 anomalies for intrusive investigation and subsurface removal. The existing contract ended prior to completion of intrusive investigations, and 1,543 targets on portions of Watkins Gate Road and Orion Road remain to be investigated.

Other Activities

Structure removal: Various buildings in the Impact Area MRA had been used during troop training activities when Fort Ord was an active military installation. These buildings either precluded completion of MEC remedial activities or were determined jointly by the Army and BLM to present hazards and potential attractive nuisances. 29 structures within the Impact Area MRA and four structures in BLM Area B were identified for removal in Field Work Variance (FWV) 023 to the *Final, Site-Specific Work Plan, Munitions and Explosives of Concern Remedial Action, Non-Burn Areas, Former Fort Ord, California* (KEMRON, 2020g).

For all buildings and structures where visible paint was present, the paint was assumed to be Lead-Based Paint (LBP). The only unit where LBP sampling was conducted was Unit 5A. Only one of the four buildings/structures present within Unit 5A (Building 29) had visible paint present. A total of 7 samples for LBP were taken from Building 29. A determination was made to dispose of all material potentially containing LBP within OU 2 Landfill at the former Fort Ord. This determination was made in conjunction with regulatory agencies through the MR and HTW Base Realignment and Closure Cleanup Team (BCT).

All buildings were assessed for the presence of Asbestos Containing Material (ACM). Any ACM results other than non-detect (ND) resulted in ACM remediation and all ACM was disposed at a certified landfill. All handling and disposal of ACM was coordinated through the Presidio of Monterey Public Works Hazardous Waste Office.

Building and structure demolition was completed from January through April 2019. UXO escorts were present during demolition. After the buildings and structures were removed, UXO escorts surveyed the previously occupied footprints to verify that no surface MEC hazard was present. All buildings and structures requiring demolition were removed and demolition materials were placed at the OU2 landfill as described in *Impact Area MRA and BLM Area B Structure Demolition and Removal Technical Information Paper, Former Fort Ord California* (KEMRON, 2020g).

WGBA mortar pits: The WGBA Mortar Pits site was identified through a joint inspection of the WGBA by the Army and BLM. This joint inspection was conducted in 2014 and documented in the WGBA TM (KEMRON, 2015a). The Mortar Pits site contained 10 mortar pits constructed with a frontal berm and asphalt surface, and were locations from which mortars were fired into the Impact Area. The intent of the field work at the Mortar Pits site was to provide subsurface MEC remediation of the mounds and to remove any asphalt covering, so that the mounds can be graded to a more natural topography by the BLM at a later date, as described in *Watkins Gate Burn Area Mortar Pits MEC Remedial Action Technical Information Paper, Former Fort Ord, California* (KEMRON, 2020a).

Following an evaluation of previously collected DGM data within the WGBA Mortar Pits site, a determination was made that the mounds would be remediated through analog methods. The field work was conducted in November and December of 2018. After the analog MEC remediation was completed, asphalt from the WGBA Mortar Pits site was broken into small pieces and used to repair sections of Austin Road between Stinger Road and the Blue Line Road. Site restoration was completed using a combination of barley seed, blown straw, and installation of wattle and silt fencing. No MEC items were encountered during the remediation effort. Construction support is not required for the planned grading operation within the footprint of the WGBA Mortar Pits site.

Munitions with sensitive fuzes: Munitions with sensitive fuzes are associated with a higher level of concern due to their sensitive nature. In high density clutter areas, the possibility of sensitive fuze-type munitions in shallow subsurface becoming exposed over time is a concern that was identified in the RI/FS and ROD. Under the Track 3 ROD, subsurface removal will be conducted in identified areas to address specific risk and/or land use needs. An example of such areas are "areas where there are high density anomalies associated with impact areas where military munitions with sensitive fuzes (all-ways-acting or piezoelectric fuzes, or 40mm grenade launcher HE or 40mm practice projectiles M382 series or M407 series [or any other 40mm practice series projectiles containing enough explosives to rupture the projectile]) were fired." Such areas would be a candidate for subsurface MEC removal using excavation and sifting.

As remedial actions progressed, areas considered to fit the description of "there are high density anomalies associated with impact areas where military munitions with sensitive fuzes were fired" were identified in remedial action reports. These preliminarily identified areas together currently exceed 85 acres.

While excavation and sifting can be implemented to reduce the explosives safety risk, it will result in considerable disturbance and damage to the natural habitat. To comply with Endangered Species Act (ESA) requirements, an extensive habitat restoration effort would be required to bring about successful habitat recovery in the excavated areas. A considerable level of uncertainty is associated with such restoration effort especially when the area of disturbance is large. The overall cost of such an approach is very high. Considering these factors, the Army has explored ways to reduce the footprints of areas that could require sifting while addressing the risks. As part of this effort, the performance and capabilities of advanced electromagnetic induction (EMI) systems (also referred to as "advanced geophysical classification" or AGC) were demonstrated. The results of the technology demonstration are described in *Draft Final Field Study Report, Munitions with Sensitive Fuzes Field Study, Impact Area Munitions Response Area, Former Fort Ord, California* (KEMRON, 2020b). Further evaluation of AGC, and technical alternatives to address the risks in lieu of the large-scale excavation and sifting, is in progress.

Post-remediation prescribed burns: Prescribed burning was selected as the primary method to clear vegetation in habitat reserve containing CMC to provide access to conduct MEC removals. Vegetation clearance using manual and mechanical methods to clear unburned areas within habitat reserve areas containing CMC would be restricted to the extent possible and would typically be limited to 50 acres or less within a MRS or unit. Where prescribed burning has been determined infeasible based on site specific conditions, MEC remediation will be supported by manual and/or mechanical cutting, subject to USFWS consultation under the ESA as described in the PBO (USFWS, 2017). The *Memorandum for Record - Minor Change to the Selected Remedy, Fort Ord Track 3 Impact Area MRA* (Army, 2011c) documents the types of areas that were identified as impractical for a prescribed burn prior to surface MEC removal:

(1) Areas with specific types of MEC on the ground surface that require safety setback distances that exceed the Army's capabilities to conduct a safe prescribed burn (e.g., Units 11, 12 and 23);
(2) Areas where suitable burn conditions occur infrequently and are unpredictable (e.g., Units 1, 2 and 3);

(3) Areas adjacent to populated areas where providing for contingency associated with burning is difficult (e.g., Units 4, 5A, 6 and 9); and
(4) Areas with difficult terrain that prevents the development of sufficient burn containment lines (e.g., Units 28 and 25).

Based on USFWS coordination and as documented in the PBO (USFWS, 2017), follow-up prescribed burning is necessary to encourage the recovery of the habitat except for Unit 28. In a 2018 letter of formal consultation, an evaluation on the feasibility of conducting prescribed burns in Units 9, 13, 17, 20, 25, and 31 was submitted to USFWS (Army, 2018b). Based on the proximity of the units to homes and structures, the manner in which topography and prevailing winds would likely affect fire behavior in the eastern portion of the Impact Area MRA, and significant risk of an escaped wildfire, the evaluation had concluded that it was unsafe to conduct burn in these units. Based on this assessment USFWS concurred that prescribed burning will not be conducted in Units 13, 17, and 20, nor will follow-up prescribed burn occur in Units 9 and 25 (USFWS, 2019).

15.2.3 System Operations and Maintenance

The remedial actions in the Impact Area MRA are expected to take several more years to complete. The operations and maintenance activities at the Impact Area MRA involve annual monitoring and reporting regarding MEC finds and changes in site conditions that could increase the possibility of finding MEC exposed due to erosion over time. As part of the Track 3 remedy, area walks and safety and security monitoring have been performed for the purpose of monitoring the status of MRSs with completed surface remediation since 2009. Data collected during area walks, worker observations, and incident reports for 2016 through 2020 are documented in the monitoring reports reviewed as part of this Five-Year Review (KEMRON, 2017e, 2017i, 2019h, 2020f, and 2021).

Areas monitored in 2016 included the WGBA; Ranges 43-48 South; Units 14, 14A, and 19; Units 18 and 22; Units 15, 21, 32, and 34; HA-34 (Eucalyptus Fire Area); Units 4, 11, and 12; Units 6, 7, 10, and 33; and Units 1, 2, and 3. Two MEC items were identified during the area walk of Ranges 43-48 South and two MEC items were identified in Unit 19. Multiple MD items and suspected MEC (inert/expended) items were also observed during the walks and were subsequently removed.

Areas monitored in 2017 included the WGBA; Ranges 43-48 South; Units 14, 14A, and 19; Units 18 and 22; Units 15, 21, 32, and 34; HA-34 (Eucalyptus Fire Area); Units 4, 11, and 12; Units 6, 7, 10, and 33; Units 1, 2, and 3; Unit 23; and Units 5A and 9. One MEC item was identified during the area walk of Ranges 43-48 South. Multiple MD items and suspected MEC (inert/expended) items were also observed during the walks and were subsequently removed. The 2017 Track 3 Surface Monitoring recommended that Units 4 and 34 be removed from the annual surface monitoring program as vegetation had re-established itself, no suspect MEC or MEC-like items had been identified, and no incident reports had been received in five years of monitoring.

Areas monitored in 2018 included WGBA; Ranges 43-48 South; Units 14, 14A, and 19; Units 18 and 22; Units 15, 21, and 32; HA-34 (Eucalyptus Fire Area); Units 11 and 12; Units 6, 7, 10, and 33; Units 1, 2, and 3; Unit 23; Units 5A and 9; Unit 25; and Unit 28. No MEC was identified; however, multiple MD items and suspected MEC (inert/expended) items were observed and subsequently removed. The 2018 Track 3 Surface Monitoring recommended that Units 6 and 33 be removed from the annual surface monitoring program as vegetation had re-established itself, no suspect MEC or MEC-like items had been identified, and no incident reports had been received in four years of monitoring.

Areas monitored in 2019 included WGBA; Ranges 43-48 South; Units 14, 14A, and 19; Units 18 and 22; Units 15, 21, and 32; HA-34 (Eucalyptus Fire Area); Units 11 and 12; Units 7 and 10; Units 1, 2, and 3; Unit 23; Units 5A and 9; Unit 25; and Unit 28. No MEC was identified; however, multiple MD items and suspected

MEC (inert/expended) items were observed and subsequently removed. The 2019 Track 3 Surface Monitoring recommended Units 1, 2, 3, 5A, 9, 14A, 7, 10, and portions of WGBA west of Austin Road and south of Broadway Avenue be discontinued from the annual surface monitoring program as vegetation had re-established itself, no suspect MEC or MEC-like items had been identified, and no incident reports had been received in four years of monitoring. The 2019 Track 3 Surface Monitoring also recommended to discontinue monitoring of HA-34 under the Track 3 surface monitoring program.

Areas monitored in 2020 included WGBA-Northeast; Ranges 43-48 South; Units 14 and 19; Units 18 and 22; Units 15, 21, and 32; Units 11 and 12; Unit 23; Unit 25; and Unit 28. One suspect MEC item was identified during the area walk of Unit 15. MEC-like MD was observed in 10 of the 2020 monitoring units. The 2020 Track 3 Surface Monitoring recommended to continue monitoring in all 2020 monitoring areas.

As part of the MRS Security Program, the Army collects information on reports of incidental munitions encounters and trespassing. The information is compiled in MRS Security Program annual reports. Annual reports for 2016 through 2020 were reviewed as part of the Five-Year Review (Fort Ord BRAC, 2017, 2018, 2019, 2020, and 2021). Based on incidents of finding munitions-related items and discoveries of trespasses, corrective action recommendations were made in each of the annual reports for subsequent implementation.

MEC Incidents (reports of munitions encounters):

- There were two MEC incidents within the Impact Area MRA reported in 2016. One incident was determined to be MEC (UXO) and one incident was determined to be MD.
- There were no MEC incidents within the Impact Area MRA reported in 2017.
- There were three MEC incidents within the Impact Area MRA reported in 2018. All three incidents were determined to be MD.
- There was one MEC incident within the Impact Area MRA reported in 2019. The one incident was determined to be MD.
- There were two MEC incidents within the Impact Area MRA reported in 2020. One incident involved a suspect UXO (3.5-inch rocket) that was identified by the UXO Escort accompanying a BLM Weed Crew. The Escort recorded the GPS coordinates, which later turned out to be incorrect. UXO personnel returned later to recover the item, but it was not located. The area was included in the 2020 annual surface monitoring; however, the object was not found. The other incident was determined to be MD.

All reported MEC incidents were initiated using appropriate reporting systems and all located items were disposed of in accordance with explosives safety standards and MRS Security Program guidance.

Trespass Incidents:

- There was one trespass incident and three reports of evidence of trespass incidents reported in 2016 in the restricted Impact Area MRA of the former Fort Ord. The trespass incident involved a response by BLM Rangers and POM PD near Wildcat Ridge Gate and resulted in a citation being issued. The trespass incident and two of the three evidence of trespass incidents may be linked to the MOUT Site as an attraction.
- The 2017 Munitions Response Site Security Program classified the reporting of trespass incidents into two categories: 1) Major trespassing: when an unauthorized person gains access to a restricted MRS or other restricted area contrary to appropriate postings and is discovered in the act; or when evidence of the passage of persons beyond an appropriately posted boundary is significant enough to warrant a police report, as in the case of equipment damage or theft and 2) Minor trespassing: When there is

evidence of the passage of persons beyond an appropriately posted boundary but no persons are seen in the act and there is no damage or theft resulting from the incident. There were two major trespass incidents and 11 minor trespass incidents reported in 2017 in the restricted Impact Area MRA of the former Fort Ord. The major and minor trespass incidents are considered linked to increased interest in the munitions remediation work in BLM Area B, an area historically open to the public.

- There were five minor trespass incidents reported in 2018 in the restricted Impact Area MRA of the former Fort Ord.
- In 2019, the categorization of trespass incidents was modified to differentiate between higher and lower risk trespass incidents. Starting in 2019 trespass incidents are categorized as 1) Major trespassing: Incidents that are more likely to result in explosive hazard exposure and 2) Minor trespassing: incidents that are unlikely to result in explosive hazard exposure. There were two major trespass incidents and 19 minor trespass incidents reported in 2019 in the restricted Impact Area MRA of the former Fort Ord. The two major trespass incidents involved discovery of two illegal encampments in the Impact Area MRA near Bitter Gate and Nowhere Gate. Evidence of ground disturbing activities (digging) was found at the camps. No individuals were in attendance and no citations were issued. Subsequently, BRAC and POM PD increased monitoring and surveillance of the area. The increase in recorded trespass incidents in 2019 is likely due to the increased monitoring, field surveillance, and coordination with law enforcement agencies in 2019.
- There was one major trespass incident reported in 2020 in the restricted Impact Area MRA of the former Fort Ord. The major trespass incident involved discovery of an illegal encampment in the Impact Area MRA near Bitter Gate. Evidence of ground disturbing activities (digging) was found at the camp. No individuals were in attendance and no citations were issued. Subsequently, additional patrols of the area have been implemented and a second layer of 36-inch diameter concertina wire rolls was installed along the nearby fence line. There was one major trespass incident and 68 minor trespass incidents reported in 2020 in the restricted Impact Area MRA of the former Fort Ord. Increased field surveillance in 2020 is believed to have led to the detection of more incidents. Additionally, due to the COVID-19 pandemic, large numbers of people were out of work and/or school and increasingly participated in outdoor activities.

Trespass incident data identified in the reports indicate the most common trespassing evidence is foot or bicycle/motorcycle tracks and/or the dislodging of one or more of the wires of the Impact Area MRA perimeter fence. The most prevalent locations for evidence of trespass is the Impact Area MRA fence line near or adjacent to the MOUT site and fuel breaks intersecting with the perimeter fence (Fort Ord BRAC, 2017, 2018, 2019, 2020, and 2021). The POMPD and BLM conduct regular security patrols in and around the Impact Area MRA. MRS Security Program actions are coordinated with the Security Committee, which includes local law enforcement agencies.

As described above, illegal encampments were detected and cleaned up in the western portion of the Impact Area MRA (two in 2019 and one in 2020). Since the 2020 incident, there have not been any other discovery of encampment inside the Impact Area MRA. During the Site Security Committee annual meeting in March 2019, the committee members requested to receive notifications when trespass incidents occur. The following information is available from those notifications regarding illegal encampments that have been reported in the adjacent areas, the southern portion of the ESCA Seaside MRA:

- Five encampments were discovered in December 2021 (subsequently removed);
- One incident involving a homeless person and suspected encampment was handled in March 2021;
- Two encampments were detected and cleaned up in January 2020;
- One camp was discovered in June 2019 (subsequently removed); and

- Two persons were evicted in March 2019.

In the Del Rey Oaks MRA:

- Two camps were detected and removed in March 2019.

Cities of Seaside and Del Rey Oaks continue to conduct regular visits to these areas.

Since the last five-year review, the EPA's Office of Inspector General (OIG) performed a site visit to evaluate whether the EPA's Superfund institutional controls achieved their stated goal of preventing human exposure at Superfund sites. The report from the site visit concluded "the steps taken by the Army with EPA oversight, combined with planned follow-up actions moving forward, represent a reasonable effort to deter and minimize trespassing and prevent people from being exposed to unexploded munitions and chemical contamination in the soil. As a result, we have no recommendations for this site."

Remedial actions are on-going in the Impact Area MRA and no post-remediation O&M costs have been incurred.

15.2.4 Property Transfer

The Impact Area MRA is identified for transfer to the BLM as a habitat reserve. The property will be transferred after all MEC removals are completed.

15.3 Progress Since the Last Five-Year Review

This section includes the protectiveness determinations and statements from the last Five-Year Review Report, as well as the recommendations from the last Five-Year Review Report, and the current status of those recommendations.

15.3.1 2017 Five-Year Review Protectiveness Statement

The protectiveness statement from the 2017 Five-Year Review Report (Army, 2017) for the Track 3 Impact Area MRA stated:

> "The remedy for the Track 3 Impact Area MRA is expected to be protective of human health and the environment upon completion. In the interim, ongoing remedial activities, along with access controls, adequately address all exposure pathways that could result in unacceptable risks."

15.3.2 Status of 2017 Five-Year Review Issues and Recommendations

Issues from Previous Review	Recommendations/ Follow-up Actions	Party Responsible	Milestone Date	Action Taken and Outcome	Date of Action
Not Applicable.	Continue implementation of the MRS Security Program.	Army	Not Applicable	No specific follow-up action was recommended in the 2017 Five-Year Review. The Army has continued the site security and public education programs.	Not Applicable

15.4 Impact Area Munitions Response Area Five-Year Review Process

15.4.1 Document Review

Documents reviewed in this evaluation included the Track 3 ROD, RD/RA Work Plan, site-specific Work Plans, site-specific Remedial Action Reports, and MRS Security Program and Surface Area Monitoring annual reports for the years since the last Five-Year Review. The references are listed in Appendix A.

15.4.2 Data Review

Data from 2019-2020 indicated an increase in trespassing activity. Additional law enforcement patrols, BRAC staff inspections, and a security camera are believed to have led to the detection of more incidents. During the 2020 COVID-19 pandemic, visitorship in the adjacent Fort Ord National Monument doubled. Data from 2021 (as of October 2021) indicate the frequency of trespassing has declined.

15.4.3 Site Inspection and Interviews

A visual site inspection was performed on July 21-22, 2021 around the perimeter of the Impact Area. The presence of fences around site boundaries was documented. Some portions of fence are affected by overgrown vegetation that is obscuring the warning signs. However, areas of overgrown vegetation do not compromise the integrity of the fence. Dense vegetation combined with the fence is considered (and continues to be demonstrated as) a suitable barrier to trespass. Fence and signage monitoring and maintenance are documented in the MRS Security Program annual reports.

A copy of the Site Inspection Form and associated photographs are presented in Appendix B, Field Documentation of Site Inspections and Interviews.

15.5 Technical Assessment

15.5.1 Question A

Is the Remedy functioning as intended by the Decision Documents?

The selected remedy has been conducted at several of the Impact Area MRA Units and the remediation of the remainder of the units is planned to be conducted in the next several years. In the areas where the remedy has been implemented, it has functioned as intended. However, as part of the work in these areas, the Army had identified places where they were not able to conduct surface removal due to difficult terrain and technological limitations. The Army will work with the regulatory agencies to determine if these areas need to be documented as a change to the selected remedy under the CERCLA process.

15.5.2 Question B

Are the Exposure Assumptions, Toxicity Data, Cleanup Levels, and Remedial Action Objectives used at the time of remedy selection still valid?

Yes. There have been no changes in the assumptions, toxicity data, or cleanup levels used at the time of the remedy selection. The primary RAOs for the Track 3 Impact Area MRA remain valid. These primary RAOs are: (1) to achieve the EPA's threshold criteria of "Overall Protection of Human Health and the Environment" and (2) "Compliance with ARARs."

15.5.3 Question C

Has any other information come to light that could call into question the Protectiveness of the Remedy?

There has been no new information identified that could call into question the protectiveness of the remedy.

15.6 Issues

There are no issues affecting the protectiveness of the Impact Area MRA remedy. The Army has continually implemented RAs since the Track 3 ROD was signed in 2008. During the review period, there have been delays to implementation of planned RA at Unit 31, which requires a prescribed burning prior to MEC removals. The prescribed burn planned for Unit 31 was not conducted in 2017 or 2018 due to unfavorable weather conditions during the burn season, and the Army was unable to conduct the prescribed burn in 2019 due to fiscal constraints. The current constrained funding status resulted in delay in other planned munitions responses at Fort Ord. The BRAC Fort Ord Field Office continues to request funding for the RAs. The RA in Unit 5 is underway in 2022. The prescribed burn in Unit 31 will be scheduled for a future burn season when funding is available for the Unit 31 RA. While the projected completion date for all remedial actions in the Impact Area MRA has been delayed, there is no change to the protectiveness of the remedy upon completion.

15.7 Recommendations and Follow-Up Actions

Recommendations for the Impact Area MRA are to continue implementation of the MRS Security Program.

15.8 Protectiveness Statement

Protective in the short-term. The remedy for the Track 3 Impact Area MRA currently protects human health and the environment because ongoing remedial activities, along with access controls, adequately address all exposure pathways that could result in unacceptable risks. However, in order for the remedy to be protective in the long-term, it needs to be fully implemented. Specific controls include: security patrols; munitions recognition and safety training for authorized personnel; fencing, gate, and signage upkeep; and annual monitoring.

16.0 DEL REY OAKS MUNITIONS RESPONSE AREA, TRACK 2 ROD

This section presents background information on the DRO MRA, Track 2 ROD (DRO MRA ROD); provides a summary of remedial actions; identifies any issues related to the protectiveness of the remedies based on the review; presents recommendations and follow-up actions, if needed, to address any issues identified during the review; and provides a statement regarding the protectiveness of the site remedies. A glossary of MMRP terms is provided in Appendix D.

16.1 Del Rey Oaks Munitions Response Area Background

The DRO MRA is a Track 2 site. Track 2 sites are those sites where MEC was found and an MEC removal was conducted. The *Record of Decision, Del Rey Oaks Munitions Response Area, Track 2 Munitions Response Site, Former Fort Ord, California* (Army, 2008c) documents the selected remedy for the site.

The DRO MRA consists of approximately 324 acres of land in the southwestern portion of the former Fort Ord. The DRO MRA, as depicted on Plate 8, includes all or portions of three MRSs, identified as MRS-15 DRO 01, MRS-15 DRO 02, and a portion of MRS-43.

The entire area that comprises the DRO MRA was investigated through MEC sampling, and several removal actions were conducted. These included a road clearance, a fuel-break removal action, Impact Area grid sampling, GridStats/SiteStats sampling, remediation activities, non-time critical removal action, eastern boundary removal, berm removal, and machine gun link removal (USA, 2000, 2001a, 2001b, 2001c, 2001d, 2001e, 2001f; Parsons, 2003). The individual investigations and removals may have only covered a portion of the DRO MRA; however, after the above actions were completed, 100 percent of the DRO MRA was surveyed by one or more geophysical instruments and all detected MEC were removed. The sampling and removal actions were designed to address MEC to depths of four feet bgs; however, all anomalies, even those deeper than four feet bgs, were investigated and resolved, and all detected MEC were removed within the DRO MRA.

The City of Del Rey Oaks and FORA requested early transfer of the DRO MRA. The Army conducted a munitions response, developed the FOSET (Army, 2004), and transferred the property in 2005 under early transfer authority with EPA and the Governor's concurrence. The FOSET stated that the DRO MRA had been cleared of all dangerous and/or explosive material reasonably possible to detect and that no further munitions response actions were recommended (Army, 2004). The Army's assessment indicated that, with the exception of the approximate 2.5-acre Range 26 berm area consisting of 11 MEC removal grids (hereinafter referred to as the "11-Grid Area" [Plate 9]), the property could be transferred with no restriction on land use. However, the Army agreed to enter into a CRUP with DTSC, with which the City of Del Rey Oaks agreed. The Covenant excluded the following types of use for the entire DRO MRA: residential use, day care facilities that do not have measures to prevent contact with soil, schools for persons under 21 years of age, and hospitals (other than veterinary hospitals). Pursuant to an agreement with DTSC, the City of Del Rey Oaks has adopted City Ordinance 259, also known as the "Excavation Ordinance," that addresses the potential explosive safety risks posed by MEC, particularly UXO, by requiring permits for certain soil movement or excavation activities. The requirements of the ordinance are codified in the municipal code at Chapter 15.48. The 11-Grid Area (which encompasses portions of Parcels E29a and E29b.1; see Plate 9) has been transferred with restrictions requiring that the Army provide additional construction support for intrusive activities that penetrate to depths greater than 4 feet bgs. The RI/FS Report was developed after the property was transferred; the ROD was signed in 2008.

The DTSC and the entities owning property on the former Fort Ord entered into a *Memorandum of Agreement (MOA) Concerning Monitoring and Reporting on Environmental Restrictions on the Former Fort Ord, Monterey County* (DTSC, 2008), which is between FORA, Monterey County, the Cities of Seaside, Monterey,

Del Rey Oaks, and Marina; CSUMB; UCSC; MPC; and the DTSC. The MOA was finalized on February 27, 2008 and lists the requirements for reporting on the implementation of the LUCs placed on the various parcels at the former Fort Ord.

The site is currently undeveloped. Identified reuse includes a visitor serving area, a business park, light industrial, and office park. The specific reuse of the visitor serving area was not identified; however, intended reuses reportedly include a golf course, lodging, and retail.

16.2 Remedial Actions

The primary RAOs for the DRO MRA, based on EPA RI/FS guidance (EPA, 1988), are to achieve the EPA threshold criteria of "Overall Protection of Human Health and the Environment" and "Compliance with ARARs."

16.2.1 Remedy Selection

MEC removal actions have been completed at the Del Rey Oaks MRA reuse areas, significantly reducing the risks to human health and the environment. MEC are not expected to be encountered within the MRA. However, it is possible that some MEC may not have been detected and potentially remains, thus presenting a risk at the DRO MRA. The Army conducted the DRO MRA RI/FS to evaluate remedial alternatives to address potential risk to a future land user (e.g., worker, resident, or visitor). For the identified reuse-specific receptors (recreational user, indoor worker, outdoor maintenance worker, construction worker, and adult/child resident), the overall MEC risk was low (MACTEC, 2007a).

The risks associated with chemical hazards were addressed as part of the Basewide Range Assessment, which is a component of the HTW RI/FS program. No restrictions related to munitions constituents in soil were recommended following completion of a literature review, site reconnaissance, and soil sampling (Shaw, 2012).

Because munitions response has been completed, LUCs were considered in the development of response alternatives for managing the risk from MEC that potentially remain at the MRA.

Selected Remedy

The Army evaluated three remedial alternatives to address risks from any MEC that potentially remains in the DRO MRA during development, and in the future following development and reuse of the area.

- Alternative 1: No Further Action
- Alternative 2: Conditions on Soil Disturbance Activities to Minimize MEC Exposure
- Alternative 3: Conditions on Soil Disturbance Activities to Minimize MEC Exposure and Residential Use Restrictions Including Contingency to Address Proposed Change in Site Reuse

Although the Army determined that there are no potential federal or California ARARs that relate to LUCs at the DRO MRA, LUCs will be implemented in a manner consistent with applicable federal and state guidance. While the Army does not consider California laws and regulations concerning LUCs to be potential ARARs, the Army entered into a state CRUP at the time the property was transferred.

Remedial Alternative 3 (Conditions on Soil Disturbance Activities to Minimize MEC Exposure and Residential Use Restrictions including Contingency to Address Proposed Change in Site Reuse) was selected as the remedy for the *Final Record of Decision, Del Rey Oaks Munitions Response Area Track 2 Munitions*

Response Site, Former Fort Ord, California (Army, 2008c). The specific components of the selected remedy include:

- **Munitions Recognition and Safety Training**: Reasonable and prudent precautions should be taken when conducting ground-disturbing or intrusive operations. The Army will provide munitions recognition and safety training, upon request, for any person who will be conducting such activities in the DRO MRA. Munitions recognition and safety training is required for people conducting ground-disturbing or intrusive soil disturbance activities within the 11-Grid Area at depths exceeding 4 feet bgs.
- **Construction Support in the 11-Grid Area**: The Army will provide construction support by UXO-qualified personnel within the 11-Grid Area during soil excavation or movement at depths exceeding 4 feet bgs.
- **Site-Wide Construction Support**: Although the Army does not believe that construction support throughout the entire MRA is necessary based on the results of the DRO MRA RI and Risk Assessment, the City of Del Rey Oaks agreed to implement this requirement, at its expense, through establishment and maintenance of a city ordinance. The City of Del Rey Oaks will provide site-wide construction support by UXO-qualified personnel in compliance with the Excavation Ordinance throughout the remainder of the MRA, as defined in the 2004 Agreement between the City of Del Rey Oaks and DTSC ("the Del Rey Oaks – DTSC Agreement"). Under the agreement, construction support is required for activities that disturb more than 10 cy of soil.
- **Use Restrictions**: A residential use restriction was in effect for the DRO MRA when the property was transferred. The restriction will be modified as follows: the residential use restriction for the central portion of the DRO MRA is no longer required; and the residential use restriction for the remainder (northern and southern portions) of the MRA will be modified to allow for residential use, as appropriate, once DTSC has verified that Residential Protocol (DTSC, 2008a) has been successfully implemented. Any proposal for residential development in the DRO MRA where this restriction applies will be subject to regulatory review. For the purpose of the ROD and the RD/RA Work Plan, residential use includes, but is not limited to, residences, day care facilities that do not have measures to prevent contact with soil, schools for persons under 21 years of age, and hospitals (other than veterinary hospitals).

These above LUC measures are intended to limit the risk associated with MEC that may remain at the DRO MRA.

The performance objectives for the LUCs that are selected as part of the remedy are the following:

- **Munitions recognition and safety training:** (1) to ensure that current land users conducting ground-disturbing or intrusive activities are educated about the possibility of encountering MEC, and (2) to ensure that land users involved in ground-disturbing or intrusive activities stop the activity if MEC are encountered and report the encounter to the appropriate authority. It should be noted that, pursuant to the Del Rey Oaks–DTSC Agreement, no soil disturbance may begin until the Army safety training, or equivalent, has been provided to all construction workers involved in soil disturbance.
- **Construction support:** to ensure that projects where ground-disturbing or intrusive activities will be conducted are coordinated with UXO-qualified personnel so that discoveries of potential MEC are handled appropriately.
- **Restrictions against residential use:** to prevent residential development on the DRO MRA until modifications to residential restrictions are approved by DTSC, with an opportunity to comment by EPA and the Army.

The Army and the City of Del Rey Oaks will maintain these LUCs until EPA and DTSC concur that the site is protective of human health and environment without construction support and munitions recognition and safety training on the basis of: (1) further site evaluation incorporating new information (e.g. limited geophysical mapping, site development); and/or (2) where, using construction support, it is determined that the depth of soil disturbance related to development activities is sufficient to address the uncertainty of MEC remaining in soil, and any MEC found as part of the development are removed.

As part of the five-year review process, the Army or its representatives will evaluate the effectiveness of each of the conditions on soil disturbance activities. If MEC have not been encountered during development, redevelopment, or reuse of an area, the conditions may, with regulatory approval, be modified or terminated.

The regulatory agencies identified the Residential Protocol as a suitable mechanism to terminate the residential use restriction once DTSC has verified successful implementation of the Residential Protocol, which will confirm that the subject area is suitable for residential use. During development activities by the property owner, initial grading of the top layer of soil would be followed by a geophysical investigation, as described in DTSC's Residential Protocol, to confirm that MEC are not present in those areas. Because residential reuse was not part of the designated use at the time the property was transferred from the Army, any costs associated with changing the reuse by implementing this or any other activity will be the reuser's responsibility.

16.2.2 Remedy Implementation

A *Draft Final Remedial Design/Remedial Action Work Plan, Del Rey Oaks Munitions Response Area, Former Fort Ord Del Rey Oaks, California* (ARCADIS, 2010) has been prepared by the City of Del Rey Oaks (the property owner at the time) as a result of the selection of LUCs as a component of the remedy in accordance with the ROD. The purpose of the RD/RA Work Plan is to provide information on how the remedy selected in the ROD (Army, 2008c) will be implemented and maintained. The City of Del Rey Oaks submitted a Draft Final RD/RA Work Plan version to the regulatory agencies for review on July 28, 2010; the document was considered final as of September 16, 2010. The RD/RA Work Plan presents the LUC objectives as described in the ROD and describes remedy implementation actions to be performed in accordance with the ROD to ensure the LUC objectives are met.

In a letter dated August 20, 2010, EPA determined that all remedial actions have been implemented and completed at the Track 2 DRO MRA (EPA, 2010).

For the Track 2 Del Rey Oaks ROD, MRA parcels that were transferred to the City of Del Rey Oaks, FORA received Land Use Covenant Annual Reports completed by City of Del Rey Oaks for the reporting periods July 1, 2016 to June 30, 2019 (FORA, 2017, 2018a, 2018b, and 2019). The reports were submitted by FORA (on behalf of the jurisdiction) pursuant to the requirements within the land use covenants and MOA (DTSC, 2008), to the DTSC. At the time of FORA's dissolution, the responsibility to coordinate and submit the annual LUC inspection reports was acquired by Monterey County. Inspections for fiscal year 2019-2020 (Monterey County Department of Health, 2020) were reported by the City of Del Rey Oaks to Monterey County. The fiscal year 2019-2020 Land Use Covenant Annual Report was submitted by Monterey County to the DTSC. The annual reports summarize an annual inspection and compliance with general use and soil restrictions.

The following information for the DRO MRA was available from the *MRS Site Security Program Annual Reports* for calendar years 2016, 2017, 2018, 2019, and 2020 (Fort Ord BRAC; 2017, 2018, 2019, 2020, and 2021).

- No training was requested from individuals or entities specifically identified as Track 2 Del Rey Oaks parcel recipients or their representatives.
- No notice was received of intrusive actions on Track 2 Del Rey Oaks parcels.

- No MEC incidents were reported on Del Rey Oaks parcels.

No proposals for residential development in the DRO MRA were received. Since the time the property was transferred, a partial termination of the CRUP environmental restriction was granted by the DTSC pursuant to a request made by the City of Del Rey Oaks. On September 17, 2012, the City of Del Rey Oaks and DTSC agreed to *Amendment No. 1 and Partial Termination of Covenant to Restrict Use of Property Environmental Restriction* (City of Del Rey Oaks, 2012) to be consistent with the selected remedy. The partial termination applies to 105 acres in the central portion of the DRO MRA. All other provisions of the covenant remain in full force and effect for the remainder of the property.

16.2.3 System Operations and Maintenance

Long-term management measures comprising a deed notice, CRUPs, annual monitoring and reporting, and five-year review reporting are in effect for the DRO MRA to: (1) warn property owners of potential MEC risks associated with intrusive activities, (2) monitor and report any MEC-related data during development or reuse, and (3) assess and manage information regarding the continued protectiveness of these alternatives over time. No costs associated with these activities have been incurred by the Army during the review period.

16.2.4 Property Transfer

As of September 30, 2021, a total of 324 acres have been transferred. These acreages partially or wholly occupy six parcels that are part of the Track 2 Del Rey Oaks MRA ROD.

Parcels E29a, E29b.1, E31a, E31b, E31c, and E36 were transferred by the Army to FORA in December 2005 (Table 1). In September 2012, the CRUP for the parcels was modified by DTSC to remove the residential use restriction from a portion of the property. The property had been transferred from FORA to the Redevelopment Agency of the City of Del Rey Oaks in March 2006 and subsequently to the City of Del Rey Oaks in January 2012.

16.3 Progress Since the Last Five-Year Review

This section includes the protectiveness determinations and statements from the last Five-Year Review Report, as well as the recommendations from the last Five-Year Review Report, and the current status of those recommendations.

16.3.1 2017 Five-Year Review Protectiveness Statement

The protectiveness statement from the 2017 Five-Year Review Report (Army, 2017) for the DRO MRA stated: "The remedy for the DRO MRA is protective of human health and the environment."

16.3.2 Status of 2017 Five-Year Review Issues and Recommendations

There were no recommendations or follow-up actions reported in the 2017 Five-Year Review Report.

16.4 Del Rey Oaks Munitions Response Area Five-Year Review Process

16.4.1 Document Review

Documents reviewed for this evaluation included, but were not limited to, the *Amendment No. 1 and Partial Termination of Covenant to Restrict Use of Property Environmental Restriction* (City of Del Rey Oaks, 2012), Land Use Covenant Annual Reports, and MRS Security Program Annual Reports. The annual reports generated by the city summarize annual inspections and compliance with general use and soil restrictions. DTSC has reviewed and approved the reports. The references are listed in Appendix A.

16.4.2 Data Review

Data from the Land Use Covenant Annual Reports and MRS Security Program Annual Reports was reviewed to assess the effectiveness of the remedy. The results indicate that the land uses in the subject parcels are consistent with the land use controls that were selected in the DRO MRA ROD.

16.4.3 Site Inspection and Interviews

Site inspections and interviews were not conducted for the DRO MRA site because there were no issues identified and the remedy is protective of human health and the environment. LUCs are maintained by the property owner.

16.5 Technical Assessment

16.5.1 Question A

Is the Remedy functioning as intended by the Decision Documents?

Based on the review of the annual reports, the DRO MRA site is determined to remain safe from any MEC that might be left at the site.

The selected remedy discussed in the Track 2 DRO MRA ROD document provides protection for human health and the environment through implementation of LUCs. The LUCs are functioning as intended to mitigate the risk from MEC that could potentially remain.

LUCs will be maintained by the City of Del Rey Oaks to protect subsequent landowners and future users conducting ground-disturbing or intrusive activities on the property. If residential development is proposed for the remaining area of the DRO MRA where the ROD residential restriction continues to apply, the plans will be subject to regulatory review.

16.5.2 Question B

Are the Exposure Assumptions, Toxicity Data, Cleanup Levels, and Remedial Action Objectives used at the time of remedy selection still valid?

Yes. There have been no changes in the assumptions, toxicity data, or cleanup levels used at the time of the remedy selection. The primary RAOs for the Track 2 DRO MRA reuse areas remain valid. These primary RAOs are: (1) to achieve the EPA's threshold criteria of "Overall Protection of Human Health and the Environment" and (2) "Compliance with ARARs."

16.5.3 Question C

Has any other information come to light that could call into question the Protectiveness of the Remedy?

No new information has been identified that could call the protectiveness of the remedy into question.

16.6 Issues

There are no issues affecting the protectiveness of the Track 2 DRO remedy.

16.7 Recommendations and Follow-Up Actions

No modifications to the LUCs are required based on the results of the inspections and monitoring conducted during this review period.

16.8 Protectiveness Statement

Protective. The remedy at the DRO MRA is protective of human health and the environment.

Remedial actions have been completed at the MRA. Furthermore, protectiveness is assured by long-term management measures including: implementing, monitoring, and enforcing the selected LUCs.

17.0 MRS-34 ROD

The *Final Record of Decision, Track 2 Munitions Response Site 34, Former Fritzche Army Airfield, Former Fort Ord, California* (Army, 2015b) selected no further action (NFA) at MRS-34 regarding MEC. Remedial activity is complete, and subsequent five-year reviews are not required. While not required as part of the remedy, reasonable and prudent precautions should be taken when conducting intrusive operations in this area. Per the 4th Five-Year Review Report (Army, 2017) and the NFA status specified in the ROD, no subsequent five-year reviews are necessary for the site.

18.0 BLM AREA B AND MRS-16, TRACK 2 ROD

This section presents background information on BLM Area B and MRS-16; provides a summary of remedial actions; identifies any issues related to the protectiveness of the remedies based on the review; presents recommendations and follow-up actions, if needed, to address any issues identified during the review; and provides a statement regarding protectiveness of the site remedies. A glossary of MMRP terms is provided in Appendix D.

18.1 BLM Area B and MRS-16 Background

BLM Area B and MRS-16 were evaluated as Track 2 sites. Track 2 sites are those sites where MEC was found and a MEC removal was conducted. The *Final Revision 2, Track 2 Remedial Investigation/Feasibility Study, BLM Area B and MRS-16* (BLM Area B and MRS-16 RI/FS; Gilbane, 2015) provides a comprehensive evaluation of BLM Area B and MRS-16 with regard to potential MEC risks consistent with the CERCLA process. MRS-16 was previously addressed through the IA Sites MR ROD (Army, 2002a) (see Section 14), and has been included in the BLM Area B and MRS-16 RI/FS to facilitate completion of the CERCLA documentation process.

BLM Area B and MRS-16, as depicted on Plate 8, are located in the central portion of the former Fort Ord. BLM Area B comprises 1,597 acres and is located north and east of the historical Impact Area. MRS-16 is located along the southern boundary of BLM Area B and is approximately 81 acres. Both BLM Area B and MRS-16 are designated as habitat reserve and are within the Fort Ord National Monument. The majority of the property within BLM Area B was transferred to BLM in 1996, as described in *Memorandum of Understanding Between the U.S. Army and U.S. Department of the Interior, Bureau of Land Management* (Army, 1995b) and the *Letter of Transfer, Portion of Former Fort Ord, from the Department of the Army to the Department of the Interior* (Army, 1996a). The portion of BLM Area B that was transferred to BLM is currently open to public access, for recreational uses such as hiking, bicycling, and horseback riding. These uses have been supported safely with past and current measures including munitions responses and public explosives safety information and education. The Army and BLM have been and will continue to coordinate actions to promote MEC safety on an ongoing basis. Specific measures include signs/notices, MEC incident reporting procedures, and munitions recognition and safety training.

Investigations and removal actions performed prior to the development of the RI/FS identified historical use of BLM Area B and MRS-16 for various close combat and weapons training purposes, including use of machine guns, mortars, and shoulder-launched projectiles. To evaluate the potential presence of MEC, BLM Area B was subdivided into eight sub-areas based on historic training uses and the quality, types, and depths to which previous munitions responses were conducted in each area.

Sub-area B-1, which is approximately 110 acres in the northwestern portion of BLM Area B, includes the northern portion of MRS-56. Live-fire training in the MRS-56 portion may have included the use of machine guns, rifle grenades, smoke grenades, and shoulder-launched projectiles. Sub-area B-1 has been traversed by visual and technology-aided site walk investigations and transects using digital geophysical instruments. These site walks, while extensive, were largely limited to existing trails. Intrusive investigation of anomalies based on transect data was conducted, and munitions debris (MD) items were found. Of the munitions-related items previously recovered and evaluated in sub-are B-1, only one (a ground illumination signal) was determined to be MEC.

Sub-area B-2, which is approximately 143 acres, includes the southern portion of MRS-10B. Training activities in sub-area B-2 included bivouac and maneuver training. Interview results provided in the Archives Search Report (ASR) indicated that firing points for shoulder launched projectiles and rifle grenades may have

been located in sub-area B-2; however, there was no physical evidence that this training occurred in sub-area B-2. After prescribed burn, SiteStats/GridStats sampling (an investigation of anomalies) was conducted within sub-area B-2. During this investigation, two munitions that were evaluated and determined to be MEC (one grenade fuze and one pyrotechnic) were encountered and removed. MEC was not encountered during site walks conducted within sub-area B-2. However, in 2000, the BLM encountered a grenade fuze that was evaluated and determined to be MEC (UXO). The three MEC items found in sub-area B-2 were determined to be pyrotechnic or practice items. This is consistent with the use of this area for bivouac and maneuver training. In 2011 and 2012, BLM conducted habitat restoration in 12 acres with no incidental munitions reported.

Sub-area B-2A, which is approximately 74 acres, includes MRS-19, MRS-48, and a portion of MRS-10B. Hand grenade training was reported to have taken place in MRS-19. Hand grenade and rifle grenade training occurred in MRS-48. During sampling (investigation of anomalies in selected grids) conducted in MRS-19 and SiteStats/GridStats sampling (investigation of anomalies) in MRS-48, several munitions were encountered and evaluated. Of these, ten were determined to be MEC. (Four of the MEC were noted as Insufficient Data [ISD] items.) In addition, two of the munitions encountered in the southern portion of sub-area B-2A (within MRS-10B) were determined to be MEC (one of which was ISD.) The MEC items recovered from sub-area B-2A consisted mostly of hand grenades (fragmentation), rifle grenades (smoke), and illumination-related items. Additionally, MD from 4.2-inch white phosphorous mortars was encountered in MRS-48.

Sub-area B-3, which is approximately 718 acres, includes MRS-09, MRSs-27G and 27H, MRS-53BLM, MRS-41, MRS-54, the southern portion of MRS-56, and the northern portion of MRS-58. Sampling (investigation of anomalies in selected grids) was conducted in MRS-09 and MRS-53BLM. MEC removed from adjacent areas west (in the Parker Flats MRA), east (in MRS-10A), and northeast (in the Future East Garrison MRA) of sub-area B-3 indicate a potential presence of MEC in sub-area B-3; however, the potential density is unknown because of limited data. Visual and technology-aided site walks were conducted along trails, existing roads, and paths. Investigations in sub-area B-3 resulted in recovery of munitions that were encountered, evaluated and determined to be MEC: two items (60mm high explosive [HE] mortar and 81mm practice mortar) during sampling at MRS-09; a 37mm projectile during sampling in MRS-53BLM; and a 2.36-inch rocket (high explosive anti-tank [HEAT], M6) during the site assessment. Investigation activities conducted in sub-area B-3 were limited because of lack of historical evidence of training activities in the sub-area. Additionally, dense vegetation limited site walks to accessible areas. Thus, they do not represent statistically-based transects or grid layouts, and the items found during these investigations may not represent the density of MEC potentially present.

Sub-area B-3A, which is approximately 62 acres, consists of the southern portion of MRS-58. Interviews conducted during preparation of the ASR indicated this area may have been used as a target area for live-fire for shoulder-launched projectiles and rifle grenades, but munitions of that type were not encountered. This sub-area was traversed by visual and technology-aided site walk investigations. MEC was not encountered within sub-area B-3A.

Sub-area B-4, which is approximately 345 acres, consists of MRS-10A and the northern portion of MRS-10B where a removal action was conducted. A 1945 training map identifies MRS-10A to be within "Combat Range 2." The majority of sub-area B-4 is within the Known Distance Range that has been described as having an "advancement line" associated with the firing of mortars along with the advancement of troops. A surface removal was conducted in the southern portion of MRS-10A. A subsurface removal to one foot depth was conducted in the northern portions of MRS-10A and MRS-10B, and the southeastern portion of MRS-10A. More than 400 munitions were recovered that were determined to be MEC. Most of these items were

60mm (practice, illumination, and HE), 81mm (practice and HE), and 3-inch Stokes (practice) mortar projectiles.

Sub-area B-5, which is approximately 43 acres, consists of MRS-12 and MRS-21. According to interviews conducted during the ASR, MRS-12 was "used as a firing point and target area for mortar projectiles, rifle grenades, and shoulder-launched projectiles." In addition to sampling, a surface removal, and a subsurface removal to a depth of one foot were conducted in MRS-12. MRS-21 was identified in the ASR as potentially being a "dumping ground" for munitions. A subsurface removal to a depth of four feet was conducted over the western portion of MRS-21. A surface removal up to the edge of Mudhen Lake at its lowest level, and a subsurface removal to one-foot depth along trails over the eastern portion of MRS-21, were conducted. During these response actions 66 munitions that were determined to be MEC were encountered and removed from MRS-21. Within MRS-21, multiple munitions such as flares and fuzes were found at single locations on the surface. At MRS-12, 27 munitions that were encountered, evaluated and determined to be MEC were removed. These munitions included smoke hand grenades, a white phosphorus rifle grenade, and flares and illumination munitions.

Sub-area B-6, which is approximately 100 acres, consists of MRS-14D. Live-fire training with 14.5mm and 22mm subcaliber munitions was conducted at this MRS. Munitions responses included sampling (investigation of anomalies in selected grids), a surface removal, and a subsurface removal to a depth of four feet. The removal action included expansion grids to the south and east into MRSs-14B and 14E. These expansion grids are included in sub-area B-6. Approximately 24,000 munitions, the bulk of which were 14.5mm and 22mm subcaliber items, were recovered, evaluated and determined to be MEC. An additional 20,000 items that were removed are considered ISD.

MRS-16 is located south of and contiguous with BLM Area B. The site was initially identified as a World War II era rocket range and a "bazooka practice" area. Practice and HEAT rockets and rifle grenades were used in the 1940s and possibly 1950s. The site was later used for a portion of time as an anti-armor training area. An interim remedial action was conducted at MRS-16 between December 2006 and June 2008 based on an Interim Action ROD (Army, 2002a). The interim remedial action for MRS-16 and the post-remediation risk assessment are described in the Interim Action RA Report (Shaw, 2009b). A subsurface removal to the depth of instrument detection was completed as planned, with the exception of an approximately 5-acre area in the western portion of MRS-16 referred to as the "saturated area." A subsurface removal using analog detection technology was conducted on a portion of this area, and several trenches were excavated to further investigate the area. Based on the findings of the interim remedial action in the "saturated area," subsurface MEC could remain present. At the completion of the interim action, LUCs were recommended for the "saturated area."

18.2 Remedial Actions

The Track 2 BLM Area B and MRS-16 ROD was signed in March 2017. The primary RAO for BLM Area B and MRS-16 is to "support the designated use of the property as a habitat reserve as described in the HMP with public access as part of the Fort Ord National Monument".

18.2.1 Remedy Selection

Four remedial alternatives were evaluated in the BLM Area B and MRS-16 RI/FS (Gilbane, 2015):

- Alternative 1: No further action
- Alternative 2: LUCs

- Alternative 3: Technology-aided surface removal, with subsurface removal in selected areas, and LUCs
- Alternative 4: Subsurface removal.

The Proposed Plan for BLM Area B and MRS-16 (Army, 2015c) was made available for a 30-day public comment period from April 8, 2015 to May 8, 2015. The Proposed Plan presented the preferred alternatives of Alternative 2 (LUCs) for MRS-16 and BLM Area B sub-areas B-1, B-2, B-3A, B-5, and B-6; and Alternative 3 (technology-aided surface removal, with subsurface removal in selected areas, and LUCs) for BLM Area B sub-areas B-2A and B-3. The final ROD was signed on May 3, 2017 (Army, 2017b).

The selected remedies include the components listed below.

Alternative 2 – LUCs in MRS-16 and BLM Area B Sub-Areas B-1, B-2, B-3A, B-4, B-5, and B-6. The selected remedy includes:

- Public education. Such education will be based upon the Army's 3Rs (Recognize, Retreat, Report) Explosives Safety Education Program and include the provision of 3Rs educational materials in brochures and at kiosks, and presented during public presentations and safety briefings. It will also encourage people to adhere to access management guidelines and may include trail markings, signage, or other engineering controls, where warranted;
- Munitions recognition and safety training for people who conduct ground-disturbing or intrusive activities;
- Provision of construction support by UXO-qualified personnel for ground-disturbing or intrusive activities; and
- The prohibition against uses of the property that are inconsistent with the HMP, including but not limited to residential, school, and commercial/industrial development.

Alternative 3 – Technology-Aided Surface Removal, with Subsurface Removal in Selected Areas, and LUCs for BLM Area B Sub-Areas B-2A and B-3. The selected remedy includes:

- Vegetation clearance using prescribed burning, and/or mechanical and manual cutting, depending on the vegetation type and removal requirements, to allow munitions response workers to conduct removal activities safely.
- Technology-aided surface removal and detonation (with engineering controls) of munitions evaluated as possible MEC.
- DGM in surface removal areas to provide a record of remaining anomalies to assist BLM in planning future ground-disturbance or intrusive (subsurface) activities (areas inaccessible to DGM equipment will be documented).
- Subsurface removal in selected areas that were identified in coordination with BLM to address the risk associated with specific reuse.
- Implementation of LUCs: public education; munitions recognition and safety training for people who conduct ground-disturbing or intrusive activities; the provision of construction support by UXO-qualified personnel for ground-disturbing or intrusive activities; Prohibition against uses of the property that are inconsistent with the HMP, including by not limited to residential, school, and commercial/industrial development.
- Habitat monitoring within areas where a subsurface removal or other disturbances (e.g., mechanical clearance of vegetation) were conducted (HMP species and habitat data collection, management, evaluation, and reporting).

Long-Term Management Measures that will be implemented as part of the LUC implementation for BLM Area B and MRS-16 include a land transfer document that outlines land use restrictions, and a requirement for both annual monitoring and five-year review reporting.

LUCs will be maintained until the Army, EPA, and DTSC concur that the site is protective of human health and the environment from the explosives safety risks posed by MEC that may remain present without the need for LUCs. This decision will be based on:

1) Post-remediation site evaluation incorporating new information (e.g., geophysical mapping); or
2) Where removal to depth has adequately addressed the potential of MEC remaining in the subsurface.

18.2.2 Remedy Implementation

The *Final Work Plan, Remedial Design (RD)/Remedial Action (RA) Track 2 Bureau of Land Management Area B and Munitions Response Site 16, Former Fort Ord, California* (KEMRON, 2017b) is intended to describe the implementation of the selected remedial actions identified in the ROD for MEC in BLM Area B and MRS-16 by specifying the general requirements to accomplish prescribed burning/vegetation removal, technology-aided surface MEC remediation, and limited subsurface MEC remediation. The RD/RA Work Plan also discussed implementation of munitions recognition and safety training, construction support, and public education.

Summary of Planned and/or Implemented ICs

Media, engineered controls, and areas that do not support UU/UE based on current conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Soil	Yes	Public education Munitions Recognition and Safety Training Construction Support/UXO-Qualified Personnel Support Prohibited Reuses and Activities or Restrictions	F1.1.1 (partial) F1.2 (partial) F1.3	Overall protection of human health	Track 2 BLM Area B and MRS 16 RD/RA Work Plan (KEMRON, 2017b) Interim LUCIP Update, Track 2 BLM Area B and MRS-16 (Chenega Tri-Services, 2020)

The Army developed the *Final Interim Land Use Control Implementation Plan, Track 2 Bureau of Land Management Area B and Munitions Response Site 16, Former Fort Ord, California (*2018 Interim LUCIP; KEMRON, 2018c) to describe the procedures for the Army to implement the LUCs required by the ROD during the interim period while remedial action was underway in portions of BLM Area B. The 2018 Interim LUCIP was updated in 2020 (Chenega Tri-Services, 2020) to describe how the Fort Ord BRAC Office will implement the LUCs during the period of reduction in project personnel starting in April 2020.

The public education requirement is currently being implemented by Fort Ord BRAC by the following: 1) distribution of BLM Area B and MRS-16 factsheets at community information meetings and the Fort Ord Cleanup website; 2) use of kiosks at frequency-used recreational access points surrounding BLM Area B and MRS-16. Information posted at these kiosks include warnings regarding the potential presence of MEC, the Army's 3Rs of explosive safety, and a message encouraging recreational users to stay on designated roads and

trails; 3) installation of signs and other physical access management measures; 4) community information events.

The munitions recognition and safety training requirement is currently being implemented by the Army by coordinating planned ground-disturbing activities with BLM. The Fort Ord BRAC office maintains a record of training provided and summarizes activities in the LUC Annual Report Forms.

Construction support is required for ground-disturbing or intrusive activities. The Fort Ord BRAC Office provides construction support for planned ground-disturbing or intrusive activities within BLM Area B and MRS-16 that are authorized by BLM and/or Fort Ord BRAC. Construction support activities are summarized in the LUC Annual Report Forms.

Uses of the property that are inconsistent with the HMP (e.g., residential, school, and commercial/industrial development) are prohibited. The Army will place the prohibition in a property transfer document that will transfer the remaining lands to BLM following the completion of the remedial action. The land use restriction applicable to BLM Area B and MRS-16 will be instituted at that time.

In order to accomplish the remedial action, BLM Area B sub-areas B-2A and B-3 were divided into seven units utilizing existing fuel breaks and roads to achieve a defensible size burn:

- Unit A (Burn Unit)
- Unit B (Burn Unit)
- Unit B-2A (Cut Unit)
- Unit B-3E (Cut Unit)
- Unit B-3E-NE (Cut Unit)
- Unit B-3W (Cut Unit)
- Unit C (Burn Unit)

Burn units are defined by drivable roads for burn containment purposes, and could include areas outside sub-areas B-2A and B-3. *Final Site-Specific Work Plan, Munitions and Explosives of Concern Remedial Action, BLM Area B, Former Fort Ord, California* (KEMRON, 2017c) describes the remedial action areas, remedial work units, technical approaches to the remedial actions, and site security measures that will be implemented to maintain public safety during the remedial action. The remedial action was initiated in May 2017 shortly after the ROD signature.

During the period of this Five-Year Review, remedial actions were completed in Unit B, Unit B-2A, Unit B-3E, Unit B-3E-NE, Unit B-3W, and Unit C; and designated roads and trails, as described in *Draft Final BLM Area B, Remedial Action Report (2017-2019), Former Fort Ord, California* (KEMRON, 2020p). Prescribed burns were conducted in Units B and C in 2017 in accordance with the *Final, BLM Area B – Units A, B, and C Prescribed Burn Plan, Former Fort Ord, California* (POMFD, 2017). Results of the prescribed burns are reported in the *Final Prescribed Burn 2017 BLM Area B – Units B and C After Action Report, Former Fort Ord, Monterey County, California* (Chenega, 2018). Unit A was prepared for prescribed burning in 2018, however, the required conditions did not occur, and the burn was not conducted.

Vegetation clearance, surface MEC removal, and DGM were completed in the units. Subsurface MEC removals were conducted in the trails and roads, and other areas identified jointly by the Army and BLM. A geophysical anomaly investigation based on DGM data collected in 2016 was performed in vernal ponds identified in BLM Area B as described in the *BLM Area B Track 2 Ponds Geophysical Anomaly Investigation*

Technical Information Paper, Former Fort Ord, California (BLM Area B Vernal Ponds TIP; KEMRON, 2020k). These and other activities conducted at BLM Area B and MRS-16 are briefly described below.

Sub-area B-3: Unit A

Unit A is located in the north-central area of BLM Area B. The BLM Area B SSWP (KEMRON, 2017c) identified Unit A as 324 acres; however, the northern boundary was subsequently revised to an alternative configuration that reduced the burn size and avoided impacts to the character of Trail 59. The total acreage of Unit A was revised to approximately 305 acres. A prescribed burn was planned in Unit A in 2018; however, the required combination of weather conditions and other factors did not occur, and the burn was postponed.

Remedial actions completed to date in Unit A include vegetation clearance and technology-aided surface MEC removal in the burn containment areas and subsurface MEC removal within the interior of Unit A on existing trails. This work is detailed in *Bureau of Land Management Area B, Unit A, Munitions and Explosives of Concern, Remedial Action Technical Information Paper, Former Fort Ord, California* (KEMRON, 2020l). Completion of the remaining remedial action within Unit A is pending a prescribed burn during a future burn season.

Sub-area B-3: Units B and C

Unit B is located in the central portion of BLM Area B and totals approximately 266 acres. Unit C is located on the western edge of BLM Area B and totals approximately 143 acres. A prescribed burn was conducted in October 2017, and the results were documented in the *Final Prescribed Burn 2017 BLM Area B – Units B and C After Action Report, Former Fort Ord, California* (Chenega, 2018). Post-burn vegetation clearance was completed between November 2017 and January 2018 followed by surface removal and DGM.

On October 5, 2017, the Army conducted prescribed burns in BLM Area B, Units B and C. The purpose of burning was to clear vegetation to facilitate removal of MEC. Other goals for the operation were: conduct the burn with no injuries to personnel or the surrounding communities, minimize smoke impacts, hold the fire within containment lines, and minimize damage to natural resources and to rare, threatened, and endangered species. Vegetation clearance objectives were met. No injuries were reported, and no evidence of adverse impacts to special status plant or wildlife species was observed. The majority of the smoke lofted up to 2,500 feet above ground level (agl). The Army deployed seven air monitoring stations located in representative public areas and measured fine particulate concentrations. The Particulate Matter (PM2.5) 24-hour time-weighted averages for each station were below the 35 micrograms per cubic meter (µg/m3) screening level. The Army conducted public outreach to inform the community when the burn would occur. Residents were encouraged to register for direct notifications. Over 1,200 individuals were notified of mobilization, ignitions, and completion of the burns via automated phone calls and text messages. Because BLM Area B was usually open for recreational access and there were multiple public entry points, the Army worked with law enforcement to secure the public safety exclusion zone during the prescribed burn operations (Chenega, 2018).

The *Bureau of Land Management Area B, Unit B, Munitions and Explosives of Concern Remedial Action, Technical Memorandum, Former Fort Ord, California* (KEMRON, 2020m) details the remedial action in Unit B. During the BLM-Army joint inspection, the BLM identified segments of existing trails they planned to realign, and segments to be abandoned as result of trial realignment. The Army conducted subsurface removal along 12-ft wide paths of realigned trails within Unit B. Based on an evaluation of work completed to date, no additional subsurface MEC removal was recommended.

The *Bureau of Land Management Area B, Unit C, Munitions and Explosives of Concern Remedial Action, Technical Memorandum, Former Fort Ord, California* (KEMRON, 2019j) details the remedial action in Unit C. During the BLM-Army joint inspection, the BLM identified erosion issues along the existing Trail 70 and identified a new Trail 70 alignment. The Unit C Technical Memorandum recommended subsurface clearance in these identified areas. The Army completed a 50-foot wide subsurface clearance within the Former Trail 70

and a 12-foot wide subsurface removal within the new Trail 70 alignment. Based on evaluation of work completed, no additional subsurface MEC removal was recommended.

Sub-area B-2A: Unit B-2A

Unit B-2A is located on the eastern border of BLM Area B and totals approximately 72 acres. The Remedial Action in Unit B-2A was conducted in a phased approach to continually assess the possibility of maintaining the vegetation buffer around Trails 61 and 62. To facilitate this phased approached, remedial actions in Unit B-2A were subdivided into three phases: 1) B-2A Primary Area (approximately 61 acres); 2) Trails 61 and 62 (approximately 1 acre); and 3) Trail Buffer (approximately 10 acres). A 4.2-inch screening smoke mortar projectile was recovered during surface clearance operations in the B-2A Primary Area. A risk reduction utilizing advanced geophysical classification (AGC) was conducted based on the potential for 4.2-inch mortars with unknown filler to remain in the shallow subsurface.

The *Bureau of Land Management Area B, Unit B-2A, Munitions and Explosives of Concern Remedial Action, Technical Memorandum, Former Fort Ord, California* (KEMRON, 2020j) details the remedial action in Unit B-2A. During the BLM-Army joint inspection, the BLM identified habitat restoration areas in Unit B-2A. Based on an evaluation of work completed to date, the USACE recommended analog subsurface removal to 24-inch depth in the restoration footprint to support the planned BLM activities. Analog removal to depth was conducted in the restoration areas to ensure future intrusive work by BLM would not require additional clearance. Based on evaluation of work completed, no additional subsurface removal was recommended beyond the habitat restoration areas.

Sub-area B-3: Unit B-3E

Unit B-3E is located in the northeastern portion of BLM Area B and totals approximately 92 acres. The *Bureau of Land Management Area B, Unit B-3E, Munitions and Explosives of Concern Remedial Action, Technical Memorandum, Former Fort Ord, California* (KEMRON, 2018i) details the remedial action in Unit B-3E. During the BLM-Army joint inspection, the BLM identified segments of existing trails they planned to realign, and segments to be abandoned as a result of trail realignment. The Unit B-3E Technical Memorandum recommended subsurface removal in these identified areas. The Army completed a 12-foot wide subsurface clearance within the new trail alignments. Based on evaluation of work completed, no additional subsurface MEC removal was recommended.

Sub-area B-3: Unit B-3E-NE

Unit B-3E-NE is located on the northeastern border of BLM Area B and totals approximately 25.35 acres. The *Bureau of Land Management Area B, Unit B-3E-NE, Munitions and Explosives of Concern Remedial Action, Technical Memorandum, Former Fort Ord, California* (KEMRON, 2018h) details the remedial action in Unit B-3E-NE. During the BLM-Army joint inspection, the BLM identified segments of existing trails they planned to realign, and segments to be abandoned as a result of trail realignment. The Unit B-3E-NE Technical Memorandum recommended subsurface clearance in these identified areas. The Army completed a 12-foot wide subsurface clearance within the identified trail alignments. Based on evaluation of work completed, no additional subsurface MEC removal was recommended.

Sub-area B-3: Unit B-3W

Unit B-3W is located on the southwestern border of BLM Area B and totals approximately 63 acres. The *Bureau of Land Management Area B, Unit B-3W, Munitions and Explosives of Concern Remedial Action, Technical Memorandum, Former Fort Ord, California* (KEMRON, 2019i) details the remedial action within Unit B-3W. During the BLM-Army joint inspection, the BLM identified a proposed new trail within Unit B-3W. Additionally, the BLM requested a 100-foot wide buffer along the northwestern boundary of the unit, as the property contiguous to Unit B-3W is a designated development parcel. The Unit B-3W Technical Memorandum recommended subsurface removal in the identified areas. The Army completed a subsurface MEC removal to depth within the 100-foot buffer area and a 12-foot wide subsurface removal within the

identified trail alignments. Based on evaluation of work completed, no additional subsurface MEC removal was recommended.

18.2.3 System Operations and Maintenance

The operations and maintenance activities at BLM Area B and MRS-16 involve annual monitoring and reporting regarding the implementation and effectiveness of LUCs at BLM Area B and MRS-16. Data collected during annual monitoring and incident reports for 2017 through 2020 are documented in the annual monitoring reports reviewed as part of this Five-Year Review (Fort Ord BRAC, 2018b, 2019b, 2020b, and 2021b).

As part of the implementation of public education measures, eight information kiosks were installed in May 2017. The kiosks were installed in coordination with BLM at frequently used recreational access points surrounding BLM Area B and MRS-16. Information posted on the kiosks include the potential for MEC to be present, and actions to take should a suspect munitions item be encountered. It also includes the Army's 3Rs of explosive safety and contains a message to encourage recreational users to stay on designated roads and trails. BRAC staff regularly visit the kiosks and update the information as needed. A publicly available website (www.fortordcleanup.com) is maintained and provides a background on the site history, response actions conducted, and the potential for MEC to be present. The "Munitions Safety" page provides information about the Army's 3Rs of explosive safety, the availability of munitions recognition and safety training, and procedures for reporting incidental munitions encounters. BRAC staff regularly provide public education at local community events.

The Army coordinates with BLM to provide munitions recognition and safety training to BLM and anyone involved in intrusive activities on the BLM Area B and MRS-16 property. Records of annual training are maintained by the Army as part of the MRS Security Program.

In coordination with BLM, the Army has implemented a program to review planned ground-disturbing activities and provide appropriate level of construction support. In 2017 the Ground-Disturbing or Intrusive Activity Information Form was developed as a communication tool to determine the appropriate level of construction support needed for all planned ground-disturbing or intrusive activities within BLM Area B and MRS-16.

As part of the MRS Security Program, the Army collects information on reports of incidental munitions encounters and trespassing. The information is compiled in MRS Security Program annual reports. Annual reports for 2017 through 2020 were reviewed as part of the Five-Year Review (Fort Ord BRAC, 2018, 2019, 2020, and 2021). Based on incidents of finding munitions-related items and discoveries of trespasses, corrective action recommendations were made in each of the annual reports for subsequent implementations.

MEC Incidents (reports of munitions encounters):

- There was one reported incidental munitions encounter in BLM Area B and MRS-16 reported in 2017. The report was determined to be MD.
- There was one reported incidental munitions encounter in BLM Area B and MRS-16 reported in 2018. There report was determined to be MD. This was also recorded as a trespass incident.
- There was one reported incidental munitions encounter in BLM Area B and MRS-16 reported in 2019. The report was determined to be MD.
- There were no reported incidental munitions encounters in BLM Area B and MRS-16 reported in 2020.

All reported MEC incidents were initiated using appropriate reporting systems and all items were disposed of in accordance with explosives safety standards and MRS Security Program guidance.

Within the Fort Ord National Monument, BLM's public use rules apply and are enforced by BLM. During the remedial action field work, the Army enclosed work areas with temporary fencing, and a breach or tampering of the temporary fence constituted a trespassing incident. Incidents were designated as trespass or evidence of trespass. A trespass incident occurred when unauthorized personnel gained access to a restricted MRS or other restricted area contrary to appropriate postings. Evidence of trespass was the observation of evidence of the passage of persons beyond an appropriately posted boundary.

In 2017, trespassing incident reporting system was updated to accommodate the munitions remediation work in BLM Area B. From 2017-2018, trespass incidents were categorized as:

a) Minor trespassing: When there was evidence of the passage of persons beyond an appropriately posted boundary, but no persons are seen in the act and there was no damage or theft resulting from the incident.

b) Major trespassing: When an unauthorized person gained access to a restricted MRS or other restricted area contrary to appropriate postings and was discovered in the act; or when evidence of the passage of persons beyond an appropriately posted boundary was significant enough to warrant a police report, as in the case of equipment damage or theft.

In 2019, the categorization of trespass incidents was modified to differentiate between higher and lower risk incidents. Trespass incidents are categorized as:

a) Minor trespassing: Incidents that are unlikely to result in explosive hazard exposure. Example: trespass on roads that have undergone subsurface MEC removal, where there is no evidence of the trespasser engaging in ground disturbing activities.

b) Major trespassing: Incidents that are more likely to result in explosive hazard exposure. Example: incidents where trespassers engaged in ground disturbing activities in areas that have undergone surface MEC removal.

Reports of trespassing and evidence of trespassing incidents are compiled in the MRS Security Program annual reports. Annual reports for 2017 through 2020 were reviewed as part of the Five-Year Review.

Trespass Incidents:

- Two major trespass incidents were reported in BLM Area B in 2017. The trespass incidents were attributed to increased interest in the new remediation work being done in BLM Area B and MRS-16, an area that has historically been open to the public. Both incidents involved unauthorized persons who disregarded roadblocks, fences, and security guards and gained access to a fenced work area or other restricted area contrary to appropriate postings. One of the incidents ended in citation, conviction, and a fine for the individual.
- One major trespass incident and four minor trespass incidents were reported in BLM Area B and MRS-16 in 2018. The major trespass incident involved two men driving a vehicle and firing a shotgun in BLM Area B in the vicinity of UXO teams. Law enforcement was contacted. No contact was made with the individuals and no citations were issued. No injuries were reported. One of the minor trespass incidents involved a trespasser using a metal detector to "treasure hunt" in the area. Several holes had been dug and various metallic items had been removed from the ground and laid out neatly. One of the items was MD.

- Twelve minor trespass incidents were reported in BLM Area B and MRS-16 in 2019. The incidents were primarily related to temporary closures of munitions response work areas. Outreach materials informed recreational users that temporary trail closures would end as soon as field work concluded in specific units. It was noted that reopening authorized routes alleviates the demand and reduces unauthorized access.
- Five minor trespass incidents were reported in BLM Area B and MRS-16 in 2020. The incidents were primarily related to trails where public use had been discontinued by BLM. In early 2020 BRAC initiated the "field check" program to continue regular presence of project personnel to deter unauthorized activities and to detect evidence of trespassing. Portions of BLM Area B and MRS-16 were visited one to two times per week by BRAC personnel (in addition to BLM's activities in the property).

An analysis of the trespass incident reports indicates that the most common evidence of trespass involved foot or bicycle tracks.

Remedial actions are on-going in BLM Area B and MRS-16 and no post-remediation O&M costs have been incurred.

18.2.4 Property Transfer

The majority of the property within BLM Area B and MRS-16 (parcel F1.3 and portions of parcels F1.1.1. and F1.2) was transferred to the BLM in 1996 as a habitat reserve as described in the Memorandum of Understanding (Army, 1995b) and Letter of Transfer from the Army to the Department of Interior (Army, 1996a). The remainder of BLM Area B property is planned for future transfer to the BLM.

18.3 Progress Since the Last Five-Year Review

This section includes the protectiveness determinations and statements from the last Five-Year Review Report, as well as the recommendations from the last Five-Year Review Report, and the current status of those recommendations.

18.3.1 2017 Five-Year Review Protectiveness Statement

The protectiveness statement from the 2017 Five-Year Review Report (Army, 2017) for BLM Area B and MRS-16 state:

"The remedy for BLM Area B and MRS-16 is expected to be protective of human health and the environment upon implementation."

18.3.2 Status of 2017 Five-Year Review Issues and Recommendations

Issues from Previous Review	Recommendations/ Follow-up Actions	Party Responsible	Milestone Date	Action Taken and Outcome	Date of Action
A Final RD/RA Work Plan is still needed for BLM Area B and MRS-16 to complete the CERCLA process.	Develop RD/RA Work Plan for BLM Area B and MRS-16 following the CERCLA process.	Army	October 2017	RD/RA Work Plan complete	October 2017

18.4 BLM Area B and MRS-16 Five-Year Review Process

18.4.1 Document Review

Documents reviewed in this evaluation included the Track 2 BLM Area B and MRS-16 ROD, RD/RA Work Plan, site-specific Work Plans, site-specific Technical Memoranda, BLM Area B Remedial Action Report (2017-2019), and MRS Security Program and LUC Annual Reports for the years since the last Five-Year Review. The references are listed in Appendix A.

18.4.2 Data Review

Data from the site-specific Technical Memoranda, MRS Security Program, and LUC Annual Reports was reviewed to assess the effectiveness of the remedy at BLM Area B and MRS-16.

18.4.3 Site Inspection and Interviews

A site inspection was conducted at BLM Area B and MRS-16 on July 21-22, 2021 to assess the effectiveness of the access management measures in place. Signs, informational kiosks, and public education materials were observed to be in good order. LUC monitoring and maintenance are documented in the MRS Security Program and LUC Annual Reports.

A copy of the Site Inspection Form and associated photographs are presented in Appendix B, Field Documentation of Site Inspections and Interviews.

18.5 Technical Assessment

18.5.1 Question A

Is the Remedy functioning as intended by the Decision Documents?

The selected remedy has been conducted at BLM Area B and MRS-16, with the exception of Unit A where completion of remedial action is pending a future prescribed burn. In the areas where the remedy has been implemented, it is functioning as intended. LUCs will be maintained until the Army, EPA, and DTSC concur that the site is protective of human health and the environment from the explosives safety risks posed by MEC that may remain present with a need for LUCs.

18.5.2 Question B

Are the Exposure Assumptions, Toxicity Data, Cleanup Levels, and Remedial Action Objectives used at the time of remedy selection still valid?

Yes. There have been no changes in the assumptions, toxicity data, or cleanup levels used at the time of the remedy selection. The primary RAO for the Track 2 BLM Area B and MRS-16 reuse areas remains valid. The primary RAO is to support the designated use of the property as a habitat reserve as described in the HMP with public access as part of the Fort Ord National Monument.

18.5.3 Question C

Has any other information come to light that could call into question the Protectiveness of the Remedy?

No new information has been identified that could call the protectiveness of the remedy into question.

18.6 Issues

There are no issues affecting the protectiveness of the Track 2 BLM Area B and MRS-16 remedy.

18.7 Recommendations and Follow-up Actions

Recommendations for BLM Area B and MRS-16 are to continue implementation of the MRS Security Program and LUC annual reporting.

18.8 Protectiveness Statement

Protective in the short-term. The remedy for BLM Area B and MRS-16 currently protects human health and the environment because the selected remedy has been conducted at BLM Area B and MRS-16, with the exception of Unit A where completion of remedial action is pending a future prescribed burn. In the areas where the remedy has been implemented, it is functioning as intended. LUCs will be maintained until the Army, EPA, and DTSC concur that the site is protective of human health and the environment from the explosives safety risks posed by MEC that may remain present with a need for LUCs. However, in order for the remedy to be protective in the long-term, the remedy at Unit A will need to be fully implemented.

19.0 ESCA GROUP 1 ROD

This section provides background information on and status of the ESCA Group 1 Areas and presents recommendations and follow-up actions, if needed, to address any issues identified during the review. Record of Decision Group 1 Seaside and Parker Flats (Phase II) Munitions Response Areas, Former Fort Ord, California (Group 1 ROD) was signed on September 25, 2018 (Army, 2018c).

The ESCA Group 1 Areas include the Seaside and Parker Flats MRAs. The Parker Flats MRA has been further divided into two areas by FORA: Parker Flats Phase I and Parker Flats Phase II. The Army finalized a ROD for the Parker Flats MRA Phase I area (Army, 2008a). Therefore, the Parker Flats MRA Phase I area is addressed in Section 13.0, Parker Flats MRA Track 2 ROD, of this report.

This section presents background information on the *Final Group 1 Remedial Investigation/Feasibility Study, Seaside and Parker Flats (Phase II) Munitions Response Areas, Former Fort Ord, Monterey County, California* (Final Group 1 RI/FS Report; ESCA RP Team, 2017d). The Final Group 1 RI/FS Report is based on the evaluation of previous work conducted for the Group 1 MRAs in accordance with the *Final Group 1 Remedial Investigation/Feasibility Study Work Plan, Seaside and Parker Flats (Phase II) Munitions Response Areas, Former Fort Ord, Monterey County, California* (Group 1 RI/FS Work Plan; ESCA RP Team, 2008). A glossary of MMRP terms is provided in Appendix D.

19.1 ESCA Group 1 ROD Background

The Final Group 1 RI/FS Report was finalized May 4, 2017 (ESCA RP Team, 2017d). Future land uses for Group 1 as indicated in the *Fort Ord Base Reuse Plan* (FORA, 1997) include: residential and non-residential areas in the Seaside MRA; and residential, non-residential, and habitat reserve areas in the Parker Flats MRA Phase II. The following sections provide a description of the residential quality assurance process applied at each MRA and a summary of the background and response actions for each of the two MRAs. The Group 1 RI/FS Report was used in the development of the Proposed Plan, and subsequently the remedy selection for the Seaside MRA and the Parker Flats MRA Phase II that is documented in a Group 1 ROD (Army, 2018c).

19.1.1 Residential Quality Assurance

Volume 2 of the Group 1 RI/FS Work Plan includes a Residential Quality Assurance (RQA) Pilot Study work plan. The regulatory agencies expressed concern regarding the residual risk that may remain after MEC removals have taken place, particularly in areas that are slated for residential development (i.e., unrestricted land use). In an effort to satisfy regulatory concerns, a conceptual process was developed, herein referred to as the ESCA Residential Quality Assurance Process ("the ESCA RQA Process"), to allow the regulators to gain comfort with the acceptability of a parcel, where MEC removal was conducted, for residential use (and other sensitive uses). As specified in the ESCA, FORA and their response contractor developed an RQA Pilot Study which included recommending areas for inclusion in the study and developing success criteria to be used by EPA and DTSC to determine if and when the ESCA RQA Process would be applied to other designated residential parcels covered by the ESCA.

The approach for the RQA Pilot Study was presented in the Group 1 RI/FS Work Plan. The specifics of the RQA process as implemented during the RQA Pilot Study are described in the *Residential Quality Assurance Pilot Study Modification White Paper*, which was provided to the EPA, DTSC, and the Army in December 2008 for review and the *Residential Protocol Implementation Technical Report* (ESCA RP Team, 2017b). The test areas, located in portions of the designated future residential reuse areas of the Seaside MRA and CSUMB Off-Campus MRA, were selected based on the MEC and MD recovered in the areas during previous removal actions and the historical uses of the areas. Areas with no evidence of concern were included in the test areas to further evaluate the effectiveness of the ESCA RQA Process.

After EPA and DTSC reviewed the results of applying the ESCA RQA Process to the RQA Pilot Study areas, they concurred (in a July 5, 2011 letter), that the process is consistent with the protocol outlined in Section 2.1.8, Technical Requirements and Remediation Services, of the ESCA. The EPA and DTSC agreed that the ESCA RQA Process met the established success criteria goals jointly developed with the regulatory agencies and the Army. The EPA determined and DTSC concurred, that the ESCA RQA Process adds value and material risk reduction, and that the process implementation should be confirmed through an RQA Implementation Phase, referred to as the RQA Implementation Study. The approach to the RQA Implementation Study was provided in the *Residential Quality Assurance Pilot Study Work Plan Addendum, ESCA RQA Process Implementation Study, Seaside and California State University Monterey Bay Off-Campus Munitions Response Areas, Former Fort Ord, Monterey County, California* (RQA Pilot Study Work Plan), dated February 3, 2011, and submitted under Field Variance Form No. G1WP-004, which was an addendum to the Group 1 RI/FS Work Plan and associated Volume 2 Appendix F: RQA Pilot Study Work Plan (ESCA RP Team, 2008).

The RQA Implementation Study was completed on the portions of the Seaside MRA and Parker Flats MRA (including Phase I and Phase II areas) identified for potential future residential reuse where MEC investigations and removal actions had previously been completed. The RQA data and results were collected as part of the CERCLA remedial investigation and are documented in field variance forms, which were submitted as addenda to the Group 1 RI/FS Work Plan (ESCA RP Team, 2008). Results of the ESCA RQA Process were evaluated under the DTSC's Residential Protocol issued in March 2008 (DTSC, 2008a). FORA issued the *Final Group 1 Residential Protocol Implementation Technical Report, Seaside Munitions Response Area, Former Fort Ord, Monterey County, California* (Final Group 1 Seaside RPI Technical Report; ESCA RP Team, 2017b) and the *Final Residential Protocol Implementation Technical Report, Parker Flats Munitions Response Area Phase II, Former Fort Ord, Monterey County, California* (Final Parker Flats RPI Technical Report; ESCA RP Team, 2017c) using the data collected during the ESCA RQA Pilot Study and Implementation Study in the designated future residential reuse areas of the Seaside MRA and Parker Flats MRA. The reports also support modifying the existing DTSC CRUPs to remove the residential use restrictions from these portions of the Seaside MRA and Parker Flats MRA. Detailed information is presented in this report including the results, evaluation, and assessment of munitions response actions performed within the designated future residential reuse areas to assess the quality and reliability of the data and effectiveness of the previous MEC investigations and removal actions.

The data collected during the RQA Pilot Study and RQA Implementation Study has been included in the Final Group 1 RI/FS Report (ESCA RP Team, 2017d) to support the Army's Group 1 ROD. The ESCA RQA Process applied to the Seaside MRA and Parker Flats MRA is further described in the sections below.

The ESCA RQA Process as applied in the CSUMB Off-Campus MRA and Future East Garrison MRA are discussed further in Sections 20.1, ESCA Group 2 Background; and 22.1, ESCA Group 4 Background, respectively.

19.1.2 Seaside MRA

Physical Characteristics

The Seaside MRA is located in the southwestern portion of the former Fort Ord, bordered by the City of Seaside to the west, the historical impact area to the east, Eucalyptus Road to the north, and additional former Fort Ord property to the south. The Seaside MRA is wholly contained within the jurisdictional boundaries of the City of Seaside, encompasses approximately 423 acres, and contains the following four Parcels: E23.1, E23.2, E24, and E34.

The Seaside MRA is designated for future residential reuse and non-residential development reuse with borderland interface (FORA, 1997). The reasonably foreseeable reuses being considered for the Seaside MRA include:

- Residential — Approximately 276.5 acres, comprised of portions of Parcels E24, E34, E23.1, and E23.2, are designated for future residential reuse (Figure 3). Construction of buildings and roads, installation of utilities, as well as the activities of future residents are expected within these reuse areas.
- Non-Residential Development — Approximately 146.5 acres, comprised of portions of Parcels E24, E34, E23.1, and E23.2, are designated for non-residential development reuse including roadways and a 100-ft borderland development buffer along the Natural Resources Management Area (NRMA) interface. Development encompassing infrastructure activities, such as roadway and utility construction, is expected to occur. Roadway expansion and utility construction will constitute the major development along the western portion of the MRA.

History of Contamination

The Seaside MRA, located in the westernmost part of the 8,000-acre former multi-range area, is along the western perimeter of the historical impact area. The Seaside MRA contained former firing points and former targets associated with small arms ammunition training, non-firing target range training, mortar and anti-tank training, and booby trap training. Based on the Final Group 1 RI/FS Report, the MRA appears to have been used for various types of training in the vicinity of known firing ranges.

Response Actions

Investigations and removal actions have been conducted by the Army on the Seaside MRA (the four MRSs in the Seaside MRA are referred to as: MRS-15SEA.1 through MRS-15SEA.4) during Phase I Removal Actions. A TCRA and a Non-Time-Critical Removal Action (NTCRA) were conducted on the Seaside MRA with the exception of approximately 35 acres identified as SCA and a narrow area outside the western boundaries of MRSs to the west of the former alignment of General Jim Moore Boulevard.

To complete the Army's NTCRA on the 35 acres of SCAs, the Phase II Seaside MRA removal action was completed by FORA. The Final Group 1 RI/FS Report (ESCA RP Team, 2017d) was written to support the Army's Group 1 ROD (Army, 2018c). Upon completion of the NTCRA in the Seaside MRA, FORA, in consultation with the EPA and DTSC, determined that further evaluation under the RQA process was needed for the future residential reuse areas.

ESCA Residential Quality Assurance Process

The ESCA RQA Process was applied to the future residential reuse portions of the Seaside MRA, as described in Section 19.1.1, Residential Quality Assurance. A Level 1 Initial Evaluation, consisting of a detailed data evaluation, was conducted for the future residential reuse portions of the MRA. Based on the results of the evaluation, FORA, in consultation with the EPA and DTSC, determined that approximately 245.7 acres of the Seaside MRA designated for residential reuse were recommended as acceptable for residential reuse with appropriate institutional controls, such as applicability of the local Digging and Excavation on the Former Fort Ord Ordinance, future construction support related to munitions, and property transfer disclosures. Approximately 30.8 acres in five portions of the MRA designated for residential reuse were recommended for further assessment during the RQA Pilot Study Implementation Phase using a Level 2 Baseline DGM Survey.

The Level 2 Baseline DGM Survey was conducted over approximately 30.8 acres designated for residential reuse in the Seaside MRA. Based on the results of the Level 2 Baseline DGM Survey, approximately 30.3 acres designated for residential reuse were recommended as acceptable for residential use with appropriate institutional controls, such as applicability of the local Digging and Excavation on the Former Fort Ord Ordinance, future construction support related to munitions, and property transfer disclosures. The remaining

approximately 0.5 acre designated for residential reuse was recommended for further assessment under a Level 3 Soil Scrape and Post-Scrape DGM Survey.

The Level 3 Soil Scrape and Post-Scrape DGM Survey was completed over two grids located in the southern portion of the Seaside MRA designated future residential reuse area. Following the soil scrape and post-scrape DGM survey, a verification DGM survey was conducted over the two soil scrape grids and four grids where Level 2 activities were conducted. Based on the results of the Level 3 activities, the remaining portions of the designated future residential reuse area were recommended as acceptable for residential use with appropriate institutional controls, such as applicability of the local Digging and Excavation on the Former Fort Ord Ordinance, future construction support related to munitions, and property transfer disclosures.

Results of the ESCA RQA Process applied at the Seaside MRA were evaluated under the DTSC's Residential Protocol (DTSC, 2008a). FORA issued the Final Seaside RPI Technical Report (ESCA RP Team, 2017b) using the data collected during the ESCA RQA Pilot Study and Implementation Study in the designated future residential reuse area of the MRA. The report also supports modifying the existing DTSC CRUP to remove the residential use restrictions from these portions of the Seaside MRA.

The results and findings from the initial and final response actions and the ESCA RQA Process field operations were used in developing the Group 1 RI/FS Report to support the final remedial action decision-making process, in accordance with CERCLA and a data-driven evaluation of the residential use restriction for the Seaside MRA.

During the review of the *Residential Protocol Implementation Technical Report* for the Seaside MRA, the DTSC indicated that a Level 2 Baseline DGM Survey was required in an approximately 46-acre portion of MRS-15SEA 01 to support modification of the residential use restrictions included in the State CRUP. As required by the DTSC, an additional verification of approximately 46 acres of the designated future residential reuse area within MRS-15 SEA 01 was conducted by FORA. Results of the additional verification were documented in the *Final Group 1 Supplemental Residential Protocol Implementation Technical Report* issued in December 2017 (ESCA RP Team, 2017e).

Basis for Taking Action

Characterization of the nature and extent of MEC remaining in the Seaside MRA was necessary in order to complete the Group 1 RI/FS Report in which remediation alternatives will be evaluated for the Group 1 MRAs pursuant to the CERCLA.

19.1.3 Parker Flats MRA Phase II

Physical Characteristics

The Parker Flats MRA is located in the central portion of the former Fort Ord, bordered by the CSUMB Off-Campus MRA (formerly referred to as the CSUMB MRA) and the County North MRA (formerly referred to as the Development North MRA) to the north, the IA Ranges MRA to the south, CSUMB campus property to the west, and additional former Fort Ord property to the east and southeast. The Parker Flats MRA is contained within the jurisdictional boundaries of the City of Seaside and the County of Monterey. The Parker Flats MRA (Phase I and Phase II areas) encompasses approximately 1,172 acres and fully contains Parcels E18.1.1, E18.1.2, E18.1.3, E18.4, E19a.1, E19a.2, E19a.5, E20c.2, E21b.3, L20.18, L23.2, and L32.1, and portions of Parcels E19a.3 and E19a.4. The area completed under the Phase I activities was approximately 698 acres; the remaining approximately 474 acres were included under the Phase II activities.

The Parker Flats MRA is designated for future residential reuse, non-residential development reuse with borderland interface, and habitat reserve (FORA, 1997). The reasonably foreseeable reuses being considered for the Parker Flats MRA include:

- Residential — Approximately 182 acres, including all of Parcels E18.1.3, E18.4, and E19a.1 and portions of Parcels E18.1.1, E18.1.2, E19a.5, and E20c.2, are designated for future residential reuse. Construction of buildings and roads, installation of utilities, as well as the activities of future residents are expected within these areas of the MRA.
- Non-Residential Development — Approximately 680 acres are designated for nonresidential development reuse including Parcel L23.2 and the adjacent portion of Parcel L20.18, Parcel E21b.3, all of Parcels E19a.3, L32.1, and portions of Parcels E20c.2, E19a.5, E18.1.1, and E18.1.2. Reuses include roadway within Parcel E20c.2 and a 100-ft borderland development buffer along the borderland interface in Parcels E19a.3 and E19a.5. Development encompassing infrastructure activities, such as roadway and utility construction, is expected to occur. Other uses anticipated in the parcels include development of a cemetery, institutional structures and parking, and commercial development.
- Habitat Reserve — Approximately 312 acres, including Parcel E19a.2 and Parcel E19a.4, are designated for habitat reserve. Use of the habitat reserve area is expected to include equestrian access.

History of Contamination

Based on the Final Group 1 RI/FS Report, the historical use of the Parker Flats MRA Phase II area was predominantly for training maneuvers including the use of practice hand grenades. In addition, a southern portion of the Parker Flats MRA Phase II appears to have been used for practice hand grenade, projectile and mortar training.

Response Actions

The Army has completed investigations over a total of 698 acres in the Parker Flats MRA during Phase I activities. The anomalies that represented potential MEC were intrusively investigated and removed, except in areas where anomalies could not be adequately investigated due to physical obstructions and/or equipment interference. It was determined that additional data should be collected and that further evaluation under the RQA process was needed in order to fully characterize the MRA and to support the final remedial action decision-making process for the Parker Flats MRA Phase II.

Parker Flats MRA Phase II MEC remedial investigations were conducted by FORA to address data gaps, uncertainties, and/or open regulatory issues identified during previous removal actions. Approximately 426 acres of the Parker Flats MRA Phase II were investigated. A DGM survey and target investigation was conducted for the accessible areas of the designated future residential and non-residential development areas; unpaved roads and trails, including 5-foot buffer area within the habitat reserve area. Analog to depth of detection was conducted for areas not accessible to digital geophysical survey for the designated future residential and non-residential development areas. Analog instrument–aided surface and near-surface investigation was conducted for the habitat reserve area. Analog and digital detection instruments were used over the Parker Flats MRA Phase II to locate subsurface anomalies and detected anomalies representing potential MEC were resolved (ESCA RP Team, 2013a).

Additionally, DGM survey and target investigation was conducted by FORA under Eucalyptus Road in Parcel E20c.2 and a portion of Eucalyptus Road in Parcel L20.18 during construction support for the Eucalyptus Roadway Extension Corridor project in June 2011 (ESCA RP Team, 2017d).

ESCA Residential Quality Assurance Process

The ESCA RQA Process was applied to the future residential reuse portions of the Parker Flats MRA (Phase I and Phase II areas), as described in Section 19.1.1, Residential Quality Assurance. A Level 1 Initial Evaluation, consisting of a detailed data evaluation, was conducted for the future residential reuse portions of

the MRA. Based on the results of the evaluation, FORA, in consultation with the EPA and DTSC, determined that approximately 170 acres of the Parker Fats MRA (including Phase I and Phase II areas) designated for residential reuse were recommended as acceptable for residential reuse with appropriate institutional controls, such as applicability of the local Digging and Excavation on the Former Fort Ord Ordinance, future construction support related to munitions, and property transfer disclosures. Three portions of the MRA (including Phase I and Phase II areas), totaling approximately 12 acres, designated for residential reuse were recommended for further assessment during the RQA Pilot Study Implementation Phase using a Level 2 Baseline DGM Survey.

The Level 2 Baseline DGM Survey was completed over approximately 12 acres designated for residential reuse in the Parker Flats MRA. Based on the results of the Level 2 Baseline DGM Survey, the remaining portions of the designated future residential reuse area within the Parker Flats MRA (Phase I and Phase II areas) were recommended as acceptable for residential use with appropriate institutional controls, such as applicability of the local Digging and Excavation on the Former Fort Ord Ordinance, future construction support related to munitions, and property transfer disclosures.

Results of the ESCA RQA Process applied at the Parker Flats MRA were evaluated under the DTSC's Residential Protocol (DTSC, 2008a). FORA issued the Final Parker Flats RPI Technical Report (ESCA RP Team, 2017c) using the data collected during the ESCA RQA Implementation Study in the designated future residential reuse area of the MRA. The report also supports modifying the existing DTSC CRUPs to remove the residential use restrictions from these portions of the Parker Flats MRA.

The results and findings from the initial and final response actions and ESCA RQA Process field operations were used in developing the Group 1 RI/FS Report to support the final remedial action decision-making process, in accordance with CERCLA and a data-driven evaluation of the residential use restriction for the Parker Flats MRA Phase II.

Basis for Taking Action

Characterization of the nature and extent of MEC remaining in the Parker Flats MRA Phase II was necessary in order to complete the Group 1 RI/FS Report in which remediation alternatives will be evaluated for the Group 1 MRAs pursuant to the CERCLA.

19.2 Remedial Actions

The following three remedial alternatives were developed and evaluated in the Group 1 Feasibility Study (Volume 3; ESCA RP Team, 2017d) to address the risk from MEC for the future land users identified in the Group 1 Risk Assessment (Volume 2; ESCA RP Team, 2017d):

- Alternative 1: No Further Action;
- Alternative 2: Land Use Controls; and
- Alternative 3: Additional Subsurface MEC Remediation.

19.2.1 Remedy Selection

Following a 30-day public comment period on the Proposed Plan, Record of Decision Group 1 Seaside and Parker Flats (Phase II) Munitions Response Areas, Former Fort Ord, California (Group 1 ROD) was signed on September 25, 2018 (Army, 2018c). Remedial Alternative 2 (Land Use Controls) was selected as the remedy to address MEC risks at the Seaside MRA and Parker Flats MRA Phase II. The LUCs include requirements for: (1) military munitions recognition and safety training for workers who will conduct ground-disturbing or intrusive activities; (2) construction support to manage the risk associated with the potential presence of military munitions for ground-disturbing or intrusive activities to address MEC that potentially remain in the subsurface; (3) access management measures in areas designated for habitat reserve; (4) restrictions prohibiting residential use in areas designated for non-residential development reuse or for habitat reserve; and

(5) restrictions against inconsistent uses (applicable to the habitat reserve areas). These LUCs are intended to limit MEC risk that may remain at the Group 1 MRAs. For the purpose of this decision document, residential use includes: single family or multi-family residences; childcare facilities; playgrounds; hospitals; nursing homes or assisted living facilities; and any type of educational facility for children or young adults in grades kindergarten through 12 (Army, 2018c). Any proposal for residential development in the Group 1 MRAs will be subject to regulatory agency and Army review and approval.

19.2.2 Remedy Implementation

A *Revised Final Group 1 Land Use Controls Implementation Plan/Operation and Maintenance Plan, Seaside and Parker Flats Munitions Response Area, Former Fort Ord, Monterey County, California* (Final Group 1 LUCIP/OMP) was issued by FORA December 19, 2019 (ESCA RP Team, 2019) as a result of the selection of LUCs as a component of the remedy in accordance with the ROD (Army, 2018c). The purpose of the Final Group 1 LUCIP/OMP is to provide information on how the remedy selected in the Group 1 ROD (Army, 2018c) will be implemented and maintained. The Final Group 1 LUCIP/OMP presents the LUC objectives as described in the ROD and describes remedy implementation actions to be performed in accordance with the ROD to ensure the LUC objectives are met.

The munitions recognition and safety training requirement is being implemented in the Group 1 MRAs through: 1) annual distribution of the MEC Safety Guide to property owners and other land users (related to utilities serving the property) of the availability of munitions recognition and safety training; 2) excavation permitting and construction support requirements for training; and 3) annual training compliance monitoring and reporting. Munitions recognition and safety training is available to anyone conducting ground-disturbing or intrusive activities on the Group 1 MRAs, and is provided through a publicly accessible web-based eLearning platform at www.FortOrdSafety.com. The current deeds and State CRUPs prohibit activities in violation of the County and City digging and excavation ordinances.

Construction support is required for ground-disturbing or intrusive activities. For projects involving disturbance of 10 cy of soil or more, construction support is being implemented through excavation permit requirements consistent with the local digging and excavation ordinances. Projects involving disturbance of less than 10 cy of soil do not require a digging and excavation permit, but may need to be coordinated with FORA or the ESCA successor (City of Seaside) to ensure compliance with MEC safety requirements.

The Federal deeds to FORA and the State CRUPs for the Group 1 MRA parcels restrict residential use. The deeds were modified to remove the residential use restriction on the designated future residential reuse areas. The DTSC modified the existing CRUPs, as appropriate, to reflect the land use restrictions included in the selected remedy. For the Seaside MRA, residential use restrictions still exist on parcels HA-18D and HA-23D, due to lead soil contamination (see Section 7.3.6). Munitions response has been completed on these parcels to support future residential use on approved sections. The residential use restriction will remain for the areas designated for future non-residential development reuse or habitat reserve. Residential use includes but is not limited to single family or multi-family residences; childcare facilities; nursing homes or assisted living facilities; and any type of educational purpose for children or young adults in grades kindergarten through 12.

Based on review of the LUCI O&M Plan, relevant deeds, and supporting documentation, the EPA determined that all remedial actions have been implemented and completed at the Group 1 MRAs in a letter dated February 28, 2019 (EPA, 2019). In a correspondence dated April 14, 2020, EPA certified the site-wide remedial action completion for the ESCA Remediation Program (EPA, 2020).

19.2.3 System Operations and Maintenance

The Final Group 1 LUCIP/OMP was completed in December 2019 (ESCA RP Team, 2019). A Final Group 1 Supplemental Residential Protocol Implementation Technical Report, Seaside Munitions Response Area, Former Fort Ord, Monterey County, CA (Supplemental RPI Technical Report) was completed in December 2017. This document was developed in support of modifying the existing CRUP to lift residential use

restriction. The City of Seaside, as the ESCA successor beginning June 2020, is managing the long-term implementation and maintenance of the LUCs.

Annual LUC reports were prepared by local jurisdictions and delivered to FORA for years 2016 through 2019 (FORA 2017, 2018a, 2018b, 2019). The reports were submitted by FORA (on behalf of the jurisdiction) pursuant to the requirements within the land use covenants and MOA, to the DTSC. At the time of FORA's dissolution, the responsibility to coordinate and submit the annual LUC inspection reports was acquired by Monterey County. Inspections for fiscal year 2019-2020 (Monterey County Department of Health, 2020) were reported by local jurisdictions to Monterey County. The fiscal year 2019-2020 Land Use Covenant Annual Report was submitted by Monterey County to the DTSC. The annual reports summarize annual inspections and compliance with general use and soil restrictions. Per the AOC, ESCA produces monthly Long-Term Obligation (LTO) Management Program Reports that summarize LUC monitoring activities.

For the Seaside MRA, a *Programmatic On-Call Construction Support Plan* (CSP; Arcadis/Weston, 2019) was prepared in November 2019. This CSP is intended to support existing and future roadway and utility projects by permitted utility providers, where the project may call for the disturbance of 10 cubic yards or greater of soil. In July 2021, Attachment A for the CSP (Weston, 2021) was developed regarding Phase 3 and Phase 4 for the Pure Water Monterey Groundwater Replenishment Project. The project scope includes the development of deep injection well sites and monitoring wells; exploratory drilling; construction of a percolation basin; and construction of associated electrical buildings and underground utility installation. Phase 3 work is projected to be completed by the second quarter of 2022, and Phase 4 work is projected to be started around the second quarter of 2022, dependent on funding and permitting.

An On-Call Construction Support Plan (June 2018) has been submitted for Monterey Peninsula Water Management District Aquifer Storage and Recovery project and Cal-Am water supply projects within the Seaside MRA. Completion reports have been filed in 2019-2021 for various phases conducted under that plan (Arcadis/Weston, 2018).

19.2.4 Property Transfer Status

As of September 30, 2021, a total of approximately 1,596 acres have been transferred. These acreages partially or wholly occupy 18 parcels that are part of the ESCA Group 1 MRA ROD.

Parcels E24, E34, E23.1, E23.2, E18.1.1, E18.1.2, E18.1.3, E18.4, E 19a.1, E19a.2, E19a.3, E19a.4, E19a.5, E20c.2, E21b.3, L20.18, L32.1, and L23.2 were transferred by the Army to FORA in May 2009 as part of the ESCA (Table 1). In December 2019, the CRUPs for the parcels were modified by DTSC to remove the residential use restriction from the designated residential use areas. In the June 2020 deed release documents, the Army provided the CERCLA warranty and FORA transferred the property to the designated recipients.

19.3 Progress Since the Last Five-Year Review

19.3.1 2017 Five-Year Review Protectiveness Statement

The 2017 protectiveness statement for the ESCA Group 1 MRAs was:

"The preferred alternative for the ESCA Group 1 Areas is expected to be protective of human health and the environment upon implementation. Investigations and removal actions have been completed at the Group 1 MRAs. Land use restrictions are in place, which are intended to be protective of human health and the environment in the short term. These restrictions are contained in two places: 1) the State CRUP entered into by DTSC and the Army, and 2) the Federal deed transferring the property to FORA. In order for the remedy to be protective in the long term, the following action needs to be taken: completion of Group 1 ROD."

19.3.2 Status of 2017 Five-Year Review Issues and Recommendations

The 2017 Five-Year Review Report presented no issues with the Seaside MRA and the Parker Flats MRA Phase II, and recommended that the ROD and a LUCIP/OMP were finalized. The Group 1 ROD was finalized on September 25, 2018, and the Group 1 LUCIP/OMP was finalized on December 19, 2019.

Actions taken since the last Five-Year Review are summarized below:

Issues from Previous Review	*Recommendations/ Follow-up Actions*	*Implementing Party*	*Milestone Date*	*Action Taken and Outcome*	*Date of Action*
None Identified	Complete, sign a ROD following the CERCLA process	The Army and FORA in accordance with ESCA, AOC, and FFA Amendment No. 1	August 2018	Final Group 1 ROD finalized and signed	September 2018
None Identified	Complete RD/RA, LUCIP/OMP, or similar document following the CERCLA process	FORA in accordance with ESCA, AOC, and FFA Amendment No. 1	September 2018	Final Group 1 LUCIP/OMP finalized	December 2019

19.4 ESCA Group 1 ROD Five-Year Review Process

19.4.1 Document Review

Documents reviewed in this evaluation included the previous Five-Year Review Report, Annual LUC Monitoring Reports, monthly ESCA Long-Term Obligation Management Program Reports, MRS Security Program records, the Group 1 RI/FS Report, Group 1 ROD, and Final Group 1 LUCIP/OMP, as listed in the references in Appendix A.

19.4.2 Data Review

Since the last Five-Year Review was issued, the Group 1 ROD and Group 1 LUCIP/OMP were finalized. Data from the annual LUC monitoring reports and annual MRS Security Program reports were reviewed.

19.4.3 Site Inspection and Interviews

A site inspection was conducted at the Seaside MRA and Parker Flats Phase II MRA on July 21-22, 2021 to verify current uses of the sites. Construction activities associated with the Pure Water Monterey Groundwater Replenishment project were on-going. No evidence or uses that are in conflict with the LUCs were observed.

A copy of the Site Inspection Form and associated photographs are presented in Appendix B, Field Documentation of Site Inspections and Interviews.

19.5 Technical Assessment

19.5.1 Question A

Is the Remedy functioning as intended by the Decision Documents?

Institutional controls (LUCs) are in place and are effectively preventing or reducing the potential for the Group 1 MRAs reuse receptors to come in direct contact with MEC items potentially remaining in subsurface soil. The residential use restriction is in place and functioning for the designated future non-residential reuse area of the Group 1 MRAs.

19.5.2 Question B

Are the Exposure Assumptions, Toxicity Data, Cleanup Levels, and Remedial Action Objectives used at the time of remedy selection still valid?

Yes. There have been no changes in the assumptions, toxicity data, or cleanup levels used at the time of the remedy selection.

19.5.3 Question C

Has any other information come to light that could call into question the Protectiveness of the Remedy?

No additional information has been identified that could call the protectiveness of the remedy into question.

19.6 Issues

Initial Implementation of the selected remedy is complete. There are no issues affecting the protectiveness of the remedy for the Group 1 MRAs.

19.7 Recommendations and Follow-Up Actions

There are no recommendation or follow-up actions identified for the site based on the results of the inspections and monitoring conducted during this review period.

19.8 Protectiveness Statement:

Protective. The remedy for the Group 1 MRAs is protective of human health and the environment. Potential exposure pathways that could result in unacceptable risks are being controlled. Institutional Controls (land use controls) are in place and are effectively preventing or reducing the potential for the reuse receptors to come in direct contact with munitions and explosives of concern items potentially remaining in subsurface soil. The residential use restriction is in place and functioning for the designated future non-residential reuse areas.

20.0 ESCA GROUP 2 ROD

This section presents background information on the *Record of Decision, Group 2 California State University Monterey Bay Off-Campus Munitions Response Area, Former Fort Ord, California* (Group 2 ROD; Army, 2015d); provides a summary of remedial actions and a technical assessment of the actions taken at the site; identifies any issues related to the protectiveness of the remedies based on the review; presents recommendations and follow-up actions, if needed, to address any issues identified during the review; and provides a statement regarding the protectiveness of the site remedies. The Group 2 ROD was finalized in February 2015 (Army, 2015d) and is based on the *Final Group 2 Remedial Investigation/Feasibility Study, California State University Monterey Bay Off-Campus Munitions Response Area, Former Fort Ord, Monterey County, California* (Group 2 RI/FS Report; ESCA RP Team, 2013b) issued in February 2013.

The ESCA Group 2 Areas originally included the CSUMB Off-Campus MRA and the County North MRA (formerly referred to as the Development North MRA). The Army determined that no further munitions response was necessary for the County North MRA. As documented in the Track 1 Plug-In Approval Memorandum (Army, 2010a), this MRA was identified as a Track 1 area after the Track 1 ROD was signed. The County North MRA is addressed in Section 12.0 of this report. Therefore, Group 2 only consists of the CSUMB Off-Campus MRA. A glossary of MMRP terms is provided in Appendix D.

20.1 ESCA Group 2 ROD Background

The CSUMB Off-Campus MRA includes, as indicated in the *Fort Ord Base Reuse Plan* (FORA, 1997), two planned reuses: approximately 49 acres for residential (CSUMB campus housing) and approximately 284 acres for non-residential (CSUMB open space park). The background of the MRA, response actions, and ESCA RQA Process completed at the MRA are summarized below. These investigations and removal actions conducted within the CSUMB Off-Campus MRA were focused on addressing explosive hazards.

Physical Characteristics

The CSUMB Off-Campus MRA is located in the north-central portion of the former Fort Ord, bordered by Inter-Garrison Road to the north, the County North MRA to the east and southeast, the Parker Flats MRA to the south, and 8th Avenue and CSUMB campus property to the west and southwest. The CSUMB Off-Campus MRA encompasses approximately 332.6 acres and is composed mostly of MRS-31, which includes four smaller MRSs: MRS-04C, MRS-07, MRS-08, and MRS-18. The remainder of the MRA consists of MRS-13C and a portion of MRS-13B.

History of Contamination

Based on the results documented in the Group 2 RI/FS Report, the MRA was used for chemical, biological, and radiological (CBR) training (MRS-04C); mine and booby trap training (MRS-07 and MRS-08); practice mortar training (MRS-13B and MRS-13C); minefield practice area (MRS-18); and troop maneuvers, confidence course, and land navigation training (MRS-31). Recovered MEC and MD also indicated that practice hand grenade training and practice rifle grenade training occurred in MRS-31.

Response Actions

Initial sampling was conducted within the CSUMB Off-Campus MRA in 1994 to determine if further action (removal) was necessary. Based on sampling results, 3- to 4-foot deep removal actions were conducted by the Army's contractors within the majority of the MRA from 1994 to 1995 and in 1997. The MEC and MD encountered within the MRA during the previous removal actions were consistent with the documented historical uses. The majority of these items were associated with practice and pyrotechnic munitions. Other MEC and MD not related to the training listed above were also found within the CSUMB Off-Campus MRA, but there was no evidence of a pattern of use indicating that training with these items occurred in the CSUMB

Off-Campus MRA. The remedial investigation completed for the CSUMB Off-Campus MRA indicated that the remedial actions conducted in the MRA successfully detected, excavated, and recovered the MEC items, removing the associated imminent safety hazard. Upon completion of the investigations and removal actions in the MRA, FORA, in consultation with the EPA and DTSC, determined that further evaluation under the RQA process was needed for the future residential reuse area.

ESCA Residential Quality Assurance Process

An RQA Pilot Study, as described in Section 19.1.1, Residential Quality Assurance, was conducted by FORA contractors in the approximately 49-acre designated future residential reuse area of the CSUMB Off-Campus MRA as an additional verification and quality assurance of prior MEC investigations and removal actions. The RQA data were collected in two phases. During the first phase of the RQA Pilot Study, a subsurface MEC removal was conducted in approximately 17 acres followed by a soil scrape and second subsurface MEC removal on approximately five of the 17 acres. During the second phase of the RQA Pilot Study, a detailed data evaluation was conducted on the approximately 49-acre area, and a verification site walk was conducted to support the data evaluation. The RQA Pilot Study activities included removal of detected MEC and MD from the designated future residential reuse area to the depth of detection and confirmed the results of previous MEC investigations and removal actions. Based on the RQA Process evaluation, including results of the RQA Pilot Study and RQA Implementation Study, FORA, in consultation with the EPA and DTSC, determined that the designated future residential reuse area in the CSUMB Off-Campus MRA was recommended as acceptable for future residential reuse with appropriate Institutional Controls, such as applicability of the local Digging and Excavation on the Former Fort Ord Ordinance, future construction support related to munitions, and property transfer disclosures (ESCA RP Team, 2012a and 2013b). DTSC has released the Residential Protocol (DTSC, 2008a) that, when successfully implemented and approved by DTSC, would provide a basis to remove a State residential CRUP on munitions response sites (DTSC, 2014). FORA issued the *Final Residential Protocol Implementation Report, CSUMB Off-Campus MRA*, in October 2014 (ESCA RP Team, 2014) to provide data and conclusions to support the removal of the residential CRUP on the designated residential area. The DTSC amended the State CRUP (recorded in June 2016) to indicate that the residential use restriction is applicable only to non-residential reuse areas in the CSUMB Off-Campus MRA. The re-issued State CRUP was recorded with Monterey County.

20.2 Remedial Actions

The following three remedial alternatives were developed and evaluated in the Group 2 Feasibility Study (Volume 3; ESCA RP Team, 2013b) to address the risk from MEC for the future land users identified in the Group 2 Risk Assessment (Volume 2; ESCA RP Team, 2013b):

- Alternative 1: No Further Action;
- Alternative 2: Land Use Controls; and
- Alternative 3: Additional Subsurface MEC Remediation.

20.2.1 Remedy Selection

Remedial Alternative 2 (Land Use Controls) was selected as the remedy to address MEC risks at the CSUMB Off-Campus MRA. The selected remedy includes LUCs because detection technologies may not detect all MEC present. The LUCs include requirements for: (1) munitions recognition and safety training for those people that conduct ground-disturbing or intrusive activities on the property; (2) construction support by UXO-qualified personnel for ground-disturbing or intrusive activities; and (3) restrictions prohibiting residential use in the designated future non-residential reuse area. For the purpose of this document, residential use includes, but is not limited to: single family or multi-family residences; childcare facilities; nursing homes or assisted living facilities; and any type of educational purpose for children or young adults in grades kindergarten

through 12 (Army, 2007b). Any proposal for residential development in the designated non-residential reuse portion of the CSUMB Off-Campus MRA will be subject to regulatory agency and Army review and approval. The remedial action objective developed for the protection of human health and the environment for CSUMB Off-Campus MRA is to prevent or reduce the potential for the CSUMB Off-Campus MRA reuse receptors to come in direct contact with MEC items potentially remaining in subsurface soil.

20.2.2 Remedy Implementation

The *Final Group 2 Land Use Controls Implementation Plan/Operation and Maintenance Plan, California State University Monterey Bay Off-Campus Munitions Response Area, Former Fort Ord, Monterey County, California* (Final Group 2 LUCIP/OMP) was issued by FORA in September 2018 (ESCA RP Team, 2018) as a result of the selection of LUCs as a component of the remedy in accordance with the ROD. The purpose of the Final Group 2 LUCIP/OMP is to provide information on how the remedy selected in the Group 2 ROD (Army, 2015d) will be implemented and maintained. The Final Group 2 LUCIP/OMP presents the LUC objectives as described in the ROD and describes remedy implementation actions to be performed in accordance with the ROD to ensure the LUC objectives are met.

The munitions recognition and safety training requirement is currently being implemented through: 1) annual distribution of the MEC Safety Guide to property owners and other land users (related to utilities serving the property) of the availability of munitions recognition and safety training; 2) excavation permitting and construction support requirements for training; and 3) annual training compliance monitoring and reporting. Munitions recognition and safety training is available to anyone conducting ground-disturbing or intrusive activities on the Group 2 MRA, and is provided through a publicly accessible web-based eLearning platform at www.FortOrdSafety.com.

Construction support is required for ground-disturbing or intrusive activities. For projects involving disturbance of 10 cy of soil or more, construction support is being implemented through a digging and excavation permitting process under the Monterey County digging and excavation ordinance. Projects involving disturbance of less than 10 cy of soil do not require a digging and excavation permit but may need to be coordinated with FORA (or the ESCA Successor [City of Seaside]), Army, EPA, and DTSC to ensure compliance with MEC safety requirements.

Residential use is currently prohibited within the designated future non-residential reuse area of the CSUMB Off-Campus MRA by deed restriction and the Amended State CRUP. For the purposes of this document, residential reuse includes, but is not limited to: single family or multi-family residences; childcare facilities; nursing homes or assisted living facilities; and any type of educational purpose for children or young adults in grades kindergarten through 12 (Army, 2007b). To ensure the residential use restriction is maintained, annual inspections of the CSUMB Off-Campus MRA are conducted, including review of property transfers and deed amendments, development activities, and changes in land use.

Based on review of the LUCI O&M Plan, relevant deeds, and supporting documentation, the EPA determined that all remedial actions have been implemented and completed at the Group 2 MRA in a letter dated September 27, 2018 (EPA, 2018). In a correspondence dated April 14, 2020, EPA certified the site-wide remedial action completion for the ESCA Remediation Program (EPA, 2020).

20.2.3 System Operations and Maintenance

The Group 2 LUCIP/OMP was finalized in September 2018 (ESCA RP Team, 2018).

Annual LUC inspections conducted by CSUMB indicated no compliance issues with regard to the LUC objectives. The results of the annual monitoring activities were reported to the EPA, DTSC, the Army by

FORA (FORA, 2017, 2018a, 2018b, and 2019) and Monterey County (Monterey County Department of Health, 2020). Actual costs associated with LUC inspections and reporting conducted by CSUMB are not available. Per the AOC, ESCA produces monthly Long-Term Obligation (LTO) Management Program Reports that summarize LUC monitoring activities

No costs associated with implementation of the remedy have been incurred by FORA or its ESCA Successor (City of Seaside) during the October 2016 through September 2021 reporting period.

For the CSUMB Off-Campus MRA, an on-call construction support plan had been developed in August 2016 for the construction of a round-about at the intersection of 8th Avenue and Intergarrison Road. roundabout. The construction project was completed with no munitions discoveries, as indicated in the after-action report files in April 2017 (Army, 2017).

20.2.4 Property Transfer Status

As of September 30, 2021, a total of 332.6 acres have been transferred. These acreages partially or wholly occupy 1 parcel that is part of the ESCA Group 2 MRA ROD.

Parcel S1.3.2 was transferred by the Army to FORA in May 2009 as part of the ESCA (Table 1). In June 2016, the CRUP for the parcel was modified by DTSC to remove the residential use restriction from the designated residential use area. In the June 2020 deed release documents, the Army provided the CERCLA warranty and FORA transferred the property to the designated recipients.

20.3 Progress Since the Last Five-Year Review

20.3.1 2017 Five-Year Review Protectiveness Statement

The 2017 protectiveness statement for the ESCA Group 2 Areas stated:

> "Protective. The remedy for the ESCA Group 2 areas is protective of human health and the environment. Potential exposure pathways that could result in unacceptable risks are being controlled."

20.3.2 Status of 2017 Five-Year Review Issues and Recommendations

The 2017 Five-Year Review Report presented no issues with the CSUMB Off-Campus MRA and recommended that the Group 2 LUCIP/OMP be finalized. The Group 2 LUCIP/OMP was finalized on September 7, 2018.

Actions taken since the last Five-Year Review are summarized below:

Issues from Previous Review	*Recommendations/ Follow-up Actions*	*Implementing Party*	*Milestone Date*	*Action Taken and Outcome*	*Date of Action*
None identified	Complete LUCIP/OMP following the CERCLA process	EPA/State in accordance with AOC and FFA Amendment No. 1	October 2017	LUCIP/OMP finalized	LUCIP/OMP September 7, 2018

20.4 ESCA Group 2 ROD Five-Year Review Process

20.4.1 Document Review

Documents reviewed in this evaluation included the previous Five-Year Review Report, annual LUC monitoring reports, monthly ESCA Long-Term Obligation Management Program Reports, MRS Security Program records, Final Residential Protocol Implementation Report, Group 2 RI/FS Report, Group 2 ROD, and Final Group 2 LUCIP/OMP, as listed in the references in Appendix A.

20.4.2 Data Review

Since the last Five-Year Review Report was issued, Final Group 2 LUCIP/OMP was developed. Data from the annual LUC monitoring reports and MRS Security Program records were reviewed.

20.4.3 Site Inspection and Interviews

Site inspections and interviews were not conducted for the CSUMB Off-Campus MRA site because there were no issues identified and the remedy is protective of human health and the environment. Annual LUC inspections are conducted by CSUMB.

20.5 Technical Assessment

20.5.1 Question A

Is the Remedy functioning as intended by the Decision Documents?

Institutional controls (LUCs) are in place and are effectively preventing or reducing the potential for the CSUMB Off-Campus MRA reuse receptors to come in direct contact with MEC items potentially remaining in subsurface soil. The residential use restriction is in place and functioning for the designated future non-residential reuse area of the CSUMB Off-Campus MRA.

20.5.2 Question B

Are the Exposure Assumptions, Toxicity Data, Cleanup Levels, and Remedial Action Objectives used at the time of remedy selection still valid?

Yes. There have been no changes in the assumptions, toxicity data, or cleanup levels used at the time of the remedy selection. As noted in Section 20.2, the RAO for CSUMB Off-Campus MRA is to prevent or reduce the potential for the CSUMB Off-Campus MRA reuse receptors to come in direct contact with MEC items potentially remaining in subsurface soil.

20.5.3 Question C

Has any other information come to light that could call into question the Protectiveness of the Remedy?

No additional information has been identified that could call the protectiveness of the remedy into question.

20.6 Issues

Initial implementation of the selected remedy is complete. There are no issues affecting the protectiveness of the remedy for the CSUMB Off-Campus MRA.

20.7 Recommendations and Follow-Up Actions

There are no recommendation or follow-up actions identified for the site based on the results of the inspections and monitoring conducted during this review period.

20.8 Protectiveness Statement

Protective. The remedy for the ESCA Group 2 areas is protective of human health and the environment.

Potential exposure pathways that could result in unacceptable risks are being controlled. Institutional Controls (land use controls) are in place and are effectively preventing or reducing the potential for the reuse receptors to come in direct contact with munitions and explosives of concern items potentially remaining in subsurface soil. The residential use restriction is in place and functioning for the designated future non-residential reuse areas.

21.0 ESCA GROUP 3 ROD

This section presents background information on the *Record of Decision, Group 3 Del Rey Oaks/Monterey, Laguna Seca Parking, and Military Operations in Urban Terrain Site Munitions Response Areas, Former Fort Ord, California* (Group 3 ROD; Army, 2014); provides a summary of remedial actions and a technical assessment of the actions taken at the site; identifies any issues related to the protectiveness of the remedies based on the review; presents recommendations and follow-up actions, if needed, to address any issues identified during the review; and provides a statement regarding the protectiveness of the site remedies. The Group 3 ROD was finalized in December 2014 and is based on the *Final Group 3 Remedial Investigation/Feasibility Study, Del Rey Oaks/Monterey, Laguna Seca Parking, and Military Operations in Urban Terrain Site Munitions Response Areas, Former Fort Ord, Monterey County, California* (Group 3 RI/FS Report; ESCA RP Team, 2012b) issued in July 2012.

The ESCA Group 3 Areas include the DRO/Monterey MRA, the Laguna Seca Parking MRA, and the MOUT Site MRA. Originally, Group 3 also included the IA Ranges MRA. The IA Ranges MRA was removed from the ESCA Group 3 Areas for further evaluation, as agreed upon by FORA, the EPA, DTSC, and the Army, and is discussed in Section 23.0 of this report. A glossary of MMRP terms is provided in Appendix D.

21.1 ESCA Group 3 ROD Background

The following sections provide a summary background and the planned reuse for each of the Group 3 MRAs. These investigations and removal actions conducted within the Group 3 MRAs were focused on addressing explosive hazards.

21.1.1 DRO/Monterey MRA

The DRO/Monterey MRA is located in the southwestern portion of the former Fort Ord and encompasses approximately 30 acres of undeveloped land and approximately 5.245 acres of the existing South Boundary Road and associated right-of-way. The DRO/Monterey MRA is comprised of two non-contiguous portions of MRS-43 and a portion of the South Boundary Road, which is not located within the boundaries of a MRS. Historical records and recovered MEC and MD indicate that MRS-43 was previously used for artillery training with 37mm projectiles.

The initial phase of the MEC removal action at the DRO/Monterey MRA was designed to address MEC present to a depth of up to 4 feet bgs. During this removal action, all detected anomalies (i.e., ferromagnetic material), even those deeper than 4 feet, were investigated with all detected MEC removed within the MRA. The next phase of the investigation was designed to address MEC to depth of detection. All anomalies detected during the removal actions were investigated or resolved, and all detected MEC items were removed or destroyed.

The Army's munitions response contractor conducted MEC removal actions across the entire MRA with the exception of a 50-foot wide strip of land on the northwest boundary of the MRA (in the habitat reserve area, Parcel L6.2) and the southern side of the road east of Parcel E29.1, which are both located outside of the MRS-43 boundary. The initial phase of the MEC removal action was conducted using analog instruments to depths of 4 feet bgs. The subsequent phase of the investigation was conducted using digital geophysical equipment to the depth of detection. While two small portions of the MRA have not been subjected to MEC removal actions, SiteStat/GridStat (SS/GS) investigation grids were either located partially within or immediately adjacent to the two areas. No MEC or MD items were recovered from the SS/GS investigation grids located within or immediately adjacent to these two areas (ESCA RP Team, 2018).

The DRO/Monterey MRA is designated for habitat management and business park/light industrial and office/research and development reuse in the *Fort Ord Base Reuse Plan* (FORA, 1997). The westernmost portion of the MRA is designated for habitat reserve as a development buffer, and the easternmost portion of the MRA is designated for development. The northern boundary of the MRA, comprised of South Boundary Road and associated right of way, is designated for development.

21.1.2 Laguna Seca Parking MRA

The Laguna Seca Parking MRA is located in the south-central portion of the former Fort Ord adjacent to the Laguna Seca Raceway and encompasses approximately 276 acres. The Laguna Seca Parking MRA includes four MRSs: MRS-14A, MRS-29, MRS-30, and MRS-47. Historical records and recovered MEC and MD indicate that these MRSs were previously used for artillery training, mortar training, troop training, and basic maneuvers.

The MEC removal actions completed at the Laguna Seca Parking MRA were designed to address MEC to a depth of 4 feet bgs in MRS-29, MRS-30, MRS-47, and central portion of MRS-14A, and to a depth of 1 foot bgs along the western and eastern slopes of MRS-14A. All anomalies, even those deeper than 4 feet in MRS-29, MRS-30, MRS-47, and central portion of MRS-14A, were investigated with all detected MEC encountered removed within the MRA.

MEC removal actions completed by the Army's munitions response contractors were conducted using analog instruments across the MRSs within the MRA. The MEC removal actions were conducted to a depth of 4 feet bgs with two exceptions: the MEC removal action was conducted to a depth of 1 foot bgs along the western and eastern slopes of MRS-14A; and MEC removal actions were not completed in two whole and four partial grids in MRS-14A due to terrain-related inaccessibility. Based upon the results of the MEC removal action conducted immediately surrounding these grids, it is not anticipated that MEC items posing a significant risk would remain in the six grids. The majority of MEC and MD encountered were consistent with the documented historical use of the MRA. Some items encountered along the western boundary of the MRA were likely the result of being adjacent to the historical impact area (ESCA RP Team, 2018).

The Laguna Seca Parking MRA is designated for open space/recreation reuse in the Base Reuse Plan (FORA, 1997) and development with reserve areas or development with restrictions in the HMP (USACE, 1997). The northernmost and southernmost portions of the MRA will continue to be used for overflow parking during Laguna Seca Raceway events and includes parking, staging, and event-related roadway access along Barloy Canyon Road and South Boundary Road. The central portion of the MRA, including an open space/recreation reuse area and State Route 68 Bypass right of way, is designated for development with restrictions.

21.1.3 MOUT Site MRA

The MOUT Site MRA is located in the central portion of the former Fort Ord within the northeastern portion of the historical impact area and encompasses approximately 58 acres. The MRA consists of MRS-28 (the MOUT Training Area), which includes a mock city training area currently used for tactical training of military, federal, and local law enforcement and emergency services providers, and a portion of Barloy Canyon Road located along the eastern boundary of the historical impact area. The northern segment of the Barloy Canyon Road portion of the MOUT Site MRA passes through a former training site identified as MRS-27O. The southern portion of Barloy Canyon Road is bordered by MRS-14D to the east. The MRA also includes a portion of Barloy Canyon Road located outside of a MRS boundary.

Historical records and recovered MEC and MD indicate that the MOUT training area (MRS-28) was used for infantry training in an urban setting in addition to hand grenade training, firing point for rocket launcher training, hand-to-hand combat, combat pistol training, assault course, squad tactics, and night defense training.

The Barloy Canyon Road portion of the MRA was maintained as a road and the overlapping MRS-27O was used for bivouac, troop maneuvers, and subcaliber artillery training.

The visual surface removal and field verification survey conducted in the MOUT Site MRA were designed to address MEC on the ground surface. Grid sampling investigations were conducted in a small percentage of the MRA to address MEC to depths of 4 feet bgs. During the grid sampling investigations, all anomalies (i.e., ferromagnetic material), even those deeper than 4 feet, were investigated with all detected MEC encountered removed within the MRA (ESCA RP Team, 2018).

A grid sampling investigation and a SS/GS sampling investigation were conducted over a portion of MRS-28. During sampling, geophysical anomalies were intrusively investigated to a depth of up to 4 feet bgs. Following an accidental fire in the area, a visual surface TCRA was conducted over the majority of the MOUT Site MRA with the exception of a small area in the southwestern portion of MRS-28 and the southern portion of Barloy Canyon Road along the eastern side of the roadway. A site verification survey was performed in the southwestern portion of MRS-28 where the TCRA was not conducted (ESCA RP Team, 2012b). A grid sampling investigation and 4-foot removal action were conducted in MRS-14D, adjacent and to the east of the southern portion of Barloy Canyon Road (USA, 2001g). One sampling grid was located in the roadway Parcel L20.8 within the boundaries of the MOUT Site MRA.

The MOUT Site MRA is designated for school/university reuse in the Base Reuse Plan (FORA, 1997). The western portion of the MRA is designated as a training facility for tactical/law enforcement training and emergency service provider training by MPC. The roadway parcel, which includes a portion of Barloy Canyon Road, will continue to be used as a roadway for recreation and for transportation during raceway events, and will require maintenance and possibly utilities.

21.2 Remedial Actions

The following four remedial alternatives were developed and evaluated in the Group 3 Feasibility Study (Volume 3; ESCA RP Team, 2012b) to address the risk from MEC for the future land users identified in the Group 3 Risk Assessment (Volume 2; ESCA RP Team, 2012b):

- Alternative 1: No Further Action;
- Alternative 2: Land Use Controls;
- Alternative 3: Additional Subsurface MEC Remediation; and
- Alternative 4: Additional Subsurface MEC Remediation in Selected Areas of the MRAs and Land Use Controls

21.2.1 Remedy Selection

Remedial Alternative 2 (Land Use Controls) was selected as the remedy to address MEC risks at the Group 3 MRAs. The selected remedy for the Group 3 MRAs includes LUCs because detection technologies may not detect all MEC present. The LUCs include requirements for: (1) munitions recognition and safety training for those people that conduct ground-disturbing or intrusive activities on the property; (2) construction support by UXO-qualified personnel for ground-disturbing or intrusive activities; and (3) restrictions prohibiting residential use in the designated future non-residential reuse area. For the purpose of this document, residential use includes, but is not limited to: single family or multi-family residences; childcare facilities; nursing homes or assisted living facilities; and any type of educational purpose for children or young adults in grades kindergarten through 12 (Army, 2007b). Any proposal for residential development in the Group 3 MRAs will be subject to regulatory agency and Army review and approval; however, per FORA *Fort Ord Base Reuse Plan* (FORA, 1997), no residential reuse is planned for the Group 3 MRAs.

The remedial action objective developed for the protection of human health and the environment for the Group 3 MRAs is to prevent or reduce the potential for the Group 3 MRA reuse receptors to come in direct contact with MEC items potentially remaining in subsurface soil.

21.2.2 Remedy Implementation

A *Final Group 3 Land Use Controls Implementation Plan/Operation and Maintenance Plan, Del Rey Oaks/Monterey, Laguna Seca Parking, and Military Operations in Urban Terrain Site Munitions Response Areas, Former Fort Ord, Monterey County, California* (Final Group 3 LUCIP/OMP) was issued by FORA in September 2018 (ESCA RP Team, 2018) as a result of the selection of LUCs as a component of the remedy in accordance with the ROD. The purpose of the Group 3 LUCIP/OMP is to provide information on how the remedy selected in the Group 3 ROD (Army, 2014) will be implemented and maintained. The Group 3 LUCIP/OMP presents the LUC objectives as described in the ROD and describes remedy implementation actions to be performed in accordance with the ROD to ensure the LUC objectives are met.

The munitions recognition and safety training requirement is currently being implemented through: 1) annual distribution of the MEC Safety Guide to property owners and other land users (related to utilities serving the property) of the availability of munitions recognition and safety training; 2) excavation permitting and construction support requirements for training; and 3) annual training compliance monitoring and reporting. Munitions recognition and safety training is available to anyone conducting ground-disturbing or intrusive activities on the Group 3 MRAs, and is provided through a publicly accessible web-based eLearning platform at www.FortOrdSafety.com.

Construction support is required for ground-disturbing or intrusive activities. For projects involving disturbance of 10 cy of soil or more, construction support is being implemented through a digging and excavation permitting process under the Monterey County and the Cities of Del Rey Oaks and Monterey digging and excavation ordinances. Projects involving disturbance of less than 10 cy of soil do not require a digging and excavation permit, but may need to be coordinated with FORA (or the ESCA Successor [City of Seaside]), Army, EPA, and DTSC to ensure compliance with MEC safety requirements.

Residential use is currently prohibited within the Group 3 MRAs by deed restrictions and State CRUPs. To ensure the residential use restriction is maintained, annual inspections of the Group 3 MRAs are conducted, including review of property transfers and deed amendments, development activities, and changes in land use.

Based on review of the LUCI O&M Plan, relevant deeds, and supporting documentation, the EPA determined that all remedial actions have been implemented and completed at the Group 3 MRAs in a letter dated September 27, 2018 (EPA, 2018). In a correspondence dated April 14, 2020, EPA certified the site-wide remedial action completion for the ESCA Remediation Program (EPA, 2020).

21.2.3 System Operations and Maintenance

The final version of the Group 3 LUCIP/OMP was completed in September 2018 (ESCA RP Team, 2018)

Annual LUC inspections conducted by Monterey County, City of Del Rey Oaks, and City of Monterey indicated no compliance issues with regard to the LUC objectives. The results of the annual monitoring activities were reported to the EPA, DTSC, and the Army by FORA (FORA, 2017, 2018a, 2018b, and 2019) and Monterey County (Monterey County Department of Health, 2020). Actual costs associated with LUC inspections and reporting conducted by the jurisdictions are not available for comparison. Per the AOC, ESCA produces monthly Long-Term Obligation (LTO) Management Program Reports that summarize LUC monitoring activities. No costs associated with implementation of the remedy have been incurred by FORA or its ESCA Successor during the September 2016 through September 2021 reporting period.

No ground-disturbing or intrusive activities have taken place on the DRO/Monterey MRA and no munitions recognition and safety training has been requested during the September 2016 through September 2021 reporting period for work performed in the MRA. No ground-disturbing or intrusive activities have taken place on the Laguna Seca Parking MRA and no other munitions recognition and safety training has been requested during the September 2016 through September 2021 reporting period for work performed in the MRA.

On October 7, 2020, BRAC discovered small metal markers had been installed on roads adjacent to the MOUT site. The ESCA parcel had recently been transferred from FORA to Monterey Peninsula College (MPC). Subsequent communication with MPC indicated that MPC had installed the survey markers as part of the planning effort for future development and use of the MOUT parcel. MPC was unaware that it was considered ground-disturbing activity that required an evaluation for the need for construction support. The amount of ground disturbance was minor (less than 10 cubic yards). No munitions-related objects were encountered. The markers were on roads in federal property and subsurface removal had been conducted. The BRAC Office communicated to MPC the need for munitions recognition and safety training and consideration for construction support for all ground-disturbing activities in the MOUT property and the adjacent federal property. The BRAC Office also communicated the Impact Area entry procedures and requirements when MPC accesses the MOUT property. MPC has since coordinated other planned ground-disturbing activities with the Army. No additional ground-disturbing or intrusive activities have taken place on the MOUT Site MRA and no munitions recognition and safety training has been requested during the September 2016 through September 2021 reporting period for work performed in the MRA.

21.2.4 Property Transfer Status

As of September 30, 2021, a total of approximately 552 acres have been transferred. These acreages partially or wholly occupy 12 parcels that are part of the ESCA Group 3 MRA ROD.

Parcels E29.1, F1.7.2, L6.2, L20.3.1, L20.3.2, L20.5.1, L20.5.2, L20.5.3, L20.5.4, L20.8, L20.13.1.2, and L20.13.3.1 were transferred by the Army to FORA in May 2009 as part of the ESCA (Table 1). In the June 2020 deed release documents, the Army provided the CERCLA warranty and FORA transferred the property to the designated recipients.

Initial implementation of selected remedies was completed by FORA, and in April 2020 the EPA provided a site-wide remedial action completion letter for the ESCA project. The Army provided the CERCLA warranty, and the underlying properties have been transferred from FORA to the designated recipients.

21.3 Progress Since the Last Five-Year Review

21.3.1 2017 Five-Year Review Protectiveness Statement

The 2017 protectiveness statement for the ESCA Group 3 Areas stated:

> "Protective. The remedy for the ESCA Group 3 areas is protective of human health and the environment. Potential exposure pathways that could result in unacceptable risks are being controlled."

21.3.2 Status of 2017 Five-Year Review Issues and Recommendations

The 2017 Five-Year Review Report presented no issues with the ESCA Group 3 Areas and recommended that the Group 3 LUCIP/OMP be finalized. The Final Group 3 LUCIP/OMP was finalized on September 21, 2018.

Actions taken since the last Five-Year Review are summarized below:

Issues from Previous Review	*Recommendations/ Follow-up Actions*	*Implementing Party*	*Milestone Date*	*Action Taken and Outcome*	*Date of Action*
None identified	Complete LUCIP/OMP following the CERCLA process	EPA/State in accordance with AOC and FFA Amendment No. 1	October 2017	Final Group 3 LUCIP/OMP finalized	LUCIP/OMP - September, 2018

21.4 ESCA Group 3 ROD Five-Year Review Process

21.4.1 Document Review

Documents reviewed in this evaluation included the previous Five-Year Review Report, annual LUC monitoring reports, monthly ESCA Long-Term Obligation Management Program Reports, MRS Security Program records, Group 3 RI/FS Report, Group 3 ROD, and Final Group 3 LUCIP/OMP, as listed in the references in Appendix A.

21.4.2 Data Review

Since the last Five-Year Review Report was issued, the Final Group 3 LUCIP/OMP was finalized. Data from the annual LUC monitoring reports and MRS Security Program records were reviewed.

21.4.3 Site Inspection and Interviews

A site inspection was performed at the DRO/Monterey MRA, Laguna Seca Parking MRA, and MOUT Site MRA from July 21-22, 2021 to verify the current uses of the sites. Although access management measures are not a requirement of the Group 3 ROD, the existing signs and barricades were noted during site inspections.

The DRO/Monterey MRA continues to be undeveloped, with the exception of the portion of South Boundary Road included in the MRA. Fencing consists of two segments of four-strand barbed wire along northeast boundary, to the southwest of South Boundary Road. The MRA is vacant and there are no signs of inappropriate activity.

The Laguna Seca Parking MRA continues to be used for overflow parking during Laguna Seca Raceway events. South Boundary Road and Barloy Canyon Road are not usually open to vehicle traffic; however, the roadways are opened to controlled vehicle traffic during events at the Laguna Seca Raceway. The site is vacant and there are no signs of inappropriate activity.

The MOUT Site MRA continues to be used for tactical training of military, federal, and local law enforcement, and emergency services providers. Fencing, locked gate, signs, barbed wire, and concertina wire are in good condition on the gate to Impossible Canyon from Eucalyptus Road. No signs of erosion were observed on roads within the MRA. The MRA is in good condition and there are no signs of inappropriate activity.

A copy of the Site Inspection Form and associated photographs are presented in Appendix B, Field Documentation of Site Inspections and Interviews.

21.5 Technical Assessment

21.5.1 Question A

Is the Remedy functioning as intended by the Decision Documents?

Institutional controls (LUCs) are in place and are effectively preventing or reducing the potential for the Group 3 MRA reuse receptors to come in direct contact with MEC items potentially remaining in subsurface soil. The residential use restriction is in place and functioning for the Group 3 MRAs.

21.5.2 Question B

Are the Exposure Assumptions, Toxicity Data, Cleanup Levels, and Remedial Action Objectives used at the time of remedy selection still valid?

Yes. There have been no changes in the assumptions, toxicity data, or cleanup levels used at the time of the remedy selection. As noted in Section 21.2, the RAO developed for the Group 3 MRAs is to prevent or reduce the potential for the Group 3 MRA reuse receptors to come in direct contact with MEC items potentially remaining in subsurface soil.

21.5.3 Question C

Has any other information come to light that could call into question the Protectiveness of the Remedy?

No additional information has been identified that could call the protectiveness of the remedy into question.

21.6 Issues

Implementation of the site remedy is in progress. There are no issues affecting the protectiveness of the remedy for the Group 3 MRAs.

21.7 Recommendations and Follow-Up Actions

There are no recommendation or follow-up actions identified for the site based on the results of the inspections and monitoring conducted during this review period.

21.8 Protectiveness Statement

Protective. The remedy for the ESCA Group 3 areas is protective of human health and the environment.

Potential exposure pathways that could result in unacceptable risks are being controlled. Institutional Controls (land use controls) are in place and are effectively preventing or reducing the potential for the reuse receptors to come in direct contact with munitions and explosives of concern items potentially remaining in subsurface soil. The residential use restriction is in place and functioning for the designated future non-residential reuse areas.

22.0 ESCA GROUP 4 ROD

This section presents background information on and the status of the ESCA Group 4 Area and presents recommendations and follow-up actions, if needed, to address issues identified during the review.

The ESCA Group 4 Area includes the Future East Garrison MRA (previously referred to as East Garrison MRA). This section presents background information on the *Final Group 4 RI/FS, Future East Garrison Munitions Response Area, Former Fort Ord, Monterey County, California* (Final Group 4 RI/FS Report; ESCA RP Team, 2017d). The report is based on the evaluation of previous work conducted for the Future East Garrison MRA in accordance with the *Final Group 4 Remedial Investigation/Feasibility Study Work Plan, Future East Garrison Munitions Response Area, Former Fort Ord, Monterey County, California* (Group 4 RI/FS Work Plan; ESCA RP Team, 2010). Record of Decision Group 4 Future East Garrison Munitions Response Area, Former Fort Ord, California (Group 4 ROD) was signed on September 25, 2018 (Army, 2018). A glossary of MMRP terms is provided in Appendix D.

22.1 ESCA Group 4 ROD Background

The Final Group 4 RI/FS Report was finalized in June 2017 (ESCA RP Team, 2017d). Future land uses for the Future East Garrison MRA include residential reuse, development reuse with borderland interface, and habitat reserve reuse. A summary of the background and response actions conducted at the Future East Garrison MRA are provided below. The Group 4 RI/FS Report was used in the development of the Proposed Plan, and subsequently the ESCA Group 4 ROD (Army, 2018).

Physical Characteristics

The Future East Garrison MRA encompasses approximately 252 acres and fully contains Parcels E11b.6.1, E11b.7.1.1, E11b.8, and L20.19.1.1. The MRA includes all or portions of four MRSs: MRS-11, MRS-23, MRS-42, and MRS-42 EXP. In addition, small arms range fans extended into the northwestern portion of the MRA. The Future East Garrison MRA is wholly contained within the jurisdictional boundaries of Monterey County. The Future East Garrison MRA includes a former Ammunition Supply Point, Rocket Assembly Building, Office, Warehouses and other associated infrastructure.

History of Contamination

Initial use of the Future East Garrison MRA began in approximately 1917 when the U.S. government purchased more than 15,000 acres of land and designated it as an artillery range. Pre-World War II (WWII) munitions training occurred predominantly in the eastern portion of the Future East Garrison MRA before the known training configuration. Documentation of pre-WWII training activities at the former Fort Ord is limited; however, pre-WWII-era military munitions have been removed during previous response actions by the Army within the MRA. Based on the Draft Group 4 RI/FS Report, the site appears to have been used for troop training and maneuvers, rifle grenade training, hand grenade training, engineering, and demolition operations/training and pre-WWII trainings.

Response Actions

The Army performed MEC sampling and removal actions from 1997 to 2005 at MRS-11, MRS-23, MRS-42 and MRS-42 EXP. The MEC removal action conducted in MRS-23 included a 4-foot removal action on 39 grids and partial grids. No additional MEC fieldwork was necessary for characterization of the MRS-23 area. Additional munitions responses as part of the remedial investigation were conducted by FORA and documented in the *Final Group 4 Remedial Investigation Technical Information Paper, Future East Garrison MRA, Former Fort Ord, Monterey County, California* (ESCA RP Team, 2016).

These munitions responses resulted in completion of subsurface MEC removals to the depth of detection over the MRA, with exception of areas with no evidence of munitions use, including isolated areas with steep terrain, and under existing roadways, structures, paved and asphalt areas, and fences. Underground utility corridors were investigated to the depth of detection but were left in place. Subsurface MEC removals were not completed in small portions of the area designated for habitat reserve.

ESCA Residential Quality Assurance Process

The ESCA RQA Process, as described in Section 19.1.1, Residential Quality Assurance, was conducted at the approximately 57-acre designated future residential reuse area of the Future East Garrison MRA. A Level 1 Initial Evaluation, consisting of a detailed data evaluation, was conducted for the future residential reuse portions of the MRA. Based on the results of the evaluation, FORA, in consultation with the EPA and DTSC, determined that approximately 57 acres of the Future East Garrison MRA designated for residential reuse were recommended as acceptable for residential reuse with appropriate institutional controls, such as applicability of the local Digging and Excavation on the Former Fort Ord Ordinance, future construction support related to munitions, and property transfer disclosures (ESCA RP Team, 2016). DTSC has released the Residential Protocol (DTSC, 2008a) that, when successfully implemented and approved by DTSC, would provide a basis to remove a State residential CRUP on munitions response sites (DTSC, 2014). FORA issued the *Final Residential Protocol Implementation Technical Report, Future East Garrison MRA*, in June 2017 (ESCA RP Team, 2017b) to provide data and conclusions to support the removal of the residential CRUP on the designated residential area.

The data collected during the ESCA RQA Process Level 1 Initial Evaluation has been included in the Final Group 4 RI/FS Report to support the Army's Group 4 ROD.

Basis for Taking Action

Characterization of the nature and extent of MEC remaining in the Future East Garrison MRA was necessary to complete the Group 4 RI/FS Report in which remediation alternatives will be evaluated for the Group 4 MRA pursuant to the CERCLA.

22.2 Remedial Actions

The following three remedial alternatives were developed and evaluated in the Group 4 Feasibility Study (Volume 3; ESCA RP Team, 2017d) to address the risk from MEC for the future land users identified in the Group 4 Risk Assessment (Volume 2; ESCA RP Team, 2017d):

- Alternative 1: No Further Action;
- Alternative 2: Land Use Controls; and
- Alternative 3: Additional Subsurface MEC Remediation.

22.2.1 Remedy Selection

Following a 30-day public comment period on the Proposed Plan, the Group 4 ROD was signed on September 25, 2018 (Army, 2018). Remedial Alternative 2 (Land Use Controls) was selected as the remedy to address MEC risks at the Future East Garrison MRA. The LUCs include requirements for: (1) military munitions recognition and safety training for workers who will conduct ground-disturbing or intrusive activities; (2) construction support to manage the risk associated with the potential presence of military munitions for ground-disturbing or intrusive activities to address MEC that potentially remain in the subsurface; (3) access management measures in areas designated for habitat reserve; (4) restrictions prohibiting residential use in areas designated for non-residential development reuse or for habitat reserve; and (5) restrictions against inconsistent uses (applicable to the habitat reserve areas). For the purpose of this document residential use includes: single family or multi-family residences; childcare facilities; playgrounds; hospitals; nursing homes or assisted living facilities; and any type of educational facility for children or young adults in grades

kindergarten through 12 (Army, 2018). Any proposal for residential development in the Group 4 MRA will be subject to regulatory agency and Army review and approval. Per FORA Fort Ord Base Reuse Plan (FORA, 1997), the Future East Garrison MRA is designated for school/university reuse with residential infill opportunities. The MRA is delineated into 3 different sectors as described below (Volume 2; ESCA RP Team, 2017d):

- Residential (Sector 1) – An approximately 57–acre portion of Parcel E11b.8 is designated for residential reuse. Construction of buildings and roads, installation of utilities, as well as the activities of future residents are expected within this area of the MRA.
- Non-residential (Sector 2) – Parcel L20.19.1.1 and a portion of Parcel E11b.8 are designated for non-residential development including roadways and a 100-ft borderland development buffer along the NRMA interface. The area totals approximately 18 acres. Development encompassing infrastructure activities, such as roadway and utility construction, is expected to occur.
- Habitat Reserve (Sector 3) – The remaining portions of the MRA comprises Parcels E11b.6.1 and E11b.7.1.1, totaling approximately 177 acres, are designated for habitat reserve. Disturbance to the habitat reserve areas during reuse will be subject to restrictions, as specified in the deed for the property. Habitat conservation-related restrictions include, but are not limited to: 1) applicable avoidance, protection, conservation and restoration requirements identified in the HMP, and 2) removal of any vegetation, cutting of trees, disturbance to soil, or any other actions that would impair the conservation of the species or their habitats (USACE, 1997).

The remedial action objective developed for the protection of human health and the environment for the Future East Garrison MRA to prevent or reduce the potential for reuse receptors to come in direct contact with MEC items potentially remaining in subsurface soil and minimize potential impacts from such exposures.

22.2.2 Remedy Implementation

A Final Group 4 Land Use Controls Implementation Plan/Operation and Maintenance Plan, Future East Garrison Munitions Response Area, Former Fort Ord, Monterey County, California (Final Group 4 LUCIP/OMP) was issued by FORA in February 2019 (ESCA RP Team, 2019a) as a result of the selection of LUCs as a component of the remedy in accordance with the ROD (Army, 2018). The purpose of the Final Group 4 LUCIP/OMP is to provide information on how the remedy selected in the Group 4 ROD (Army, 2018) will be implemented and maintained. The Final Group 4 LUCIP/OMP presents the LUC objectives as described in the ROD and describes remedy implementation actions to be performed in accordance with the ROD to ensure the LUC objectives are met.

The munitions recognition and safety training requirement is being implemented in the Future East Garrison MRA through: 1) annual distribution of the MEC Safety Guide to property owners and other land users (related to utilities serving the property) of the availability of munitions recognition and safety training; 2) excavation permitting and construction support requirements for training; and 3) annual training compliance monitoring and reporting. Munitions recognition and safety training is being provided through a publicly accessible web-based eLearning platform at www.FortOrdSafety.com. This is available to anyone conducting ground-disturbing activities or intrusive activities at the Future East Garrison MRA.

Construction support is required for ground-disturbing or intrusive activities. For projects involving disturbance of 10 cy of soil or more, construction support is being implemented through excavation permit requirements consistent with Monterey County digging and excavation ordinance. Projects involving disturbance of less than 10 cy of soil do not require a digging and excavation permit, but may need to be coordinated with FORA (or the ESCA successor [City of Seaside]), Army, EPA, and DTSC to ensure compliance with MEC safety requirements.

Residential use of the MRA will be limited to only those parcels in Sector 1. Residential use was prohibited within the Future East Garrison MRA by Federal deed restrictions and State CRUPs. The deed was modified

to remove the residential use restriction on the designated future residential reuse areas (Sector 1 parcels). The residential use restriction will remain for the areas designated for future non-residential development reuse or habitat reserve. Residential use includes, but is not limited to: single family or multi-family residences; childcare facilities; nursing homes or assisted living facilities; and any type of educational purpose for children or young adults in grades kindergarten through 12. The DTSC modified the CRUP, as appropriate, to reflect the land use restrictions included in the selected remedy.

Based on review of the LUCI O&M Plan, relevant deeds, and supporting documentation, the EPA determined that all remedial actions have been implemented and completed at the Group 4 MRA in a letter dated February 28, 2019 (EPA, 2019). In a correspondence dated April 14, 2020, EPA certified the site-wide remedial action completion for the ESCA Remediation Program (EPA, 2020).

22.2.3 System Operations and Maintenance

The final version of the Future East Garrison MRA LUCIP/OMP was completed in February 2019 (ESCA RP Team, 2019). A Final Group 4 Residential Protocol Implementation Technical Report, Future East Garrison Munitions Response Area, Former Fort Ord, Monterey County, CA (RPI Technical Report; ESCA RP Team, 2017b) was completed in June 2017. This document was developed in support of modifying the existing DTSC CRUP for the Sector 1 parcels to lift the residential use restriction. Initial implementation of the selected remedy is complete.

22.2.4 Property Transfer Status

As of September 30, 2021, a total of approximately 252 acres have been transferred. These acreages partially or wholly occupy 4 parcels that are part of the ESCA Group 4 MRA ROD.

Parcels E11b.6.1, E11b.7.1.1, E11b.8, and L20.19.1.1 were transferred by the Army to FORA in May 2009 as part of the ESCA (Table 1). In December 2019, the CRUPs for the parcels were modified by DTSC to remove the residential use restriction from the designated residential use areas. In the June 2020 deed release documents, the Army provided the CERCLA warranty and FORA transferred the property to the designated recipients.

Initial implementation of selected remedies was completed by FORA, and in April 2020 the EPA provided a site-wide remedial action completion letter for the ESCA project. The Army provided the CERCLA warranty, and the underlying properties have been transferred from FORA to the designated recipients.

22.3 Progress Since the Last Five-Year Review

22.3.1 2017 Five-Year Review Protectiveness Statement

The 2017 protectiveness statement for the ESCA Group 4 MRA was:

> "The preferred alternative for the ESCA Group 4 Areas is expected to be protective of human health and the environment upon implementation. Investigations and removal actions have been completed at the Group 4 MRA. Land use restrictions are in place, which are intended to be protective of human health and the environment in the short term. These restrictions are contained in two places: 1) the State CRUP entered into by DTSC and the Army, and 2) the Federal deed transferring the property to FORA. In order for the remedy to be protective in the long term, the following action needs to be taken: completion of Group 4 ROD."

22.3.2 Status of 2017 Five-Year Review Issues and Recommendations

The 2017 Five-Year Review Report presented no issues with the Future East Garrison MRA and recommended that the ROD and a LUCIP/OMP were finalized. The Future East Garrison MRA ROD was finalized on September 25, 2018, and the Future East Garrison MRA LUCIP/OMP was finalized on February 22, 2019. An RPI Technical Report was finalized June 15, 2017.

Actions taken since the last Five-Year Review are summarized below:

Issues from Previous Review	*Recommendations/ Follow-up Actions*	*Implementing Party*	*Milestone Date*	*Action Taken and Outcome*	*Date of Action*
None Identified	Complete, sign a ROD following the CERCLA process	The Army and FORA in accordance with ESCA, AOC, and FFA Amendment No. 1	September 2018	Final Group 4 ROD finalized and signed	September, 2018
None Identified	Complete RD/RA, LUCIP/OMP, or similar document following the CERCLA process	FORA in accordance with ESCA, AOC, and FFA Amendment No. 1	October 2018	Final Group 4 LUCIP/OMP finalized and signed	February 2019

22.4 ESCA Group 4 ROD Five-Year Review Process

22.4.1 Document Review

Documents reviewed in this evaluation included the previous Five Year Review Report, Annual LUC Monitoring Reports, monthly ESCA Long-Term Obligation Management Program Reports, MRS Security Program records, the Future East Garrison MRA RI/FS Report, Group 4 ROD, and Final Group 4 LUCIP/OMP, as listed in the references in Appendix A.

22.4.2 Data Review

Since the last Five-Year Review was issued, the Group 4 ROD and Group 4 LUCIP/OMP were finalized. Data from the annual MRS Security Program reports were reviewed.

22.4.3 Site Inspection and Interviews

A site inspection was conducted at the Future East Garrison MRA on July 21-22, 2021 to verify current uses of the sites. No new development was observed within the Future East Garrison MRA.

A copy of the Site Inspection Form and associated photographs are presented in Appendix B, Field Documentation of Site Inspections and Interviews.

22.5 Technical Assessment

22.5.1 Question A

Is the Remedy functioning as intended by the Decision Documents?

Institutional Controls (LUCs) are in place and are effectively preventing or reducing the potential for the Future East Garrison MRA reuse receptors to come in direct contact with MEC items potentially remaining in

subsurface soil. The residential use restriction is in place and functioning for the designated future non-residential reuse area of the Future East Garrison MRA.

22.5.2 Question B

Are the Exposure Assumptions, Toxicity Data, Cleanup Levels, and Remedial Action Objectives used at the time of remedy selection still valid?

Yes. There have been no changes in the assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of remedy selection.

22.5.3 Question C

Has any other information come to light that could call into question the Protectiveness of the Remedy?

No additional information has been identified that could call the protectiveness of the remedy into question.

22.6 Issues

Initial implementation of the selected remedy is complete. There are no issues affecting the protectiveness of the remedy for the Future East Garrison MRA.

22.7 Recommendations and Follow-Up Actions

There are no recommendation or follow-up actions identified for the site.

22.8 Protectiveness Statement

Protective. The remedy for the Future East Garrison area is protective of human health and the environment. Potential exposure pathways that could result in unacceptable risks are being controlled. Institutional Controls (land use controls) are in place and are effectively preventing or reducing the potential for the reuse receptors to come in direct contact with munitions and explosives of concern items potentially remaining in subsurface soil. The residential use restriction is in place and functioning for the designated future non-residential reuse areas.

23.0 ESCA INTERIM ACTION RANGES MRA ROD

This section presents background information on the ESCA Interim Action (IA) Ranges MRA ROD; provides a summary of the remedial actions; a technical assessment of the actions taken; identifies any issues related to the protectiveness of the remedies based on the review; presents recommendations and follow-up actions, if needed, to address any issues identified during the review; and provides a statement regarding the protectiveness of the site remedies. A glossary of MMRP terms in provided in Appendix D.

23.1 ESCA Interim Action Ranges MRA ROD Background

The Interim Action Ranges MRA is located in the north-central portion of the former Fort Ord and encompasses approximately 227 acres within the MRS Ranges 43-48 where an interim remedial action was conducted. Remedial alternatives for the Interim Action Sites were evaluated in the *Final Interim Action OE RI/FS for Ranges 43-48, Range 30A, Site OE-16* (Harding ESE, 2002). The rationale for the selected remedies is documented in the *Record of Decision, Interim Action for Ordnance and Explosives at Ranges 43-48, Ranges 30A, and Site OE-16, Former Fort Ord, California* (Interim Action ROD; Army, 2002a).

The Interim Action ROD selected interim remedial actions consisting of vegetation clearance by prescribed burning, surface and subsurface MEC removal, and detonation of MEC using engineering controls. Interim remedial action was conducted by the Army on MRS Ranges 43-48 (Parsons, 2007). A Design Study and resulting additional remedial actions were conducted by FORA, under the ESCA, within the northern portion of the site that comprises the Interim Action Ranges MRA, as described in the *Final Interim Remedial Action Completion Report, Interim Action Ranges Munitions Response Area, Phase II, Former Fort Ord, Monterey, California* (ESCA RP Team, 2015a). The activities completed during the Design Study and Phase II Interim Action began in February 2011 and were completed in March 2013. Approximately 36 acres of SCAs and approximately 9 acres of NCAs within MRS-Ranges 43-48 are located within the boundaries of the IA Ranges MRA. FORA completed the Design Study in Range 44 SCA, Range 47 SCA, and Central Area NCAs, and the interim remedial action in Range 47 SCA. Two additional SCAs (Range 45 Trench SCA and a small portion of the Fenceline SCA) are also located within the IA Ranges MRA; however, these areas were not included in the Phase II Interim Action completed by FORA. To facilitate completion of the Design Study, the Range 44 SCA and Central Area NCAs were divided into northern and southern portions referred to by FORA as "Range 44 SCA (North)" and "Range 44 SCA (South) and Central Area NCAs". Additionally, one grid of the Central Area NCAs located adjacent to Range 47 SCA was combined with the Range 47 SCA.

The activities performed during the Design Study and Phase II Interim Action at the IA Ranges MRA are summarized below.

Range 44 SCA (North)

A Design Study, as described in the *Phase II Interim Action Work Plan* and associated field variance forms (ESCA RP Team, 2011), was completed for Range 44 SCA (North). The decision regarding the extent and approach for conducting the Design Study was made in consultation with the EPA, DTSC, and the Army. The Design Study included an analog-assisted near-surface investigation of transects in the northern portion of Range 44 SCA. No sensitively-fuzed MEC were recovered during the analog-assisted near-surface investigation. A digital geophysical mapping (DGM) survey and target investigation was conducted in the transects resulting in recovery of MD items associated with a sensitively-fuzed munitions. The extent of the subsurface sensitively-fuzed munitions could not be determined without collection of additional data; therefore, DGM survey activities were expanded to include the remainder of the northern portion of Range 44 SCA (excluding the HA-44 Remediation Area). The expanded survey activities are referred to by FORA as the "Design Study Expansion."

Design Study Expansion activities included an analog-assisted near-surface investigation followed by a DGM survey and target investigation conducted in Range 44 SCA (North). Eight areas where the soil contained a high density of small metallic debris were excavated and sifted. Items (MEC and MD) recovered during soil sift operations in the Design Study Expansion area were related to sensitively-fuzed munitions. One sensitively-fuzed MEC item (projectile, 40mm, practice, M407A1) was found. A second DGM survey and target investigation was conducted in the northernmost grids because of the high density of anomalies remaining and evidence of use of sensitively-fuzed munitions. The DGM survey and target investigation in the southernmost grids did not show evidence for sensitively-fuzed munitions. Based on professional judgment and data collected during the Design Study Expansion, target investigation results were sufficient to determine that there is no evidence of sensitively-fuzed munitions target areas within the southernmost grids.

Following the second DGM survey and target investigation, a transect verification DGM survey and target investigation was performed to determine if additional DGM surveys and target investigations were necessary. The survey was performed over approximately 16 percent of Range 44 SCA (North). The transect verification DGM survey and target investigation resulted in no evidence for sensitively-fuzed items to remain in Range 44 SCA (North); however, a single non-sensitively-fuzed MEC item was recovered in an area that had a high density of anomalies remaining following the two DGM surveys and target investigations. Therefore, a final verification DGM survey was conducted in Range 44 SCA (North) where the single non-sensitively-fuzed MEC item was recovered. No sensitively-fuzed MEC were recovered during the final verification DGM survey. The results of the DGM surveys, target investigation, soil sifting, and verification DGM survey investigation conducted during the Design Study Expansion activities indicated a lack of evidence for intact sensitively-fuzed MEC to remain in Range 44 SCA (North).

Range 44 SCA (South) and Central Area NCAs

A Design Study was completed in accordance with the *Phase II Interim Action Work Plan* and associated field variance forms (ESCA RP Team, 2011), in July 2011 for Range 44 SCA (South) and Central Area NCAs. Due to the lack of evidence for sensitively-fuzed items to remain in the southern portion of the Range 44 SCA and Central Area NCAs, completion of the interim remedial action was not warranted for these areas.

Range 47 SCA

A Design Study, as described in the *Phase II Interim Action Work Plan* and associated field variance forms (ESCA RP Team, 2011), was completed for the Range 47 SCA. The results of the Design Study indicated that an interim remedial action was necessary. The decision regarding the extent and approach for conducting an interim remedial action was made in consultation with the EPA, DTSC, and the Army. The Phase II Interim Action, which began in October 2011 and was completed in September 2012, has been conducted in accordance with the procedures described in the *Phase II Interim Action Work Plan* and associated field variance forms (ESCA RP Team, 2011). The interim remedial action for the Range 47 SCA included excavation and sifting of approximately 37,000 cy of soil and a DGM survey and target investigation across the entire Range 47 SCA with the exception of a sloped escarpment, which was not accessible with DGM equipment. The interim remedial action for the sloped escarpment included an analog survey and anomaly investigation. As part of a quality control corrective action, soil excavation and soil sifting was performed in verification polygons in Range 47 SCA. Following soil excavation and sifting of the verification survey polygons, a verification DGM survey and target investigation was performed over the Range 47 SCA, with the exception of the sloped escarpment, to complete the corrective action and the interim remedial action.

Habitat Restoration

Restoration of habitat parcels that were affected by the MEC remedial activities is complete. All success criteria for restoration activities within FORA munitions response areas have been met, with the exception of percent vegetative cover at the Interim Action Ranges North Range 44 and South Range 44 small scale excavation areas (FORA ESCA RP, 2020) The Army will monitor vegetative cover in those areas to ensure

habitat recovery continues and will coordinate with USFWS the methods and timing of such monitoring (USFWS, 2020).

The property has been transferred to Monterey Peninsula College, which is responsible for all other habitat management requirements specified in the HMP such as weed treatments.

Focused Feasibility Study and Preferred Alternative

The interim Action Ranges MRA was subsequently evaluated in the *Final Focused Feasibility Study, Interim Action Ranges Munitions Response Area* (IA Ranges MRA FFS; ESCA RP Team, 2015b) which evaluated remedial alternatives to address the potential residual risk from MEC at the IA Ranges MRA to future land users. The *Record of Decision, Interim Action Ranges Munitions Response Area, Former Fort Ord, California* (IA Ranges MRA ROD; Army, 2017a) was signed on January 18, 2017.

23.2 Remedial Actions

The primary RAOs for the Interim Action Ranges MRA reuse areas, based on EPA RI/FS Guidance (EPA, 1988), are to achieve the EPA's threshold criteria of "Overall Protection of Human Health and the Environment" and "Compliance with ARARs."

23.2.1 Remedy Selection

The selected remedy addresses munitions and explosives of concern, specifically unexploded ordnance and discarded military munitions, that potentially remain in the Interim Action Ranges Munitions Response Area.

The following three remedial alternatives were evaluated in the IA Ranges MRA FFS to mitigate and manage risks from MEC that could still be present in the IA Ranges MRA.

- Alternative 1: No Further Action
- Alternative 2: Land Use Controls
- Alternative 3: Additional Subsurface MEC Remediation
- Alternative 4: Additional Subsurface MEC Remediation in Selected Areas and Land Use Controls

Remedial Alternative 2 (Land Use Controls) was selected as the remedy to address MEC risks at the IA Ranges MRA. The LUCs selected as part of the remedy include requirements for (1) munitions recognition and safety training for people that will conduct ground-disturbing or intrusive activities, (2) construction support for ground-disturbing or intrusive activities to address MEC that potentially remains in the subsurface, (3) restriction prohibiting residential use, and (4) restriction against inconsistent uses.

23.2.2 Remedy Implementation

Parcels E38, E39, E40, E41, and E42 were transferred by the Army to FORA in 2009 as part of the ESCA. FORA prepared the *Final Land Use Controls Implementation Plan/Operation and Maintenance Plan, Interim Action Ranges Munitions Response Area, Former Fort Ord, Monterey County, California* (LUCI O&M Plan; FORA, 2018c) for the implementation of the selected remedy (LUCs) for these parcels. The LUCs described in the IA Ranges MRA ROD and the LUCI O&M Plan include requirements for: (1) munitions recognition and safety training for people that will conduct ground-disturbing or intrusive activities, (2) construction support for ground-disturbing or intrusive activities to address MEC that potentially remains in the subsurface, (3) restriction prohibiting residential use, and (4) restriction against inconsistent uses. Implementation of the selected remedy is the responsibility of FORA, or its ESCA successor (City of Seaside).

The CRUP provided in the LUCI O&M Plan sets forth protective provisions, covenants, restrictions, and conditions for the Interim Action Ranges MRA (FORA, 2018c). As described in the initial CRUP, residential

use is prohibited. As described in the IA Ranges MRA ROD, residential use includes, but is not limited to: single family or multi-family residences; childcare facilities; nursing homes or assisted living facilities; and any type of educational purpose for children or young adults in grades kindergarten through 12. Additionally, use inconsistent with the HMP is restricted for the IA Ranges MRA habitat reserve areas, including but not limited to residential, school, and commercial/industrial development. The CRUP also provides copies of the County of Monterey and City of Seaside digging and excavation ordinances which address the potential MEC risk. The ordinances prohibit excavation, digging, development or ground disturbance of any type that involves the displacement of ten cubic yard or more of soil on the former Fort Ord without a permit. The CRUP is required to accompany all deeds and leases for any portion of the property. A written notice of the potential for the presence of MEC in the soil is required to be given to the buyer, lessee, or the sub-lessee by the owner, lessor, or sub-lessor.

The LUCI O&M Plan was reviewed and approved by the EPA in September 2018. Based on review of the LUCI O&M Plan, relevant deeds, and supporting documentation, the EPA determined that all remedial actions have been implemented and completed at the IA Ranges MRA dated September 27, 2018 (EPA, 2018). In a correspondence dated April 14, 2020, EPA certified the site-wide remedial action completion for the ESCA Remediation Program. The initial CRUP was modified in June 2020 to reflect completion of remedial actions under the AOC.

23.2.3 System Operations and Maintenance

O&M associated with implementation, inspections, and reporting of the LUCs are the responsibility of FORA (or its approved successor). The actions stated in the LUCI O&M Plan remain applicable to the Interim Action Ranges MRA subsequent to FORA transferring the property, until determined by the Army, DTSC, and EPA that one or more of the LUCs is no longer needed. Local jurisdictions will continue to perform annual LUC monitoring and Monterey County (successor to FORA) will continue to compile and submit the reports to the Army, EPA, and DTSC in compliance with reporting requirements as stated in the LUCI O&M Plan.

Annual LUC inspections, including review of records form the local building and planning departments, and review of local 911 records of MEC observations and responses, have been conducted by Monterey County to confirm continued compliance with the LUC objectives. Inspections for fiscal years 2015-2016, 2016-2017, 2017-2018, and 2018-2019 were reported by Monterey County to FORA for the IA Ranges MRA, which includes Parcels E38, E39, E40, E41, and E42. Annual LUC inspections indicated no compliance issues with regard to the LUC objectives. The results of the annual monitoring activities for fiscal years 2015-2016, 2016-2017, 2017-2018, and 2018-2019 were reported to the EPA, DTSC, and the Army by FORA (FORA, 2017, 2018a, 2018b, and 2019). At the time of FORA's dissolution, the responsibility to coordinate and submit the annual LUC inspection reports was acquired by Monterey County. Therefore, the inspections conducted by Monterey County for fiscal year 2019-2020 were reported to the EPA, DTSC, and the Army by Monterey County (Monterey County Department of Health, 2020). Annual LUC inspections indicated no compliance issues with regard to LUC objectives. The results of monitoring indicate that the land uses in the subject parcels are consistent with the LUCs that were selected in the IA Ranges MRA ROD. Actual costs associated with LUC inspection and reporting conducted by Monterey County are not available for comparison.

23.2.4 Property Transfer

As of September 30, 2021, a total of 227 acres have been transferred. These acreages wholly occupy five parcels that are part of the ESCA Interim Action Ranges MRA ROD. Parcels E38 through E42 were transferred by the Army to FORA in May 2009 as part of the ESCA (Table 1). In the June 2020 deed release documents, the Army provided the CERCLA warranty and FORA transferred the property to the designated recipients.

23.3 Progress Since the Last Five-Year Review

This section includes the protectiveness determinations and statements from the last Five-Year Review Report, as well as recommendations from the last Five-Year Review Report, and the current status of those recommendations.

23.3.1 2017 Five-Year Review Protectiveness Statement

The protectiveness statement from the 2017 Five-Year Review Report (Army, 2017) for the IA MRSs (includes the IA Range MRA) stated:

> "The IA MR Sites remedy is expected to be protective of human health and the environment upon completion. In the interim, potential exposure pathways that could result in unacceptable risks are being controlled."

23.3.2 Status of 2017 Five-Year Review Issues and Recommendations

Issues from Previous Review	Recommendations/ Follow-up Actions	Party Responsible	Milestone Date	Action Taken and Outcome	Date of Action
A Final RD/RA Work Plan is still needed for the IA Ranges MRA to complete the CERCLA process.	Complete RD/RA, LUCIP/OMP, or similar document for the IA Ranges MRA, following the CERCLA process	FORA in accordance with ESCA, AOC, and FFA Amendment No. 1	September 2018	LUCI O&M Plan Complete	August 2018

23.4 ESCA Interim Action Ranges MRA ROD Five-Year Review Process

23.4.1 Document Review

Documents reviewed in this evaluation are listed in Appendix A and include, but are not limited to, the following: the IA Sites RI/FS, the IA Sites MR ROD, the MRS-Ranges 43-48 IA Technical Information Paper, the IA Ranges MRA ROD, the IA Ranges MRA LUCI O&M Plan, and MRS Security Program and Annual Land Use Covenant Reports for the years since the last Five-Year Review.

23.4.2 Data Review

Data from the IA Sites RI/FS, the IA Ranges MRA FFS, RODs, and MRS Security Program and Annual Land Use Covenant Reports for the years since the last Five-Year Review were reviewed to assess the effectiveness of the remedy at the IA Ranges MRA.

23.4.3 Site Inspection and Interviews

A site inspection was conducted at the IA Ranges MRA on July 21-22, 2021 to verify current uses of the site. Access management measures are not a requirement of the Interim Action Ranges MRA ROD; however, fencing at the MRA consists of four-strand barbed wire and concertina wire along Eucalyptus Road to the north of the MRA.LUC monitoring and maintenance are documented in the Land Use Covenant Reports.

A copy of the Site Inspection Form and associated photographs are presented in Appendix B, Field Documentation of Site Inspections and Interviews.

23.5 Technical Assessment

23.5.1 Question A

Is the Remedy functioning as intended by the Decision Documents?

The final ROD for the ESCA IA Ranges MRA selected LUCs without additional MEC remediation. Based on the review of documents and data discussed above, the LUCs are functioning as intended to mitigate the risk from MEC that could potentially remain.

23.5.2 Question B

Are the Exposure Assumptions, Toxicity Data, Cleanup Levels, and Remedial Action Objectives used at the time of remedy selection still valid?

Yes. There have been no changes in the assumptions, toxicity data, or cleanup levels used at the time of the remedy selection. The primary RAOs for the Interim Action Ranges MRA reuse areas, based on EPA RI/FS Guidance (EPA, 1988), are to achieve the EPA's threshold criteria of "Overall Protection of Human Health and the Environment" and "Compliance with ARARs."

23.5.3 Question C

Has any other information come to light that could call into question the Protectiveness of the Remedy?

No new information has been identified that could call the protectiveness of the remedy into question.

23.6 Issues

There are no issues affecting the protectiveness of the IA Ranges MRA remedy.

23.7 Recommendations and Follow-Up Actions

There are no recommendation or follow-up actions identified for the site based on the results of the inspections and monitoring conducted during this review period.

23.8 Protectiveness Statement

Protective. The remedy at the Interim Action Ranges MRA is protective of human health and the environment. Potential exposure pathways that could result in unacceptable risks are being controlled. Institutional Controls (land use controls) are in place and are effectively preventing or reducing the potential for the reuse receptors to come in direct contact with munitions and explosives of concern items potentially remaining in subsurface soil. The residential use restriction is in place and functioning for the designated future non-residential reuse areas.

24.0 STATUS OF OTHER INVESTIGATIONS

Generally, it is only appropriate to include discussions of sites with RODs in a Five Year Review, however, for continuity with the 4th Five Year Review, the upcoming PFAS PA and SI are discussed below.

24.1 Per- and polyfluoroalkyl substances (PFAS)

24.1.1 Background

PFAS refers to the entire class of approximately 600 per- and polyfluoroalkyl substances in commerce, of which perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA) were historically the most widely used throughout the United States. These chemicals are contaminants of emerging concern, with their potential exposure and harmful effects only more recently being widely identified, thus they were not covered in previous RODs at the Former Fort Ord. PFAS are human-made compounds originally developed in the late 1930s and do not occur naturally in the environment. By the 1950s, PFAS had become included in many consumer and industrial products, notably in stain and water-repellant material, food packaging, and retail products. PFAS are mobile chemicals that bioaccumulate in humans and wildlife, are stable in the environment, and resist typical environmental degradation processes (Ahtna, 2021r).

In 2016, the USEPA established lifetime health advisory levels for PFOA and PFOS in drinking water to provide a margin of protection from a lifetime of exposure to PFOA and PFOS from drinking water. In 2019 the DoD calculated tap water screening levels for PFOA and PFOS and the California State Water Resources Control Board Division of Drinking Water established notification and response levels for PFOA and PFOS. In May 2022, the EPA issued RSLs for five new PFAS chemicals, bringing the total number of PFAS chemicals with RSLs to six (EPA, 2022a). In June of 2022, the EPA issued 2 new and 2 updated health advisories for PFAS chemicals or chemical groups (EPA, 2022b). No federal or State of California MCLs for PFAS in drinking water have been established.

The primary mechanism for releases of PFAS at Army installations is through the historical use of aqueous film forming foam (AFFF), a product applied during firefighting and firefighting-related training associated with fuel- or petroleum based fires after 1972. AFFF for firefighting was generally used in areas where fuel- or petroleum-based fires may have occurred, such as in the vicinity of aviation assets, fuel farms, or aircraft crash sites. Other known sources of environmental releases of PFAS include mist suppressants for chromium electroplating operations and landfills and wastewater treatment plants (WWTPs) that have inadvertently accepted PFAS-containing materials (Ahtna, 2021r).

These substances may be present in soil and/or groundwater at Army facilities from AFFF or from other sources. These chemicals may enter the environment through landfills and wastewater due to their presence in consumer products or as runoff to soil and water from other uses.

24.1.2 Status Report

The Army is conducting a Preliminary Assessment (PA) under CERCLA law to look for possible locations where PFAS may have been released on the Former Fort Ord. A PA is an initial review and analysis of available information (historical records, sampling data, etc.) to determine whether a release may have occurred and the potential sources and type of release(s). On March 30, 2022, the *Draft Final Preliminary Assessment Narrative Report Per- and Polyfluoroalkyl Substances Former Fort Ord, California* (Ahtna, 2022r) was released and looked at the historical usage of approximately 100 areas of the Former Fort Ord, performed secondary site assessments for over 40 sites, and recommended further investigation, including soil or groundwater sampling at seven sites. These sites are Site 2 Main Garrison Sewage Treatment Plant, Site

40A East Fritzche Army Airfield (FAAF) Helicopter Defueling Area, Building 514 FAAF Fire & Rescue Station, the FAAF Fire Drill Area, Site 10 Former Burn Pit, Building 4400 Main Garrison Fire Station, and the OU2 Fort Ord Landfills (Ahtna, 2021r).

This PA is expected to be finalized in 2022, and a site inspection QAPP is currently under way, with expected completion also in 2022. It is anticipated that site inspection field work (sampling) could occur as early as late summer 2022, pending QAPP approval and biological window allowances. The site inspection should determine the presence or absence of PFAS contamination at any sites determined in the Final PA to be of concern. After the site inspection, further investigation in a Remedial Investigation may be needed to determine the extent of any PFAS contamination found during the Site Inspection.

25.0 NEXT FIVE-YEAR REVIEW

The next Five-Year Review Report will be submitted by September 25, 2027. The next review will include only those sites with ongoing remediation, sites that have not received final agency approval for closure prior to this report, and sites where institutional controls are in place to preclude unrestricted/residential use.

TABLES

Table 1
Parcels Transferred by Deed as of September 30, 2021
Former Fort Ord, California

USACE Parcel Number	Acreage	Parcel Name	USACE Deed Tracking Number	Transfer Document (FOST, FOSET)	Document Date (FOST, FOSET)	Transfer Date	Deed Restriction[1]	CERCLA Warranty
E11a	148.41	Habitat Management	DACA05-9-05-575	FOST 9 (Track 0 Plug-in "C" and Track 1 Parcels)	8/15/05	7/6/2006	Yes: Groundwater Restriction	Yes: provided in the deed.
E11a.1	7.34	Development / Road ROW	DACA05-9-05-529	FOST 8 (Track 0 and Track 0 Plug-in "B" Parcels)	6/7/05	10/18/2006	Yes: Groundwater Restriction	Yes: provided in the deed.
E11b.1	24.54	Development / Mixed use-ac limit	DACA05-9-02-593	FOST 6 (Track 0)	5/27/03	9/1/2004	No	Yes: provided in the deed.
E11b.2	41.57	Development / Mixed use-ac limit	DACA05-9-02-593	FOST 6 (Track 0)	5/27/03	9/1/2004	No	Yes: provided in the deed.
E11b.3	6.16	sewer treatment facility / development mix	DACA05-9-02-593	FOST 6 (Track 0)	5/27/03	9/1/2004	No	Yes: provided in the deed.
E11b.4	0.11	Water Tank 147	DACA05-9-02-593	FOST 6 (Track 0)	5/27/03	9/1/2004	No	Yes: provided in the deed.
E11b.6.1 (ESCA Parcel)	47.82	Habitat Reserve	DACA05-9-07-505	FOSET 5 (ESCA and Non-ESCA OUCTP)	11/15/07	5/8/2009	Yes: Excavation Restriction Residential Use Restriction	Yes: provided in deed release 06/26/2020.
E11b.6.2	17.96	Habitat Reserve	DACA05-9-05-575	FOST 9 (Track 0 Plug-in "C" and Track 1 Parcels)	8/15/05	7/6/2006	No	Yes: provided in the deed.
E11b.6.3	8.38	Habitat Reserve	DACA05-9-06-549	FOST 10 (Track 0 Grp D, Track 1 EG 2/4, Track 1 Grps 1-5)	8/20/07	7/10/2009	No	Yes: provided in the deed.
E11b.7.1.1 (ESCA Parcel)	129.87	Habitat Reserve	DACA05-9-07-505	FOSET 5 (ESCA and Non-ESCA OUCTP)	11/15/07	5/8/2009	Yes: Excavation Restriction Residential Use Restriction	Yes: provided in deed release 06/26/2020.
E11b.7.1.2	63.25	Habitat Reserve	DACA05-9-06-549	FOST 10 (Track 0 Grp D, Track 1 EG 2/4, Track 1 Grps 1-5)	8/20/07	7/10/2009	No	Yes: provided in the deed.
E11b.7.2	7.37	Habitat Reserve	DACA05-9-06-549	FOST 10 (Track 0 Grp D, Track 1 EG 2/4, Track 1 Grps 1-5)	8/20/07	7/10/2009	No	Yes: provided in the deed.
E11b.8 (ESCA Parcel)	67.69	Development / Mixed use ASP	DACA05-9-07-505	FOSET 5 (ESCA and Non-ESCA OUCTP)	11/15/07	5/8/2009	Yes: Excavation Restriction Partial* Residential Use Restriction (*partially removed by deed release 06/26/2020.)	Yes: provided in deed release 06/26/2020.
E15.1	49.25	ROW / retail	DACA05-9-02-587a	FOST 6 (Track 0)	5/27/03	4/21/2004	No	Yes: provided in the deed.
E15.2	28.74	Open space	DACA05-9-05-576	FOST 9 (Track 0 Plug-in "C" and Track 1 Parcels)	8/15/05	7/25/2006	No	Yes: provided in the deed.
E17	3.76	Lightfighter Lodge	DACA05-9-01-604	FOSET 2 (Housing Areas and Former Garrison)	12/3/01	10/17/2002	Yes: Groundwater Restriction	Yes: in Amendment No. 1 to Deed No. DACA05-9-01-604 (entire parcel).
E18.1.1 (ESCA Parcel)	99.96	Veterans Cemetary	DACA05-9-07-506	FOSET 5 (ESCA and Non-ESCA OUCTP)	11/15/07	5/8/2009	Yes: Excavation Restriction Partial* Residential Use Restriction (*partially removed by deed release 06/26/2020.)	Yes: in Amendment No. 1 to Deed No. DACA05-9-07-506 for Parker Flats Phase I portion of parcel only. Provided in deed release 06/26/2020.
E18.1.2 (ESCA Parcel)	77.96	Veterans Cemetary	DACA05-9-07-505	FOSET 5 (ESCA and Non-ESCA OUCTP)	11/15/07	5/8/2009	Yes: Excavation Restriction Partial* Residential Use Restriction (*partially removed by deed release 06/26/2020.)	Yes: in Amendment No. 1 to Deed No. DACA05-9-07-505 for Parker Flats Phase I portion of parcel only. Provided in deed release 06/26/2020.
E18.1.3 (ESCA Parcel)	40.01	Housing future	DACA05-9-07-506	FOSET 5 (ESCA and Non-ESCA OUCTP)	11/15/07	5/8/2009	Yes: Excavation Restriction Partial* Residential Use Restriction (*partially removed by deed release 06/26/2020.)	Yes: provided in deed release 06/26/2020.
E18.2.1	4.13	ROW / Gigling Road	DACA05-9-05-530	FOST 8 (Track 0 and Track 0 Plug-in "B" Parcels)	6/7/05	7/25/2006	No	Yes: provided in the deed.
E18.2.2	0.07	ROW / Gigling Road	DACA05-9-05-529	FOST 8 (Track 0 and Track 0 Plug-in "B" Parcels)	6/7/05	10/18/2006	No	Yes: provided in the deed.
E18.3	6.23	ROW / Normandy - Parker Flats	DACA05-9-05-530	FOST 8 (Track 0 and Track 0 Plug-in "B" Parcels)	6/7/05	7/25/2006	No	Yes: provided in the deed.
E18.4 (ESCA Parcel)	2.16	Water Tank	DACA05-9-07-506	FOSET 5 (ESCA and Non-ESCA OUCTP)	11/15/07	5/8/2009	Yes: Excavation Restriction	Yes: provided in deed release 06/26/2020.
E19a.1 (ESCA Parcel)	71.43	County Development	DACA05-9-07-505	FOSET 5 (ESCA and Non-ESCA OUCTP)	11/15/07	5/8/2009	Yes: Excavation Restriction Partial* Residential Use Restriction (*partially removed by deed release 06/26/2020.)	Yes: in Amendment No. 1 to Deed No. DACA05-9-07-506 for Parker Flats Phase I portion of parcel only. Provided in deed release 06/26/2020.
E19a.2 (ESCA Parcel)	72.54	Habitat Reserve	DACA05-9-07-505	FOSET 5 (ESCA and Non-ESCA OUCTP)	11/15/07	5/8/2009	Yes: Excavation Restriction Residential Use Restriction	Yes: provided in deed release 06/26/2020.

Table 1
Parcels Transferred by Deed as of September 30, 2021
Former Fort Ord, California

USACE Parcel Number	Acreage	Parcel Name	USACE Deed Tracking Number	Transfer Document (FOST, FOSET)	Document Date (FOST, FOSET)	Transfer Date	Deed Restriction[1]	CERCLA Warranty
E19a.3 (ESCA Parcel)	302.64	Horse Park	DACA05-9-07-505	FOSET 5 (ESCA and Non-ESCA OUCTP)	11/15/07	5/8/2009	Yes: Excavation Restriction Partial* Residential Use Restriction (*Partially removed by Amendment No. 2 to Deed No. DACA05-9-07-505 for County North portion of parcel only.)	Yes: in Amendment No. 1 to Deed No. DACA05-9-07-505 for Parker Flats Phase I portion of parcel only, and in Amendment No. 2 to Deed No. DACA05-9-07-505 for County North MRA portion of parcel only. Provided in deed release 06/26/2020.
E19a.4 (ESCA Parcel)	372.27	Habitat Reserve / County	DACA05-9-07-505	FOSET 5 (ESCA and Non-ESCA OUCTP)	11/15/07	5/8/2009	Yes: Excavation Restriction Partial* Residential Use Restriction (*Partially removed by Amendment No. 2 to Deed No. DACA05-9-07-505 for County North portion of parcel only.)	Yes: in Amendment No. 1 to Deed No. DACA05-9-07-505 for Parker Flats Phase I portion of parcel only, and in Amendment No. 2 to Deed No. DACA05-9-07-505 for County North MRA portion of parcel only. Provided in deed release 06/26/2020.
E19a.5 (ESCA Parcel)	226.56	MPC EVOC	DACA05-9-07-508	FOSET 5 (ESCA and Non-ESCA OUCTP)	11/15/07	5/8/2009	Yes: Excavation Restriction Partial* Residential Use Restriction (*partially removed by deed release 06/26/2020.)	Yes: in Amendment No. 1 to Deed No. DACA05-9-07-508 for Parker Flats Phase I area (entire parcel). Provided in deed release 06/26/2020.
E20b	101.75	Stilwell Housing - DoD reacquired	DACA05-9-00-599	Preston and Stilwell Park	3/2/98	8/8/2000	No	Yes: provided in the deed.
E20c.1.1.1	80.36	Housing future	DACA05-9-06-551	FOST 10 (Track 0 Grp D, Track 1 EG 2/4, Track 1 Grps 1-5)	8/20/07	7/10/2009	No	Yes: provided in the deed.
E20c.1.2	0.27	Cable TV area	DACA05-9-05-530	FOST 8 (Track 0 and Track 0 Plug-in "B" Parcels)	6/7/05	7/25/2006	No	Yes: provided in the deed.
E20c.1.3	10.28	ROW / Gen. Jim Moore Blvd.	DACA05-9-06-551	FOST 10 (Track 0 Grp D, Track 1 EG 2/4, Track 1 Grps 1-5)	8/20/07	7/10/2009	No	Yes: provided in the deed.
E20c.2 (ESCA Parcel)	33.2	Housing Future	DACA05-9-07-506	FOSET 5 (ESCA and Non-ESCA OUCTP)	11/15/07	5/8/2009	Yes: Excavation Restriction Partial* Residential Use Restriction (*partially removed by deed release 06/26/2020.)	Yes: provided in deed release 06/26/2020.
E20c.2.1	25.36	Housing future	DACA05-9-05-576	FOST 9 (Track 0 Plug-in "C" and Track 1 Parcels)	8/15/05	7/25/2006	No	Yes: provided in the deed.
E20c.2.2	2.3	Water Tanks / pumps	DACA05-9-05-530	FOST 8 (Track 0 and Track 0 Plug-in "B" Parcels)	6/7/05	7/25/2006	No	Yes: provided in the deed.
E21b.3 (ESCA Parcel)	31.55	Housing Single Family Dwelling low density	DACA05-9-07-508	FOSET 5 (ESCA and Non-ESCA OUCTP)	11/15/07	5/8/2009	Yes: Excavation Restriction Partial* Residential Use Restriction (*partially removed by deed release 06/26/2020.)	Yes: provided in deed release 06/26/2020.
E23.1 (ESCA Parcel)	48.9	ROW / retail	DACA05-9-07-506	FOSET 5 (ESCA and Non-ESCA OUCTP)	11/15/07	5/8/2009	Yes: Excavation Restriction Partial* Residential Use Restriction (*partially removed by deed release 06/26/2020.)	Yes: provided in deed release 06/26/2020.
E23.2 (ESCA Parcel)	78.54	ROW / Housing future Singe Family Dwelling medium	DACA05-9-07-506	FOSET 5 (ESCA and Non-ESCA OUCTP)	11/15/07	5/8/2009	Yes: Excavation Restriction Partial* Residential Use Restriction (*partially removed by deed release 06/26/2020.)	Yes: provided in deed release 06/26/2020.
E24 (ESCA Parcel)	198.21	ROW / Housing future Singe Family Dwelling medium	DACA05-9-07-506	FOSET 5 (ESCA and Non-ESCA OUCTP)	11/15/07	5/8/2009	Yes: Excavation Restriction Partial* Residential Use Restriction (*partially removed by deed release 06/26/2020.)	Yes: provided in deed release 06/26/2020.
E29.1 (ESCA Parcel)	22.48	Business Park / Light Industrial / Office Park	DACA05-9-07-501	FOSET 5 (ESCA and Non-ESCA OUCTP)	11/15/07	5/8/2009	Yes: Excavation Restriction Residential Use Restriction	Yes: provided in deed release 06/26/2020.
E29.2	11.88	Business Park / Light Industrial / Office Park	DACA05-9-06-553	FOST 10 (Track 0 Grp D, Track 1 EG 2/4, Track 1 Grps 1-5)	8/20/07	7/10/2009	No	Yes: provided in the deed.
E29a	271.6	Visitor Center / business park	DACA05-9-02-538	FOSET 4 (Del Rey Oaks Group)	7/28/04	12/28/2005	Yes: Excavation Restriction Soil Disturbance Restriction Residential Use Restriction	Modification to deed in progress.
E29a.1	4.66	Habitat Reserve Area	DACA05-9-06-552	FOST 10 (Track 0 Grp D, Track 1 EG 2/4, Track 1 Grps 1-5)	8/20/07	7/10/2009	No	Yes: provided in the deed.

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E29b.1	33.52	ROW / future Hwy 68 / habitat	DACA05-9-02-538	FOSET 4 (Del Rey Oaks Group)	7/28/04	12/28/2005	Yes: Excavation Restriction Soil Disturbance Restriction Residential Use Restriction	Modification to deed in progress.
E29b.2	31.19	ROW / Business Park / Light Industrial / Office Park	DACA05-9-06-553	FOST 10 (Track 0 Grp D, Track 1 EG 2/4, Track 1 Grps 1-5)	8/20/07	7/10/2009	No	Yes: provided in the deed.
E29b.3	27.71	Business Park / Light Industrial / Office Park / R	DACA05-9-05-534	FOST 8 (Track 0 and Track 0 Plug-in "B" Parcels)	6/7/05	10/6/2006	No	Yes: provided in the deed.
E29b.3.1	0.65	Business Park / Yadons	DACA05-9-19-523	FOST 12 (Track 1 Plug-In Parcel E20c.1, Yadon's Parcel E29b3.1, and Operable Unit 1 Parcel S2.1.2)	1/11/13	6/5/2019	No	Yes: provided in the deed.
E29e	9.45	ROW / future Hwy 68 / Office Park / Research & Dev	DACA05-9-05-534	FOST 8 (Track 0 and Track 0 Plug-in "B" Parcels)	6/7/05	10/6/2006	No	Yes: provided in the deed.
E2a	63.07	Development / Mixed use	DACA05-9-05-577	FOST 9 (Track 0 Plug-in "C" and Track 1 Parcels)	8/15/05	3/13/2006	Yes: Groundwater Restriction	Yes: provided in the deed.
E2b.1.1.1	25.28	Development / Mixed use	DACA05-9-02-586	FOST 6 (Track 0)	5/27/03	3/15/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
E2b.1.1.2	1.66	Development / Mixed use	DACA05-9-02-586	FOST 6 (Track 0)	5/27/03	3/15/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
E2b.1.2	6.05	ROW / road	DACA05-9-02-586	FOST 6 (Track 0)	5/27/03	3/15/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
E2b.1.3	34.74	Development / Mixed use	DACA05-9-02-586	FOST 6 (Track 0)	5/27/03	3/15/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
E2b.1.4	2.36	ROW / road	DACA05-9-02-586	FOST 6 (Track 0)	5/27/03	3/15/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
E2b.1.5	12.08	Development / Mixed use	DACA05-9-02-586	FOST 6 (Track 0)	5/27/03	3/15/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
E2b.2.1	71.44	Development / Mixed use	DACA05-9-02-586	FOST 6 (Track 0)	5/27/03	3/15/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
E2b.2.2	0.38	ROW / road	DACA05-9-02-586	FOST 6 (Track 0)	5/27/03	3/15/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
E2b.2.3	4.33	ROW / road	DACA05-9-02-586	FOST 6 (Track 0)	5/27/03	3/15/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
E2b.2.4	7.54	Development / Mixed use	DACA05-9-02-586	FOST 6 (Track 0)	5/27/03	3/15/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
E2b.2.5	1.54	2/12 Pump and Treat Facility	DACA05-9-02-586	FOST 6 (Track 0)	5/27/03	3/15/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
E2b.3.1.1	107.99	Development / Mixed use	DACA05-9-02-586	FOST 6 (Track 0)	5/27/03	3/15/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
E2b.3.1.2	1.76	CID Building	DACA05-9-00-598	Building 1021	6/12/97	8/8/2000	No	Yes: provided in the deed.
E2b.3.2	0.11	ROW / 8th Street	DACA05-9-02-586	FOST 6 (Track 0)	5/27/03	3/15/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
E2c.1	13.29	Development / Mixed use	DACA05-9-02-586	FOST 6 (Track 0)	5/27/03	3/15/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
E2c.2	1.12	OU 2 Pump and Treat Facility	DACA05-9-02-586	FOST 6 (Track 0)	5/27/03	3/15/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
E2c.3.1	11.37	Development / Mixed use	DACA05-9-02-586	FOST 6 (Track 0)	5/27/03	3/15/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
E2c.3.2	9.26	ROW / road	DACA05-9-02-586	FOST 6 (Track 0)	5/27/03	3/15/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
E2c.3.3	31.27	Development / Mixed use	DACA05-9-02-586	FOST 6 (Track 0)	5/27/03	3/15/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
E2c.4.1.1	10.08	ROW / road	DACA05-9-02-586	FOST 6 (Track 0)	5/27/03	3/15/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
E2c.4.1.2	1.28	ROW / road	DACA05-9-06-550	FOST 10 (Track 0 Grp D, Track 1 EG 2/4, Track 1 Grps 1-5)	8/20/07	7/10/2009	Yes: Groundwater Restriction	Yes: provided in the deed.
E2c.4.2.1	13.39	Development / Mixed use	DACA05-9-02-586	FOST 6 (Track 0)	5/27/03	3/15/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
E2c.4.2.2	2.14	Development / Mixed use	DACA05-9-06-550	FOST 10 (Track 0 Grp D, Track 1 EG 2/4, Track 1 Grps 1-5)	8/20/07	7/10/2009	Yes: Groundwater Restriction	Yes: provided in the deed.
E2c.4.3	2.64	ROW / road	DACA05-9-06-550	FOST 10 (Track 0 Grp D, Track 1 EG 2/4, Track 1 Grps 1-5)	8/20/07	7/10/2009	Yes: Groundwater Restriction	Yes: provided in the deed.
E2c.4.4	1.11	ROW / road	DACA05-9-06-550	FOST 10 (Track 0 Grp D, Track 1 EG 2/4, Track 1 Grps 1-5)	8/20/07	7/10/2009	Yes: Groundwater Restriction	Yes: provided in the deed.
E2d.1	14.97	Development / Mixed use	DACA05-9-02-586	FOST 6 (Track 0)	5/27/03	3/15/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
E2d.2	5.45	ROW	DACA05-9-02-586	FOST 6 (Track 0)	5/27/03	3/15/2004	Yes: Groundwater Restriction	Yes: provided in the deed.

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E2d.3.1	25.2	Development / Mixed Use	DACA05-9-05-532	FOST 8 (Track 0 and Track 0 Plug-in "B" Parcels)	6/7/05	3/21/2006	Yes: Groundwater Restriction	Yes: provided in the deed.
E2d.3.2	21.6	Development / Mixed Use	DACA05-9-06-550	FOST 10 (Track 0 Grp D, Track 1 EG 2/4, Track 1 Grps 1-5)	8/20/07	7/10/2009	Yes: Groundwater Restriction	Yes: provided in the deed.
E2e.1	6.1	ROW / 6th Avenue / 8th Street Road	DACA05-9-02-586	FOST 6 (Track 0)	5/27/03	3/15/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
E2e.2	0.15	ROW / Intergarrison Road	DACA05-9-02-593	FOST 6 (Track 0)	5/27/03	9/1/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
E31a	4.89	Business Park / Light Industrial / Office Park / R	DACA05-9-02-538	FOSET 4 (Del Rey Oaks Group)	7/28/04	12/28/2005	Yes: Excavation Restriction Soil Disturbance Restriction Residential Use Restriction	Modification to deed in progress.
E31b	3.34	Businsess Park / Light Industrial / Office Park /	DACA05-9-02-538	FOSET 4 (Del Rey Oaks Group)	7/28/04	12/28/2005	Yes: Excavation Restriction Soil Disturbance Restriction Residential Use Restriction	Modification to deed in progress.
E31c	3.92	Buiness Park / Light Industrial / Office Park / Re	DACA05-9-02-538	FOSET 4 (Del Rey Oaks Group)	7/28/04	12/28/2005	Yes: Excavation Restriction Soil Disturbance Restriction Residential Use Restriction	Modification to deed in progress.
E34 (ESCA Parcel)	97.07	ROW / Housing future Singe Family Dwelling medium	DACA05-9-07-506	FOSET 5 (ESCA and Non-ESCA OUCTP)	11/15/07	5/8/2009	Yes: Excavation Restriction Partial* Residential Use Restriction (*partially removed by deed release 06/26/2020.)	Yes: provided in deed release 06/26/2020.
E36	6.41	Business Park / Light Industrial / Office Park / R	DACA05-9-02-538	FOSET 4 (Del Rey Oaks Group)	7/28/04	12/28/2005	Yes: Excavation Restriction Soil Disturbance Restriction Residential Use Restriction	Modification to deed in progress.
E37	2.35	ROW / Fremont	DACA05-9-02-554	Surplus II Area A	3/19/99	7/25/2002	No	Yes: provided in the deed.
E38 (ESCA Parcel)	17.71	MPC Reserve	DACA05-9-07-508	FOSET 5 (ESCA and Non-ESCA OUCTP)	11/15/08	5/8/2009	Yes: Excavation Restriction Residential Use Restriction	Yes: provided in deed release 06/26/2020.
E39 (ESCA Parcel)	161.69	MPC Reserve	DACA05-9-07-508	FOSET 5 (ESCA and Non-ESCA OUCTP)	11/15/07	5/8/2009	Yes: Excavation Restriction Residential Use Restriction	Yes: provided in deed release 06/26/2020.
E4.1.1	153.5	Patton Housing - lower	DACA05-9-01-604	FOSET 2 (Housing Areas and Former Garrison)	12/3/01	10/17/2002	Yes: Groundwater Restriction	Yes: in Amendment No. 1 to Deed No. DACA05-9-01-604 (entire parcel).
E4.1.2.1	9.63	Patton Housing - lower	DACA05-9-05-577	FOST 9 (Track 0 Plug-in "C" and Track 1 Parcels)	8/15/05	3/13/2006	Yes: Groundwater Restriction	Yes: provided in the deed.
E4.1.2.2	26.24	Patton Housing - lower	DACA05-9-05-577	FOST 9 (Track 0 Plug-in "C" and Track 1 Parcels)	8/15/05	3/13/2006	Yes: Groundwater Restriction	Yes: provided in the deed.
E4.1.2.3	0.99	ROW / Booker Street / Patton - lower	DACA05-9-05-577	FOST 9 (Track 0 Plug-in "C" and Track 1 Parcels)	8/15/05	3/13/2006	Yes: Groundwater Restriction	Yes: provided in the deed.
E4.2	65.52	Patton Housing - upper	DACA05-9-01-604	FOSET 2 (Housing Areas and Former Garrison)	12/3/01	10/17/2002	Yes: Groundwater Restriction	Yes: in Amendment No. 1 to Deed No. DACA05-9-01-604 (entire parcel).
E4.3.1.1	178.21	Abrams Housing	DACA05-9-01-604	FOSET 2 (Housing Areas and Former Garrison)	12/3/01	10/17/2002	Yes: Groundwater Restriction	Yes: in Amendment No. 1 to Deed No. DACA05-9-01-604 (entire parcel).
E4.3.1.2	1.22	Abrams Housing	DACA05-9-05-577	FOST 9 (Track 0 Plug-in "C" and Track 1 Parcels)	8/15/05	3/13/2006	Yes: Groundwater Restriction	Yes: provided in the deed.
E4.3.2.1	42.31	Abrams Housing	DACA05-9-05-577	FOST 9 (Track 0 Plug-in "C" and Track 1 Parcels)	8/15/05	3/13/2006	Yes: Groundwater Restriction	Yes: provided in the deed.
E4.3.2.2	7.96	Lexington Court Housing	DACA05-9-07-503	FOSET 5 (ESCA and Non-ESCA OUCTP)	11/15/07	5/8/2009	Yes: Groundwater Restriction Deed modification in progress to give CERCLA Warranty (groundwater restriction will remain). Not an ESCA parcel.	Pending: modification to deed in progress.
E4.4	93.6	Preston Housing	DACA05-9-00-560	Preston and Stilwell Park	3/2/98	8/8/2000	No.	Yes: provided in the deed.
E4.4.1	4.78	Preston Park Housing North	DACA05-9-15-524	Preston and Stilwell Park	3/2/98	5/5/15[4]	No.	Yes: provided in the deed.
E4.5	3.8	Water treatment facility	DACA05-9-02-586	FOST 6 (Track 0)	5/27/03	3/15/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
E4.6.1	25.08	ROW / middle Imjin Road	DACA05-9-05-577	FOST 9 (Track 0 Plug-in "C" and Track 1 Parcels)	8/15/05	3/13/2006	Yes: Groundwater Restriction	Yes: provided in the deed.
E4.6.2	16.44	ROW / Imjin Road	DACA05-9-05-575	FOST 9 (Track 0 Plug-in "C" and Track 1 Parcels)	8/15/05	7/6/2006	Yes: Groundwater Restriction	Yes: provided in the deed.
E4.7.1	6.16	ROW / Imjin Road - northeast	DACA05-9-07-503	FOSET 5 (ESCA and Non-ESCA OUCTP)	11/15/07	5/8/2009	Yes: Groundwater Restriction Deed modification in progress to give CERCLA Warranty (groundwater restriction will remain). Not an ESCA parcel.	Pending: modification to deed in progress.

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E4.7.2	3.99	ROW / Imjin Road	DACA05-9-09-505	FOSET 5 (ESCA and Non-ESCA OUCTP)	11/15/07	5/8/2009	Yes: Groundwater Restriction Deed modification in progress to give CERCLA Warranty (groundwater restriction will remain). Not an ESCA parcel.	Pending: modification to deed in progress.
E40 (ESCA Parcel)	25.32	Range Extension	DACA05-9-07-508	FOSET 5 (ESCA and Non-ESCA OUCTP)	11/15/07	5/8/2009	Yes: Excavation Restriction Residential Use Restriction	Yes: provided in deed release 06/26/2020.
E41 (ESCA Parcel)	9.14	MPC Habitat Reserve Wing	DACA05-9-07-508	FOSET 5 (ESCA and Non-ESCA OUCTP)	11/15/07	5/8/2009	Yes: Excavation Restriction Residential Use Restriction	Yes: provided in deed release 06/26/2020.
E42 (ESCA Parcel)	12.79	MPC Habitat Reserve Wing	DACA05-9-07-508	FOSET 5 (ESCA and Non-ESCA OUCTP)	11/15/07	5/8/2009	Yes: Excavation Restriction Residential Use Restriction	Yes: provided in deed release 06/26/2020.
E5a.1	30.59	Development / Mixed Use	DACA05-9-07-503	FOSET 5 (ESCA and Non-ESCA OUCTP)	11/15/07	5/8/2009	Yes: Groundwater Restriction Deed modification in progress to give CERCLA Warranty (groundwater restriction will remain). Not an ESCA parcel.	Pending: modification to deed in progress.
E5a.2	15.41	Development / Mixed Use	DACA05-9-05-532	FOST 8 (Track 0 and Track 0 Plug-in "B" Parcels)	6/7/05	3/21/2006	Yes: Groundwater Restriction	Yes: provided in the deed.
E5b	3.21	Development / Mixed use	DACA05-9-00-560	Preston and Stilwell Park	3/2/98	8/8/2000	Yes: Groundwater Restriction	Yes: provided in the deed.
E8a.1.1.2	85.3	Landfill Shoe	DACA05-9-05-575	FOST 9 (Track 0 Plug-in "C" and Track 1 Parcels)	8/15/05	7/6/2006	Yes: Groundwater Restriction	Yes: provided in the deed.
E8a.1.2	21.22	Landfill	DACA05-9-02-593	FOST 6 (Track 0)	5/27/03	9/1/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
E8a.1.3	2.68	Landfill	DACA05-9-02-593	FOST 6 (Track 0)	5/27/03	9/1/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
E8a.1.4	30.32	Landfill	DACA05-9-02-593	FOST 6 (Track 0)	5/27/03	9/1/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
E8a.1.5	21.53	Landfill	DACA05-9-02-593	FOST 6 (Track 0)	5/27/03	9/1/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
F1.1.1	4943.29	BLM Parcel A	DACA05-9-95-618[2]	NA		10/18/1996	No	NA for fed-fed parcel transfer[3]
F1.1.2	288.82	ROW / BLM Parcel A	DACA05-9-95-618[2]	NA		10/18/1996	No	NA for fed-fed parcel transfer[3]
F1.1.3	775.62	BLM Parcel A	DACA05-9-95-618[2]	NA		10/18/1996	No	NA for fed-fed parcel transfer[3]
F1.12	12.98	BLM Headquarters Parcel E	DACA05-9-95-618[2]	NA		10/18/1996	No	NA for fed-fed parcel transfer[3]
F1.2	1191.19	BLM Parcel B	DACA05-9-95-618[2]	NA		10/18/1996	No	NA for fed-fed parcel transfer[3]
F1.7.2 (ESCA Parcel)	51.25	BLM Parcel H / MOUT	DACA05-9-07-508	FOSET 5 (ESCA and Non-ESCA OUCTP)	11/15/07	5/8/2009	Yes: Excavation Restriction Residential Use Restriction	Yes: provided in deed release 06/26/2020.
F2.7.1	372.98	Golf courses	DACA05-9-97-613	Golf Course Phase 1	11/26/96	1/15/1997	No	Yes: provided in the deed.
F2.7.2	2.17	Site 33	DACA05-9-04-534	FOST 6 (Track 0)	5/27/03	9/2/2004	Yes: Residential Use Restriction	Yes: provided in the deed.
F2.7.3	3.06	North South Road path (Gen. Jim Moore Blvd.)	DACA05-9-97-613	Golf Course Phase 1	11/26/96	1/15/1997	No	Yes: provided in the deed.
F6	6.1	Veterans Clinic	DACA05-9-94-607[2]	NA		6/23/1998	No	NA for fed-fed parcel transfer[3]
F7.1	1.49	Well 30 B	DACA05-9-06-535	UCSC Phase 1	6/15/94	3/2/2011	Yes: Groundwater Restriction	Yes: provided in the deed.
F7.2	1.22	Well 31 C	DACA05-9-06-535	FOST 6 (Track 0)	5/27/03	3/2/2011	Yes: Groundwater Restriction	Yes: provided in the deed.
L1.1	3.17	Law School / Surplus II	DACA05-9-02-589	FOST 6 (Track 0)	5/27/03	12/3/2003	No	Yes: provided in the deed.
L1.2	0.55	Housing Single Family Dwelling	DACA05-9-97-611	Monterey College of Law	6/26/96	6/26/1997	Yes: Groundwater Restriction	Yes: provided in the deed.
L11	2.29	Abrams Housing / Interim	DACA05-9-96-616	Interim, Inc	5/31/96	7/2/1996	Yes: Groundwater Restriction	Yes: provided in the deed.
L12.1	2.34	Abrams Housing / Peninsula Outreach	DACA05-9-98-618	Peninsula Outreach Buildings 6279, 6280	11/8/95	3/2/1996	Yes: Groundwater Restriction	Yes: provided in the deed.
L12.2.1	0.91	Housing VOQ (visiting officers quarters)	DACA05-9-99-617	Peninsula Outreach Buildings T-2814 to T-2817, T2836	4/29/96	1/22/1999	Yes: Groundwater Restriction	Yes: provided in the deed.

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L12.2.2	0.27	Housing VOQ (visiting officers quarters)	DACA05-9-02-586	FOST 6 (Track 0)	5/27/03	3/15/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
L12.2.3	0.26	Housing VOQ (visiting officers quarters)	DACA05-9-02-586	FOST 6 (Track 0)	5/27/03	3/15/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
L12.3	0.79	Warehouse Building 2434	DACA05-9-02-586	FOST 6 (Track 0)	5/27/03	3/15/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
L13.1	8.61	ROW / Coe Avenue - south	DACA05-9-97-613	Golf Course Phase 1	11/26/96	1/15/1997	No	Yes: provided in the deed.
L13.2	14.7	ROW / Monterey Road - south	DACA05-9-97-613	Golf Course Phase 1	11/26/96	1/15/1997	No	Yes: provided in the deed.
L14	6.14	Childcare Center	DACA05-9-97-620	Children's Services International	10/24/96	8/13/1997	Yes: Groundwater Restriction	Yes: provided in the deed.
L15.1	1.68	Building 4481 / Surplus II	DACA05-9-02-591	FOST 6 (Track 0)	5/27/03	9/30/2004	No	Yes: provided in the deed.
L15.2	7.1	Abrams Housing / Housing Authority	DACA05-9-96-617	Housing Authority of Monterey County	5/31/96	7/3/1996	Yes: Groundwater Restriction	Yes: provided in the deed.
L15.3	1.45	Abrams Housing / Housing Authority	DACA05-9-96-617	Housing Authority of Monterey County	5/31/96	7/3/1996	Yes: Groundwater Restriction	Yes: provided in the deed.
L16	5.1	Red Cross buildings	DACA05-9-97-619	Goodwill Industries	3/7/97	11/26/1997	Yes: Groundwater Restriction	Yes: provided in the deed.
L17.2	6.65	Preston Housing / Shelter Plus	DACA05-9-96-618	Shelter Plus	11/8/95	5/7/1996	Yes: Groundwater Restriction	Yes: provided in the deed.
L19.1	2.07	Golf C tank	DACA05-9-97-613	Golf Course Phase 1	11/26/96	1/15/1997	No	Yes: provided in the deed.
L19.2	3.82	Gym Shea / field / Surplus II	DACA05-9-02-587a	FOST 6 (Track 0)	5/27/03	4/21/2004	No	Yes: provided in the deed.
L19.3	1.23	Multisport fields / Surplus II	DACA05-9-02-587a	FOST 6 (Track 0)	5/27/03	4/21/2004	No	Yes: provided in the deed.
L19.4	7.36	Building 4418, 4450 / field / Surplus II	DACA05-9-02-587a	FOST 6 (Track 0)	5/27/03	4/21/2004	No	Yes: provided in the deed.
L2.1	4.54	Transit Center Building 2058	DACA05-9-01-603	FOSET 2 (Housing Areas and Former Garrison)	12/3/01	3/25/2003	Yes: Groundwater Restriction	Yes: in Amendment No. 1 to Deed No. DACA05-9-01-603 (entire parcel).
L2.2.1	2.11	Park and Ride I	DACA05-9-02-592	FOST 6 (Track 0)	5/27/03	5/20/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
L2.2.2	4.54	Park and Ride I	DACA05-9-06-556	FOST 10 (Track 0 Grp D, Track 1 EG 2/4, Track 1 Grps 1-5)	8/20/07	7/10/2009	Yes: Groundwater Restriction	Yes: provided in the deed.
L2.4.2	13.16	Maintenance Center / Surplus II	DACA05-9-01-603	FOSET 2 (Housing Areas and Former Garrison)	12/3/02	3/25/2003	No	Yes: in Amendment No. 1 to Deed No. DACA05-9-01-603 (entire parcel).
L2.4.3.1	1.5	Building 4448 / Surplus II	DACA05-9-01-603	FOSET 2 (Housing Areas and Former Garrison)	12/3/02	3/25/2003	No	Yes: in Amendment No. 1 to Deed No. DACA05-9-01-603 (entire parcel).
L2.4.3.2	0.12	Building 4448 / Surplus II	DACA05-9-01-603	FOSET 2 (Housing Areas and Former Garrison)	12/3/02	3/25/2003	No	Yes: in Amendment No. 1 to Deed No. DACA05-9-01-603 (entire parcel).
L20.10.1.1	16.98	ROW / Reservation Road	DACA05-9-02-593	FOST 6 (Track 0)	5/27/03	9/1/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
L20.10.1.2	9.22	ROW / Reservation Road	DACA05-9-02-593	FOST 6 (Track 0)	5/27/03	9/1/2004	No	Yes: provided in the deed.
L20.10.2	5.21	ROW / Reservation Road - north	DACA05-9-02-593	FOST 6 (Track 0)	5/27/03	9/1/2004	No	Yes: provided in the deed.
L20.10.3	2.22	ROW / Reservation Road - north	DACA05-9-02-593	FOST 6 (Track 0)	5/27/03	9/1/2004	No	Yes: provided in the deed.
L20.11.1	31.19	ROW / Blanco Road	DACA05-9-00-598	Blanco Road	6/12/97	8/8/2000	Yes: Groundwater Restriction	Yes: provided in the deed.
L20.11.2	7.67	ROW / Blanco Road	DACA05-9-00-598	Blanco Road	6/12/97	8/8/2000	Yes: Groundwater Restriction	Yes: provided in the deed.
L20.12	2.49	ROW / York Road	DACA05-9-97-621	York Road	9/18/95	1/29/1997	No	Yes: provided in the deed.
L20.13.1.1	2.9	ROW / Gen. Jim Moore Blvd	DACA-05-9-05-533	FOST 8 (Track 0 and Track 0 Plug-in "B" Parcels)	6/7/05	3/15/2006	No	Yes: provided in the deed.
L20.13.1.2 (ESCA Parcel)	0.2	ROW / Gen. Jim Moore Blvd	DACA05-9-07-502	FOSET 5 (ESCA and Non-ESCA OUCTP)	11/15/07	5/8/2009	Yes: Excavation Restriction Residential Use Restriction	Yes: provided in deed release 06/26/2020.
L20.13.2	0.98	ROW / South Boundary Road	DACA-05-9-05-533	FOST 8 (Track 0 and Track 0 Plug-in "B" Parcels)	6/7/05	3/15/2006	No	Yes: provided in the deed.
L20.13.3.1 (ESCA Parcel)	4.84	ROW / South Boundary Road / Gen. Jim Moore Blvd.	DACA05-9-07-502	FOSET 5 (ESCA and Non-ESCA OUCTP)	11/15/07	5/8/2009	Yes: Excavation Restriction Residential Use Restriction	Yes: provided in deed release 06/26/2020.

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L20.13.3.2	3.07	ROW / South Boundary Road / Gen. Jim Moore Blvd.	DACA-05-9-05-533	FOST 8 (Track 0 and Track 0 Plug-in "B" Parcels)	6/7/05	3/15/2006	No	Yes: provided in the deed.
L20.13.4	1.62	ROW / South Boundary Road / future Hwy 68	DACA-05-9-05-533	FOST 8 (Track 0 and Track 0 Plug-in "B" Parcels)	6/7/05	3/15/2006	No	Yes: provided in the deed.
L20.13.5	6.71	ROW / South Boundary Road / York Road	DACA05-9-05-584	FOST 9 (Track 0 Plug-in "C" and Track 1 Parcels)	8/15/05	10/23/2006	No	Yes: provided in the deed.
L20.14.1.1	8.42	ROW / Intergarrison Road	DACA05-9-05-575	FOST 9 (Track 0 Plug-in "C" and Track 1 Parcels)	8/15/05	7/6/2006	Yes: Groundwater Restriction	Yes: provided in the deed.
L20.14.1.2	7.76	ROW / Intergarrison Road	DACA05-9-02-593	FOST 6 (Track 0)	5/27/03	9/1/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
L20.14.2	3.23	ROW / mid Intergarrison Road	DACA05-9-05-575	FOST 9 (Track 0 Plug-in "C" and Track 1 Parcels)	8/15/05	7/6/2006	Yes: Groundwater Restriction	Yes: provided in the deed.
L20.15	20.05	Balloon Spur Track	DACA05-9-05-575	FOST 9 (Track 0 Plug-in "C" and Track 1 Parcels)	8/15/05	7/6/2006	No	Yes: provided in the deed.
L20.16.1	3.86	Railroad Spur Intermodal warehouses	DACA05-9-02-586	FOST 6 (Track 0)	5/27/03	3/15/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
L20.16.2	10.55	Railroad Spur Intermodal Transportation	DACA05-9-02-586	FOST 6 (Track 0)	5/27/03	3/15/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
L20.16.3	0.14	Railroad Spur Intermodal Transportation 8th Street	DACA05-9-02-586	FOST 6 (Track 0)	5/27/03	3/15/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
L20.17.1	8.06	Maintenance Center Building 4900	DACA05-9-02-586	FOST 6 (Track 0)	5/27/03	3/15/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
L20.17.2	8.26	Maintenance Center Park	DACA05-9-06-550	FOST 10 (Track 0 Grp D, Track 1 EG 2/4, Track 1 Grps 1-5)	8/20/07	7/10/2009	Yes: Groundwater Restriction	Yes: provided in the deed.
L20.18 (ESCA Parcel)	7.24	ROW / Eucalyptus Road	DACA05-9-07-505	FOSET 5 (ESCA and Non-ESCA OUCTP)	11/15/07	5/8/2009	Yes: Excavation Restriction Residential Use Restriction	Yes: provided in deed release 06/26/2020.
L20.19.1.1 (ESCA Parcel)	6.43	ROW / Barloy Canyon Road	DACA05-9-07-505	FOSET 5 (ESCA and Non-ESCA OUCTP)	11/15/07	5/8/2009	Yes: Excavation Restriction Residential Use Restriction	Yes: provided in deed release 06/26/2020.
L20.19.1.2	3.26	ROW / Barloy Canyon Road	DACA05-9-06-549	FOST 10 (Track 0 Grp D, Track 1 EG 2/4, Track 1 Grps 1-5)	8/20/07	7/10/2009	No	Yes: provided in the deed.
L20.19.2	0.55	ROW / Barloy Canyon Road	DACA05-9-02-593	FOST 6 (Track 0)	5/27/03	9/1/2004	No	Yes: provided in the deed.
L20.2.1 (ESCA Parcel)	252.66	Travel Camp	DACA05-9-07-505	FOSET 5 (ESCA and Non-ESCA OUCTP)	11/15/07	5/8/2009	Yes: Excavation Restriction Groundwater Restriction	Yes: in Amendment No. 2 to Deed No. DACA05-9-07-505 for County North MRA (entire parcel). Provided in deed release 06/26/2020.
L20.2.2	115.73	Travel Camp	DACA05-9-06-549	FOST 10 (Track 0 Grp D, Track 1 EG 2/4, Track 1 Grps 1-5)	8/20/07	7/10/2009	No	Yes: provided in the deed.
L20.2.3.1	29.03	Travel Camp	DACA05-9-06-549	FOST 10 (Track 0 Grp D, Track 1 EG 2/4, Track 1 Grps 1-5)	8/20/07	7/10/2009	No	Yes: provided in the deed.
L20.20	2.25	ROW / West Camp Road	DACA05-9-02-593	FOST 6 (Track 0)	5/27/03	9/1/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
L20.21.1	2.58	ROW / Watkins Gate Road	DACA05-9-02-593	FOST 6 (Track 0)	5/27/03	9/1/2004	No	Yes: provided in the deed.
L20.21.2	1.84	ROW / Watkins Gate Road	DACA05-9-02-593	FOST 6 (Track 0)	5/27/03	9/1/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
L20.22	2.41	ROW / Chapel Hill Road	DACA05-9-02-593	FOST 6 (Track 0)	5/27/03	9/1/2004	No	Yes: provided in the deed.
L20.3.1 (ESCA Parcel)	43.63	Wolf Hill	DACA05-9-07-505	FOSET 5 (ESCA and Non-ESCA OUCTP)	11/15/07	5/8/2009	Yes: Excavation Restriction Residential Use Restriction	Yes: provided in deed release 06/26/2020.
L20.3.2 (ESCA Parcel)	35.5	ROW / Wolf Hill	DACA05-9-07-505	FOSET 5 (ESCA and Non-ESCA OUCTP)	11/15/07	5/8/2009	Yes: Excavation Restriction Residential Use Restriction	Yes: provided in deed release 06/26/2020.
L20.5.1 (ESCA Parcel)	131.36	Lookout Ridge	DACA05-9-07-505	FOSET 5 (ESCA and Non-ESCA OUCTP)	11/15/07	5/8/2009	Yes: Excavation Restriction Residential Use Restriction	Yes: provided in deed release 06/26/2020.
L20.5.2 (ESCA Parcel)	54.53	ROW / Lookout Ridge	DACA05-9-07-505	FOSET 5 (ESCA and Non-ESCA OUCTP)	11/15/07	5/8/2009	Yes: Excavation Restriction Residential Use Restriction	Yes: provided in deed release 06/26/2020.
L20.5.3 (ESCA Parcel)	9.69	Lookout Ridge	DACA05-9-07-505	FOSET 5 (ESCA and Non-ESCA OUCTP)	11/15/07	5/8/2009	Yes: Excavation Restriction Residential Use Restriction	Yes: provided in deed release 06/26/2020.

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L20.5.4 (ESCA Parcel)	0.51	South Boundary Park - part / part Turn 11	DACA05-9-07-505	FOSET 5 (ESCA and Non-ESCA OUCTP)	11/15/07	5/8/2009	Yes: Excavation Restriction Residential Use Restriction	Yes: provided in deed release 06/26/2020.
L20.6	247.19	Laguna Seca Park	DACA05-9-05-575	FOST 9 (Track 0 Plug-in "C" and Track 1 Parcels)	8/15/05	7/6/2006	No	Yes: provided in the deed.
L20.7.1	3.32	South Boundary Road - east	DACA05-9-05-529	FOST 8 (Track 0 and Track 0 Plug-in "B" Parcels)	6/7/05	10/18/2006	No	Yes: provided in the deed.
L20.7.2	7.18	South Boundary Road - east	DACA05-9-05-529	FOST 8 (Track 0 and Track 0 Plug-in "B" Parcels)	6/7/05	10/18/2006	No	Yes: provided in the deed.
L20.7.3	0.71	South Boundary Road - east	DACA05-9-05-529	FOST 8 (Track 0 and Track 0 Plug-in "B" Parcels)	6/7/05	10/18/2006	No	Yes: provided in the deed.
L20.7.4	1.23	South Boundary Road - east	DACA05-9-05-529	FOST 8 (Track 0 and Track 0 Plug-in "B" Parcels)	6/7/05	10/18/2006	No	Yes: provided in the deed.
L20.7.5	4.31	South Boundary Road - east	DACA05-9-05-529	FOST 8 (Track 0 and Track 0 Plug-in "B" Parcels)	6/7/05	10/18/2006	No	Yes: provided in the deed.
L20.8 (ESCA Parcel)	7.25	Barloy Canyon Road - south	DACA05-9-07-505	FOSET 5 (ESCA and Non-ESCA OUCTP)	11/15/07	5/8/2009	Yes: Excavation Restriction Residential Use Restriction	Yes: provided in deed release 06/26/2020.
L20.9	18.92	ROW / Reservation Road - south	DACA05-9-02-593	FOST 6 (Track 0)	5/27/03	9/1/2004	No	Yes: provided in the deed.
L21	1.56	Astronomy Center	DACA05-9-95-598	Monterey Institute for Research in Astronomy	3/13/96	3/22/1996	Yes: Groundwater Restriction	Yes: provided in the deed.
L22	1.15	Electrical Substation	DACA05-9-97-622	Pacific Gas & Electric Substation	10/28/95	3/27/1997	No	Yes: provided in the deed.
L23.1.1	2.37	Satellite Campus	DACA05-9-02-594	FOST 6 (Track 0)	5/27/03	9/1/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
L23.1.2	5.56	Satellite Campus	DACA05-9-02-594	FOST 6 (Track 0)	5/27/03	9/1/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
L23.1.3	4.85	Satellite Campus	DACA05-9-02-594	FOST 6 (Track 0)	5/27/03	9/1/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
L23.1.4	6.66	Satellite Campus	DACA05-9-02-594	FOST 6 (Track 0)	5/27/03	9/1/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
L23.1.5	1.37	Satellite Campus	DACA05-9-02-594	FOST 6 (Track 0)	5/27/03	9/1/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
L23.2 (ESCA Parcel)	10.59	Habitat / field study area	DACA05-9-07-508	FOSET 5 (ESCA and Non-ESCA OUCTP)	11/15/07	5/8/2009	Yes: Excavation Restriction Residential Use Restriction	Yes: provided in deed release 06/26/2020.
L23.3.1	54.42	Development / mixed use-ac limit	DACA05-9-02-593	FOST 6 (Track 0)	5/27/03	9/1/2004	No	Yes: provided in the deed.
L23.3.2.1	85.35	Development / mixed use-ac limit / historic district	DACA05-9-02-593	FOST 6 (Track 0)	5/27/03	9/1/2004	No	Yes: provided in the deed.
L23.3.2.2	63.68	Development / mixed use-ac limit (Site 31)	DACA05-9-06-549	FOST 10 (Track 0 Grp D, Track 1 EG 2/4, Track 1 Grps 1-5)	8/20/07	7/10/2009	Yes: Excavation and Exposure of Soil Restriction Residential Use Restriction Exhibit B of the Quitclaim Deed includes a provision that requires compliance with the Habitat Management Plan which places some conditions on land use.	Yes: provided in Quitclaim Deed No. DACA05-9-06-549.
L23.3.3.1	57.63	Development / Mixed Use ac-limit (Site 39A)	DACA05-9-06-549	FOST 10 (Track 0 Grp D, Track 1 EG 2/4, Track 1 Grps 1-5)	8/20/07	7/10/2009	No	Yes: provided in the deed.
L23.3.3.2	31.62	Development / Mixed Use ac-limit	DACA05-9-06-549	FOST 10 (Track 0 Grp D, Track 1 EG 2/4, Track 1 Grps 1-5)	8/20/07	7/10/2009	No	Yes: provided in the deed.
L23.4	0.96	Building 4885 - part	DACA05-9-02-594	FOST 6 (Track 0)	5/27/03	9/1/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
L23.5.1	15.17	BOQ (bachelor officers quarters west)	DACA05-9-05-573	FOST 9 (Track 0 Plug-in "C" and Track 1 Parcels)	8/15/05	3/16/2007	No	Yes: provided in the deed.
L23.5.2	14.53	BOQ (bachelor officers quarters east)	DACA05-9-06-557	FOST 10 (Track 0 Grp D, Track 1 EG 2/4, Track 1 Grps 1-5)	8/20/07	3/2/2011	No	Yes: provided in the deed.
L23.6	3.52	Legal Assistant School / Surplus II	DACA05-9-02-594	FOST 6 (Track 0)	5/27/03	9/1/2004	No	Yes: provided in the deed.
L24	7.19	University Campus	DACA05-9-94-597	Golden Gate University	8/28/95	8/31/1996	Yes: Groundwater Restriction	Yes: provided in the deed.
L25	2.11	Coe Avenue Triangle	DACA05-9-97-613	Golf Course Phase 1	11/26/96	1/15/1997	No	Yes: provided in the deed.
L27	52.11	Brostrom Housing	DACA05-9-98-577	FOST 7 (Brostrom Park 2002), FOST 6 (Track 0)	1/9/03	2/3/2003	No	Yes: provided in the deed.
L28	23.88	Thorsen Village Housing	DACA05-9-98-530	Thorsen Village	9/26/96	7/17/1999	No	Yes: provided in the deed.

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L29	106.95	Hayes Housing	DACA05-9-02-554	Hayes Park	9/28/96	7/25/2002	No	Yes: provided in the deed.
L3.1	5.39	York School South of South Boundary	DACA05-9-05-536	FOST 8 (Track 0 and Track 0 Plug-in "B" Parcels)	6/7/05	3/16/2007	No	Yes: provided in the deed.
L3.2	101.2	York School cross country track and soccer field	DACA05-9-06-558	FOST 10 (Track 0 Grp D, Track 1 EG 2/4, Track 1 Grps 1-5)	8/20/07	3/2/2011	No	Yes: provided in the deed.
L30	5.24	AAFES gas station	DACA05-9-02-554	Surplus II Area A	3/19/99	7/25/2002	No	Yes: provided in the deed.
L31	11.65	Development / mixed use / Surplus II	DACA05-9-05-576	FOST 9 (Track 0 Plug-in "C" and Track 1 Parcels)	8/15/05	7/25/2006	No	Yes: provided in the deed.
L32.1 (ESCA Parcel)	2.95	Public facilities / institute / Surplus II	DACA05-9-07-505	FOSET 5 (ESCA and Non-ESCA OUCTP)	11/15/07	5/8/2009	Yes: Excavation Restriction Residential Use Restriction	Yes: in Amendment No. 1 to Deed No. DACA05-9-07-505 for Parker Flats Phase I area (entire parcel). Provided in deed release 06/26/2020.
L32.2.1	23.94	Campus addition / Surplus II	DACA05-9-02-587	FOST 6 (Track 0)	5/27/03	1/26/2004	No	Yes: provided in the deed.
L32.2.2	9.29	Campus addition / Surplus II	DACA05-9-02-587	FOST 6 (Track 0)	5/27/03	1/26/2004	No	Yes: provided in the deed.
L32.3	3.72	Campus addition / Surplus II	DACA05-9-02-587	FOST 6 (Track 0)	5/27/03	1/26/2004	No	Yes: provided in the deed.
L32.4.1.1	38.4	Development mixed use / retail / Surplus II	DACA05-9-02-599	FOST 6 (Track 0)	5/27/03	12/15/2004	No	Yes: provided in the deed.
L32.4.1.2	16.24	Development mixed use / retail / Surplus II	DACA05-9-01-605	FOSET 2 (Housing Areas and Former Garrison)	12/3/01	10/17/2002	No	Yes: in Amendment No. 1 to Deed No. DACA05-9-01-605 (entire parcel).
L32.4.2	3.98	ROW / development / mixed use / Surplus II	DACA05-9-02-593	FOST 6 (Track 0)	5/27/03	9/1/2004	No	Yes: provided in the deed.
L33.1	48.28	Campus addition / Surplus II	DACA05-9-02-587	FOST 6 (Track 0)	5/27/03	1/26/2003	No	Yes: provided in the deed.
L33.2	12.98	Campus addition / Surplus II	DACA05-9-02-587	FOST 6 (Track 0)	5/27/03	1/26/2003	No	Yes: provided in the deed.
L34	1.73	Golf course well	DACA05-9-97-613	Golf Course Phase 1	11/26/96	1/15/1997	No	Yes: provided in the deed.
L35.1	10.61	Corporation yard	DACA05-9-02-596	FOST 6 (Track 0)	5/27/03	3/15/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
L35.2	1.71	Water Tank - future	DACA05-9-02-596	FOST 6 (Track 0)	5/27/03	3/15/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
L35.3	0.1	Travel Camp Pump	DACA05-9-02-596	FOST 6 (Track 0)	5/27/03	3/15/2004	No	Yes: provided in the deed.
L35.4	1.09	Travel Camp Tank	DACA05-9-06-554	FOST 10 (Track 0 Grp D, Track 1 EG 2/4, Track 1 Grps 1-5)	8/20/07	7/10/2009	No	Yes: provided in the deed.
L35.5	0.92	Water Tank F	DACA05-9-05-531	FOST 8 (Track 0 and Track 0 Plug-in "B" Parcels)	6/7/05	12/8/2005	Yes: Groundwater Restriction	Yes: provided in the deed.
L35.6	0.13	Skeet Field Tank	DACA05-9-02-596	FOST 6 (Track 0)	5/27/03	3/15/2004	No	Yes: provided in the deed.
L35.7	0.1	Lift Station # 96	DACA05-9-02-596	FOST 6 (Track 0)	5/27/03	3/15/2004	No	Yes: provided in the deed.
L35.8	0.14	Lift Station # 31	DACA05-9-02-596	FOST 6 (Track 0)	5/27/03	3/15/2004	No	Yes: provided in the deed.
L37	4.19	Building 4419, 4420, 4421, 4423 / Surplus II	DACA05-9-08-528	FOSET 2 (Housing Areas and Former Garrison)	12/3/01	5/16/2002	No	Yes: in Amendment No. 1 to Deed No. DACA05-9-08-528 (entire parcel).
L4.1	18.1	Park - future	DACA05-9-06-553	FOST 10 (Track 0 Grp D, Track 1 EG 2/4, Track 1 Grps 1-5)	8/20/07	7/10/2009	No	Yes: provided in the deed.
L4.2	7.03	Park - future	DACA05-9-06-553	FOST 10 (Track 0 Grp D, Track 1 EG 2/4, Track 1 Grps 1-5)	8/20/07	7/10/2009	No	Yes: provided in the deed.
L5.1	575.78	Municipal Airport	DACA05-9-95-617	FAAF Phase 1	8/11/95	8/11/1995	Yes: Groundwater Restriction	Yes: provided in the deed.
L5.1.1	60.12	Municipal Airport	DACA05-9-98-574	FOSET 1 (Fritzsche Army Airfield Phase II)	8/1/00	10/5/2001	Yes: Groundwater Restriction Use Restriction	Modification to deed in progress.
L5.1.1.1	12	Resort Parcel	DACA05-9-00-586	FOSET 1 (Fritzsche Army Airfield Phase II)	8/1/00	11/8/2001	Yes: Groundwater Restriction Use Restriction	Modification to deed in progress.
L5.1.10	0.22	Municipal Airport	DACA05-9-98-574	FOSET 1 (Fritzsche Army Airfield Phase II)	8/1/00	10/5/2001	Yes: Groundwater Restriction	No: Modification to deed in progress.
L5.1.11	130.32	Municipal Airport	DACA05-9-95-617	FAAF Phase 1	8/11/95	8/11/1995	Yes: Groundwater Restriction	Yes: provided in the deed.
L5.1.12	43.14	Municipal Airport	DACA05-9-95-617	FAAF Phase 1	8/11/95	8/11/1995	Yes: Groundwater Restriction	Yes: provided in the deed.

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Former Fort Ord, California

USACE Parcel Number	Acreage	Parcel Name	USACE Deed Tracking Number	Transfer Document (FOST, FOSET)	Document Date (FOST, FOSET)	Transfer Date	Deed Restriction[1]	CERCLA Warranty
L5.1.2	0.03	Municipal Airport	DACA05-9-98-574	FOSET 1 (Fritzsche Army Airfield Phase II)	8/1/00	10/5/2001	Yes: Groundwater Restriction	No: Modification to deed in progress.
L5.1.3	0.11	Municipal Airport	DACA05-9-98-574	FOSET 1 (Fritzsche Army Airfield Phase II)	8/1/00	10/5/2001	Yes: Groundwater Restriction	No: Modification to deed in progress.
L5.1.4	6.17	Municipal Airport	DACA05-9-98-574	FOSET 1 (Fritzsche Army Airfield Phase II)	8/1/00	10/5/2001	Yes: Groundwater Restriction	No: Modification to deed in progress.
L5.1.5	0.56	Municipal Airport	DACA05-9-98-574	FOSET 1 (Fritzsche Army Airfield Phase II)	8/1/00	10/5/2001	Yes: Groundwater Restriction	No: Modification to deed in progress.
L5.1.6	0.23	Municipal Airport	DACA05-9-98-574	FOSET 1 (Fritzsche Army Airfield Phase II)	8/1/00	10/5/2001	Yes: Groundwater Restriction	No: Modification to deed in progress.
L5.1.7	0.23	Municipal Airport	DACA05-9-98-574	FOSET 1 (Fritzsche Army Airfield Phase II)	8/1/00	10/5/2001	Yes: Groundwater Restriction	No: Modification to deed in progress.
L5.1.8	6.34	Municipal Airport	DACA05-9-98-574	FOSET 1 (Fritzsche Army Airfield Phase II)	8/1/00	10/5/2001	Yes: Groundwater Restriction	No: Modification to deed in progress.
L5.1.9	0.44	Municipal Airport	DACA05-9-98-574	FOSET 1 (Fritzsche Army Airfield Phase II)	8/1/00	10/5/2001	Yes: Groundwater Restriction	No: Modification to deed in progress.
L5.10.1	8.51	Reservation Road NW	DACA05-9-07-503	FOSET 5 (ESCA and Non-ESCA OUCTP)	11/15/07	5/8/2009	Yes: Groundwater Restriction Deed modification in progress to give CERCLA Warranty (groundwater restriction will remain). Not an ESCA parcel.	Pending: modification to deed in progress.
L5.10.2	12.55	Reservation Road N	DACA05-9-05-532	FOST 8 (Track 0 and Track 0 Plug-in "B" Parcels)	6/7/05	3/21/2006	Yes: Groundwater Restriction	Yes: provided in the deed.
L5.2	0.27	Municipal Airport / middle marker	DACA05-9-98-574	FOSET 1 (Fritzsche Army Airfield Phase II)	8/1/00	10/5/2001	Yes: Groundwater Restriction	No: Modification to deed in progress.
L5.3	0.27	Municipal Airport / outer marker	DACA05-9-98-574	FOSET 1 (Fritzsche Army Airfield Phase II)	8/1/00	10/5/2001	No	No: Modification to deed in progress.
L5.4.1	5.69	Sports Center	DACA05-9-98-518	Marina Sports Center	6/16/97	5/8/1998	Yes: Groundwater Restriction	Yes: provided in the deed.
L5.4.2	13.4	Sports Center Expansion	DACA05-9-98-518	Marina Sports Center	6/16/97	5/8/1998	Yes: Groundwater Restriction	Yes: provided in the deed.
L5.4.3	1.63	Sports Center Expansion	DACA05-9-98-518	Marina Sports Center	6/16/97	5/8/1998	Yes: Groundwater Restriction	Yes: provided in the deed.
L5.5.1	3.46	Sports Tennis Center	DACA05-9-98-518	Marina Sports Center	6/16/97	5/8/1998	No	Yes: provided in the deed.
L5.5.2	0.55	Sports Tennis Center	DACA05-9-98-518	Marina Sports Center	6/16/97	5/8/1998	No	Yes: provided in the deed.
L5.6.1	22.54	Abrams Park	DACA05-9-05-577	FOST 9 (Track 0 Plug-in "C" and Track 1 Parcels)	8/15/05	3/13/2006	Yes: Groundwater Restriction	Yes: provided in the deed.
L5.6.2	8.47	Marina Park offices	DACA05-9-05-577	FOST 9 (Track 0 Plug-in "C" and Track 1 Parcels)	8/15/05	3/13/2006	Yes: Groundwater Restriction	Yes: provided in the deed.
L5.7 (ESCA Parcel)	73.44	Park - future	DACA05-9-07-505	FOSET 5 (ESCA and Non-ESCA OUCTP)	11/15/07	5/8/2009	Yes: Excavation Restriction Groundwater Restriction	Yes: in Amendment No. 2 to Deed No. DACA05-9-07-505 for County North MRA (entire parcel). Provided in deed release 06/26/2020.
L5.8.1	7.05	Maintenance Center Building 4885 Phase I	DACA05-9-02-586	FOST 6 (Track 0)	5/27/03	3/15/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
L5.8.2	4.86	Maintenance Center Building 4885 Phase II	DACA05-9-02-586	FOST 6 (Track 0)	5/27/03	3/15/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
L5.9.1.1	23.13	Equestrian Center	DACA05-9-97-610	Marina Equestrian	7/15/97	4/30/1998	Yes: Groundwater Restriction	Yes: provided in the deed.
L5.9.1.2	4.12	Equestrian Center	DACA05-9-97-610	Marina Equestrian	7/15/97	4/30/1998	Yes: Groundwater Restriction	Yes: provided in the deed.
L5.9.2	3.22	Equestrian Center tail	DACA05-9-06-550	FOST 10 (Track 0 Grp D, Track 1 EG 2/4, Track 1 Grps 1-5)	8/20/07	7/10/2009	Yes: Groundwater Restriction	Yes: provided in the deed.
L6.1	13.27	Frog Pond	DACA05-9-06-555	FOST 10 (Track 0 Grp D, Track 1 EG 2/4, Track 1 Grps 1-5)	8/20/07	7/10/2009	No	Yes: provided in the deed.
L6.2 (ESCA Parcel)	6.91	Frog Pond	DACA05-9-07-504	FOSET 5 (ESCA and Non-ESCA OUCTP)	11/15/07	5/8/2009	Yes: Excavation Restriction Residential Use Restriction	Yes: provided in deed release 06/26/2020.
L7.1	19.11	School Patton	DACA05-9-94-557	MPUSD Phase I	8/28/94	7/15/1995	Yes: Groundwater Restriction	Yes: provided in the deed.
L7.2	12.94	School site - future	DACA05-9-95-575	MPUSD Phase II	4/29/96	2/2/1996	Yes: Groundwater Restriction	Yes: provided in the deed.
L7.3	15.11	School Stilwell	DACA05-9-94-558	MPUSD Phase I	8/28/94	7/15/1995	No	Yes: provided in the deed.
L7.4	10.67	School Marshall	DACA05-9-94-556	MPUSD Phase I	8/28/94	7/15/1995	No	Yes: provided in the deed.
L7.5	40.1	School Fitch Middle	DACA05-9-94-554	MPUSD Phase I	8/28/94	7/15/1995	No	Yes: provided in the deed.

Table 1
Parcels Transferred by Deed as of September 30, 2021
Former Fort Ord, California

USACE Parcel Number	Acreage	Parcel Name	USACE Deed Tracking Number	Transfer Document (FOST, FOSET)	Document Date (FOST, FOSET)	Transfer Date	Deed Restriction[1]	CERCLA Warranty
L7.6	15.13	School Hayes	DACA05-9-94-555	MPUSD Phase I	8/28/94	7/15/1995	No	Yes: provided in the deed.
L7.7	28.96	Officers' Club	DACA05-9-96-620	MPUSD Phase I	4/29/96	2/2/1996	No	Yes: provided in the deed.
L7.8	0.32	Building 4550 / Surplus II	DACA05-9-02-599	FOST 6 (Track 0)	5/27/03	12/15/2004	No	Yes: provided in the deed.
L7.9	0.32	Building 4560 / Surplus II	DACA05-9-02-599	FOST 6 (Track 0)	5/27/03	12/15/2004	No	Yes: provided in the deed.
L9.1.1.1	2.29	Patton Housing	DACA05-9-98-616	Vietnam Veterans	6/12/97	10/19/1998	Yes: Groundwater Restriction	Yes: provided in the deed.
L9.1.1.2	2.24	Patton Housing	DACA05-9-05-570	FOST 9 (Track 0 Plug-in "C" and Track 1 Parcels)	8/15/05	9/5/2007	Yes: Groundwater Restriction	Yes: provided in the deed.
L9.1.2.1	3.47	Patton Housing	DACA05-9-98-616	Vietnam Veterans	6/12/97	10/19/1998	Yes: Groundwater Restriction	Yes: provided in the deed.
L9.1.2.2	2.38	Patton Housing	DACA05-9-05-570	FOST 9 (Track 0 Plug-in "C" and Track 1 Parcels)	8/15/05	9/5/2007	Yes: Groundwater Restriction	Yes: provided in the deed.
L9.2.1	3.61	Martinez Hall	DACA05-9-98-616	Vietnam Veterans	6/12/97	10/19/1998	Yes: Groundwater Restriction	Yes: provided in the deed.
L9.2.2	0.46	ROW / Martinez Hall	DACA05-9-98-616	Vietnam Veterans	6/12/97	10/19/1998	Yes: Groundwater Restriction	Yes: provided in the deed.
L9.3	1.05	Warehouse Building 2988 and Building 2990	DACA05-9-98-616	Vietnam Veterans	6/12/97	10/19/1998	Yes: Groundwater Restriction	Yes: provided in the deed.
S1.1.1	90.73	Central Campus	DACA05-9-94-602	CSUMB Phase I	7/14/94	8/19/1994	No	Yes: provided in the deed.
S1.1.2	126.8	Central Campus	DACA05-9-94-602	CSUMB Phase I	7/14/94	8/19/1994	Yes: Groundwater Restriction	Yes: provided in the deed.
S1.1.3	6.52	Central Campus	DACA05-9-94-602	CSUMB Phase I	7/14/94	8/19/1994	No	Yes: provided in the deed.
S1.2.1	406.2	Campus Housing / Schoonover	DACA05-9-94-602	CSUMB Phase I	7/14/94	8/19/1994	Yes: Groundwater Restriction	Yes: provided in the deed.
S1.2.2	20.28	Fredericks Housing - peanut	DACA05-9-97-578	CSUMB Fredricks & Parcel B	2/7/97	9/15/1997	Yes: Groundwater Restriction	Yes: provided in the deed.
S1.3.1	38.18	Maintenance Area 3A	DACA05-9-00-548	FOSET 2 (Housing Areas and Former Garrison)	12/3/01	8/22/2002	Yes: Groundwater Restriction	Yes: in Amendment No. 1 to Deed No. DACA05-9-00-548 (entire parcel).
S1.3.2 (ESCA Parcel)	332.84	Expansion Area 3B	DACA05-9-07-507	FOSET 5 (ESCA and Non-ESCA OUCTP)	11/15/07	5/8/2009	Yes: Excavation Restriction Partial* Residential Use Restriction (*partially removed by deed release 06/26/2020.) Groundwater Restriction	Yes: provided in deed release 06/26/2020.
S1.3.3	9.27	ROW / Intergarrison Road - part	DACA05-9-02-595	FOST 6 (Track 0)	5/27/03	10/16/2003	Yes: Groundwater Restriction	Yes: provided in the deed.
S1.4	90.49	South Campus	DACA05-9-00-548	FOSET 2 (Housing Areas and Former Garrison)	12/3/01	8/22/2002	No	Yes: in Amendment No. 1 to Deed No. DACA05-9-00-548 (entire parcel).
S1.5.1.1	96.3	Maintenance Area	DACA05-9-00-548	FOSET 2 (Housing Areas and Former Garrison)	12/3/01	8/22/2002	Yes: Groundwater Restriction	Yes: in Amendment No. 1 to Deed No. DACA05-9-00-548 (entire parcel).
S1.5.1.2	11.71	Maintenance Area / Site 17	DACA05-9-02-595	FOST 6 (Track 0)	5/27/03	10/16/2003	Yes: Groundwater Restriction	Yes: provided in the deed.
S1.5.2	18.39	Facilities Engineer Area	DACA05-9-00-548	FOSET 2 (Housing Areas and Former Garrison)	12/3/01	8/22/2002	Yes: Groundwater Restriction	Yes: in Amendment No. 1 to Deed No. DACA05-9-00-548 (entire parcel).
S1.6	34.39	East of 2nd Avene	DACA05-9-97-578	CSUMB Fredricks & Parcel B	2/7/98	9/15/1997	No	Yes: provided in the deed.
S1.7	7.56	Maintenance Buildings	DACA05-9-98-501	CSUMB Parcel 9	10/24/96	2/9/1998	Yes: Groundwater Restriction	Yes: provided in the deed.
S2.1.1	34.32	West Parcel	DACA05-9-94-603	UCSC Phase I	6/15/94	8/31/1994	Yes: Groundwater Restriction	Yes: provided in the deed.
S2.1.1.1	5.26	West Parcel - Habitat Reserve	DACA05-9-94-603	UCSC Phase I	6/15/94	8/31/1994	Yes: Groundwater Restriction	Yes: provided in the deed.
S2.1.1.2	1.64	West Parcel - Habitat Reserve	DACA05-9-94-603	UCSC Phase I	6/15/94	8/31/1994	Yes: Groundwater Restriction	Yes: provided in the deed.
S2.1.3	14.48	Site 35	DACA05-9-97-599	FOSET 2 (Housing Areas and Former Garrison)	12/3/01	6/28/2004	Yes: Groundwater Restriction	Yes: in Amendment No. 1 to Deed No. DACA05-9-97-599 (entire parcel).
S2.1.4.1	11.95	Site 34 (35A)	DACA05-9-97-599	FOSET 2 (Housing Areas and Former Garrison)	12/3/01	6/28/2004	Yes: Groundwater Restriction	Yes: in Amendment No. 1 to Deed No. DACA05-9-97-599 (entire parcel).
S2.1.4.2	3.62	Site 35B	DACA05-9-06-535	FOST 6 (Track 0)	5/27/03	3/3/2011	Yes: Groundwater Restriction	Yes: provided in the deed.
S2.1.5	343.48	Habitat without contaminant	DACA05-9-94-603	UCSC Phase I	6/15/94	8/31/1994	Yes: Groundwater Restriction per Monterey County Code Chapter 15.08 - not by deed	Yes: provided in Section 23 of deed.

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Parcels Transferred by Deed as of September 30, 2021
Former Fort Ord, California

USACE Parcel Number	Acreage	Parcel Name	USACE Deed Tracking Number	Transfer Document (FOST, FOSET)	Document Date (FOST, FOSET)	Transfer Date	Deed Restriction[1]	CERCLA Warranty
S2.1.5.1	5.06	Development	DACA05-9-94-603	UCSC Phase I	6/15/94	8/31/1994	Yes: Groundwater Restriction per Monterey County Code Chapter 15.08 - not by deed	Yes: provided in Section 23 of deed.
S2.1.6	67.86	Development	DACA05-9-94-603	UCSC Phase I	6/15/94	8/31/1994	Yes: Groundwater Restriction per Monterey County Code Chapter 15.08 - not by deed	Yes: provided in Section 23 of deed.
S2.1.7	1.34	West Parcel	DACA05-9-94-603	UCSC Phase I	6/15/94	8/31/1994	Yes: Groundwater Restriction per Monterey County Code Chapter 15.08 - not by deed	Yes: provided in Section 23 of deed.
S2.2.1	269.73	Development area - northeast area	DACA05-9-94-603	UCSC Phase I	6/15/94	8/31/1994	Yes: Groundwater Restriction per Monterey County Code Chapter 15.08 - not by deed	Yes: provided in Section 23 of deed.
S2.3.1.1	37.36	Development area - south	DACA05-9-94-603	UCSC Phase I	6/15/94	8/31/1994	Yes: Groundwater Restriction per Monterey County Code Chapter 15.08 - not by deed	Yes: provided in Section 23 of deed.
S2.3.1.2	11.53	ROW / south development area	DACA05-9-94-603	UCSC Phase I	6/15/94	8/31/1994	Yes: Groundwater Restriction per Monterey County Code Chapter 15.08 - not by deed	Yes: provided in Section 23 of deed.
S2.3.1.3	0.49	Development area - south	DACA05-9-94-603	UCSC Phase I	6/15/94	8/31/1994	Yes: Groundwater Restriction per Monterey County Code Chapter 15.08 - not by deed	Yes: provided in Section 23 of deed.
S2.3.1.4	8.78	UCMBEST Nature Reserve	DACA05-9-94-603	UCSC Phase I	6/15/94	8/31/1994	Yes: Groundwater Restriction per Monterey County Code Chapter 15.08 - not by deed	Yes: provided in Section 23 of deed.
S2.3.2.1	36.75	Habitat Reserve - south	DACA05-9-94-603	UCSC Phase I	6/15/94	8/31/1994	Yes: Groundwater Restriction per Monterey County Code Chapter 15.08 - not by deed	Yes: provided in Section 23 of deed.
S2.3.2.2	33.12	ROW / South reserve	DACA05-9-94-603	UCSC Phase I	6/15/94	8/31/1994	Yes: Groundwater Restriction per Monterey County Code Chapter 15.08 - not by deed	Yes: provided in Section 23 of deed.
S2.3.2.3	3.02	ROW / South reserve	DACA05-9-94-603	UCSC Phase I	6/15/94	8/31/1994	Yes: Groundwater Restriction per Monterey County Code Chapter 15.08 - not by deed	Yes: provided in Section 23 of deed.
S2.3.2.4	90.35	Habitat Reserve - south	DACA05-9-94-603	UCSC Phase I	6/15/94	8/31/1994	Yes: Groundwater Restriction per Monterey County Code Chapter 15.08 - not by deed	Yes: provided in Section 23 of deed.
S2.4	10.98	Habitat Reserve - west	DACA05-9-94-603	UCSC Phase I	6/15/94	8/31/1994	Yes: Groundwater Restriction per Monterey County Code Chapter 15.08 - not by deed	Yes: provided in Section 23 of deed.
S2.5.1.1	15.55	Office Park / Transit Center	DACA05-9-97-599	FOSET 2 (Housing Areas and Former Garrison)	12/3/01	6/28/2004	Yes: Groundwater Restriction	Yes: in Amendment No. 1 to Deed No. DACA05-9-97-599 (entire parcel).
S2.5.1.2	2.21	Office Park / Transit Center	DACA05-9-97-599	FOSET 2 (Housing Areas and Former Garrison)	12/3/01	6/28/2004	Yes: Groundwater Restriction	Yes: in Amendment No. 1 to Deed No. DACA05-9-97-599 (entire parcel).
S2.5.2.1	25.4	Office Park	DACA05-9-97-599	FOSET 2 (Housing Areas and Former Garrison)	12/3/01	6/28/2004	Yes: Groundwater Restriction	Yes: in Amendment No. 1 to Deed No. DACA05-9-97-599 (entire parcel).
S2.5.2.2	3.78	Office Park	DACA05-9-97-599	FOSET 2 (Housing Areas and Former Garrison)	12/3/01	6/28/2004	Yes: Groundwater Restriction	Yes: in Amendment No. 1 to Deed No. DACA05-9-97-599 (entire parcel).
S3.1.1	476.79	State Park - east side	DACA05-9-05-574	FOST 9 (Track 0 Plug-in "C" and Track 1 Parcels)	8/15/05	9/29/2006	Yes: Groundwater Restriction Residential Use Restriction	Yes: provided in the deed.
S3.1.2	468.19	State Park - west side	DACA05-9-05-574	FOST 9 (Track 0 Plug-in "C" and Track 1 Parcels)	8/15/05	9/29/2006	Yes: Groundwater Restriction Residential Use Restriction	Yes: provided in the deed.
S3.1.3	21.9	Balloon Spur Interior	DACA05-9-05-574	FOST 9 (Track 0 Plug-in "C" and Track 1 Parcels)	8/15/05	9/29/2006	Yes: Residential Use Restriction	Yes: provided in the deed.
S3.1.4	12.59	Development Park area	DACA05-9-05-574	FOST 9 (Track 0 Plug-in "C" and Track 1 Parcels)	8/15/05	9/29/2006	Yes: Residential Use Restriction	Yes: provided in the deed.
S3.2.1	11.28	Seaside Drumstick	DACA05-9-08-527	FOST 8 (Track 0 and Track 0 Plug-in "B" Parcels)	6/7/05	8/28/2008	No	Yes: provided in the deed.
S3.2.2	0.09	Seaside Drumstick	DACA05-9-08-527	FOST 8 (Track 0 and Track 0 Plug-in "B" Parcels)	6/7/05	8/28/2008	No	Yes: provided in the deed.
S4.1.1	72.14	ROW / Hwy 1	DACA05-9-05-572	FOST 9 (Track 0 Plug-in "C" and Track 1 Parcels)	8/15/05	8/8/2007	Yes: Groundwater Restriction	Yes: provided in the deed.
S4.1.2.1	148.51	ROW / Hwy 1	DACA05-9-02-600	FOST 6 (Track 0)	5/27/03	9/1/2004	No	Yes: provided in the deed.
S4.1.2.2	0.15	ROW / Hwy 1	DACA05-9-02-600	FOST 6 (Track 0)	5/27/03	9/1/2004	No	Yes: provided in the deed.
S4.1.3	0.24	ROW / Hwy 1 Railroad crossing	DACA05-9-02-600	FOST 6 (Track 0)	5/27/03	9/1/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
S4.1.4	0.41	Railroad Union Pacific / Hwy 1	DACA05-9-02-600	FOST 6 (Track 0)	5/27/03	9/1/2004	Yes: Groundwater Restriction	Yes: provided in the deed.
S4.1.5	5.78	ROW / Hwy 1	DACA05-9-02-600	FOST 6 (Track 0)	5/27/03	9/1/2004	No	Yes: provided in the deed.
S4.2.1	37.26	ROW / future Hwy 68	DACA05-9-05-528	FOST 8 (Track 0 and Track 0 Plug-in "B" Parcels)	6/7/05	3/15/2006	No	Yes: provided in the deed.
S4.2.2	1.01	ROW / North of Hwy 68	DACA05-9-05-528	FOST 8 (Track 0 and Track 0 Plug-in "B" Parcels)	6/7/05	3/15/2006	No	Yes: provided in the deed.
S4.2.3	14.01	ROW / South of Hwy 68	DACA05-9-05-528	FOST 8 (Track 0 and Track 0 Plug-in "B" Parcels)	6/7/05	3/15/2006	No	Yes: provided in the deed.
S4.2.4	25.73	ROW / South of Hwy 68	DACA05-9-05-528	FOST 8 (Track 0 and Track 0 Plug-in "B" Parcels)	6/7/05	3/15/2006	No	Yes: provided in the deed.
S4.3	1.34	ROW / Hwy 68 at Corral de Tierra	DACA05-9-05-528	FOST 8 (Track 0 and Track 0 Plug-in "B" Parcels)	6/7/05	3/15/2006	No	Yes: provided in the deed.

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Parcels Transferred by Deed as of September 30, 2021
Former Fort Ord, California

USACE Parcel Number	Acreage	Parcel Name	USACE Deed Tracking Number	Transfer Document (FOST, FOSET)	Document Date (FOST, FOSET)	Transfer Date	Deed Restriction[1]	CERCLA Warranty

Footnotes:

1- Groundwater Restriction: Denotes properties with deed containing a restriction or notice of presence of contamination grounwater that (a) prohibits access to or use of groundwater or prohibits access to groundwater without first consulting with the BCT and the County of Monterey.

2- USACE Deed Tracking Number refers to a Letter of Transfer, not a deed.

3- per Letter of Transfer, the Army will take actions necessary to protect human health and the environment in accordance with applicable law and the Department of Defense or Army policies.

4 - Parcel E4.4.1 was part of Parcel E4.4, which was transferred on August 8, 2000; an error in the deed's legal description that had excluded Parcel E4.4.1 was revised in a corrective deed issued May 5, 2015.

Notes:

AAFES = Army and Air Force Exchange Service

ASP = Ammunition Supply Point

BOQ = bachelor officers quarters

BLM = Bureau of Land Management

CSUMB = California State University Monterey Bay

DBRAC = Department of Base Realignment and Closure

Dev = Development

distr = district

DoD = Department of Defense

DPW = Department of Public Works

ESCA = Environmental Services Cooperative Agreement

EVOC = Emergency Vehicle Operations Center

FAAF = Fritzsche Army Airfield

FORA = Fort Ord Reuse Authority

FOSET = Finding of Suitability to Early Transfer

FOSL = Finding of Suitability to Lease

FOST = Finding of Suitability to Transfer

Gen. = General

Grp(s) = Group(s)

MOUT = Military Operations in Urban Terrain

MPC = Monterey Peninsula College

MPUSD = Monterey Peninsula Unified School District

N = North

NA = Not applicable

NW = Northwest

OU1 = Operable Unit 1

OU2 = Operable Unit 2

OUCTP = Operable Unit Carbon Tetrachloride Plume

ROW = Right of way

UCMBEST = University of California Monterey Bay Education, Science, and Technology

UCSC = University of California, Santa Cruz

USACE = U.S. Army Corps Of Engineers

VOQ = visiting officers quarters

Table 2
HTW Site Summary
Former Fort Ord, California

Site Number	Site Name	Record of Decision (ROD)	Completed in 1st 5-Year Review (2001)	Completed in 2nd 5-Year Review (2007)	Completed in 3rd 5-Year Review (2012)	Completed in 4th 5-Year Review (2017)	Completed in 5th 5-Year Review (2022)	Ongoing
1	Ord Village Sewage Treatment Plant	Interim Action Sites ROD		X				
2	Main Garrison Sewage Treatment Plant	Basewide Remedial Investigation Sites ROD						X
3	Beach Trainfire Ranges					X		
4	Beach Stormwater Outfalls	Basewide Remedial Investigation Sites ROD	X					
5	Range 36A (within Site 39)	Basewide Remedial Investigation Sites ROD	X					
6	Range 39, Abandoned Car Dump	Interim Action Site			X			
7	Ranges 40 and 41 (within Site 39)	Basewide Remedial Investigation Sites ROD						X
8	Range 49, Molotov Cocktail Range	Interim Action Sites ROD		X				
9	Range 40A (within Site 39)	Basewide Remedial Investigation Sites ROD						X
10	Burn Pit	Interim Action Sites ROD		X				
11	Army and Air Force Exchange Service Fueling Station	No Action Sites ROD	X					
12	Lower Meadow Disposal Area	Basewide Remedial Investigation Sites ROD						X
13	Railroad Right-of-Way	No Action Sites ROD	X					

Table 2
HTW Site Summary
Former Fort Ord, California

Site Number	Site Name	Record of Decision (ROD)	Completed in 1st 5-Year Review (2001)	Completed in 2nd 5-Year Review (2007)	Completed in 3rd 5-Year Review (2012)	Completed in 4th 5-Year Review (2017)	Completed in 5th 5-Year Review (2022)	Ongoing
14	707th Maintenance Facility	Interim Action Sites ROD	X					
15	Directorate of Engineering and Housing (DEH) Yard	Interim Action Sites ROD	X					
16	DOL Maintenance Yard	Basewide Remedial Investigation Sites ROD	X					
17	Disposal Area, 1400 Block Motor Pool	Basewide Remedial Investigation Sites ROD	X					
18	1600 Block Facility	No Action Sites ROD	X					
19	2200 Block Facility	No Action Sites ROD	X					
20	South Parade Ground and 3800 and 519th Motor Pools	Interim Action Sites ROD	X					
21	4400/4500 Block Motor Pool East	Interim Action Sites ROD		X				
22	4400/4500 Block Motor Pool West	Interim Action Sites ROD	X					
23	3700 Block Motor Pool Complex	No Action Sites ROD	X					
24	Old Directorate of Engineering and Housing (DEH) Yard	Interim Action Sites ROD	X					
25	Former Defense Reutilization Marketing Office	Basewide Remedial Investigation Sites ROD	X					
26	Sewage Pump Stations, Buildings 5871 and 6143	No Action Sites ROD	X					

Table 2
HTW Site Summary
Former Fort Ord, California

Site Number	Site Name	Record of Decision (ROD)	Completed in 1st 5-Year Review (2001)	Completed in 2nd 5-Year Review (2007)	Completed in 3rd 5-Year Review (2012)	Completed in 4th 5-Year Review (2017)	Completed in 5th 5-Year Review (2022)	Ongoing
27	Army Reserve Motor Pool	No Action Sites ROD	X					
28	Barracks and Main Garrison Area	No Action Sites ROD	X					
29	Defense Reutilization Marketing Office	No Action Sites ROD	X					
30	Driver Training Area	Interim Action Sites ROD		X				
31	Former Dump Site	Basewide Remedial Investigation Sites ROD						X
32	East Garrison Sewage Treatment Plant	Interim Action Sites ROD		X				
33	Golf Course Maintenance Area	Basewide Remedial Investigation Sites ROD						X
34	Fritzsche Army Airfield (FAAF) Fueling Facility	Interim Action Sites ROD		X				
34B	Former Burn Pit	Interim Action Sites ROD			X			
35	FAAF Aircraft Cannibalization Yard	No Action Sites ROD	X					
36	FAAF Sewage Treatment Plant	Interim Action Sites ROD	X					
37	Trailer Park Maintenance Shop	No Action Sites ROD	X					
38	Army and Air Force Exchange Service Dry Cleaners	No Action Sites ROD	X					
39	Inland Ranges	Basewide Remedial						X

Table 2
HTW Site Summary
Former Fort Ord, California

Site Number	Site Name	Record of Decision (ROD)	Completed in 1st 5-Year Review (2001)	Completed in 2nd 5-Year Review (2007)	Completed in 3rd 5-Year Review (2012)	Completed in 4th 5-Year Review (2017)	Completed in 5th 5-Year Review (2022)	Ongoing
		Investigation Sites ROD						
39A	East Garrison Ranges	Interim Action Sites ROD		X				
39B	Inter-Garrison Training Area	Interim Action Sites ROD			X			
40	FAAF Helicopter Defueling Area	Interim Action Sites ROD				X		
41	Crescent Bluff Fire Drill Area	Interim Action Sites ROD				X		
OF-15	Outfall 15	Interim Action Sites ROD				X		
OF34/35	Outfalls 34 and 35	Interim Action Sites ROD	X					

Notes:
DEH = Directorate of Engineering and Housing
FAAF = Fritzsche Army Airfield
HTW = Hazardous and Toxic Waste
OF = Outfall
ROD = Record of Decision

Table 3
Groundwater Protection Zone Status and Deed Restrictions by Site
Former Fort Ord, California

Site Number	Site Name	Record of Decision (ROD)	Within Special Groundwater Protection Zone?	Deed Restriction?
1	Ord Village Sewage Treatment Plant	Interim Action Sites ROD	Yes	No
2	Main Garrison Sewage Treatment Plant	Basewide Remedial Investigation Sites ROD	Yes	Yes
3	Beach Trainfire Ranges	Site 3 ROD/Track 1	Yes	Yes
5	Range 36A (within Site 39)	Basewide Remedial Investigation Sites ROD	No	No
6	Range 39, Abandoned Car Dump	Interim Action Sites ROD	No	No
7	Ranges 40 and 41 (within Site 39)	Basewide Remedial Investigation Sites ROD	No	No
8	Range 49, Molotov Cocktail Range	Interim Action Sites ROD	No	No
9	Range 40A (within Site 39)	Basewide Remedial Investigation Sites ROD	No	No
10	Burn Pit	Interim Action Sites ROD	No	No
12	Lower Meadow Disposal Area	Basewide Remedial Investigation Sites ROD	Yes	Yes
14	707th Maintenance Facility	Interim Action Sites ROD	Yes	No
15	Directorate of Engineering and Housing (DEH) Yard	Interim Action Sites ROD	Yes	No
20	South Parade Ground and 3800 and 519th Motor Pools	Interim Action Sites ROD	Yes	No
21	4400/4500 Block Motor Pool East	Interim Action Sites ROD	Yes	No
22	4400/4500 Block Motor Pool West	Interim Action Sites ROD	Yes	No
24	Old Directorate of Engineering and Housing (DEH) Yard	Interim Action Sites ROD	Yes	No
30	Driver Training Area	Interim Action Sites ROD	Yes	No
31	Former Dump Site	Basewide Remedial Investigation Sites ROD	No	Yes
32	East Garrison Sewage Treatment Plant	Interim Action Sites ROD	Yes	Yes
33	Golf Course Maintenance Area	Basewide Remedial Investigation Sites ROD	No	Yes
34	Fritzsche Army Airfield (FAAF) Fueling Facility	Interim Action Sites ROD	Yes	Yes
34B	Former Burn Pit	Interim Action Sites ROD	Yes	No
36	FAAF Sewage Treatment Plant	Interim Action Sites ROD	Yes	No
39	Inland Ranges	Basewide Remedial Investigation Sites ROD	No	Yes
39A	East Garrison Ranges	Interim Action Sites ROD	Yes	No
39B	Inter-Garrison Training Area	Interim Action Sites ROD	Yes	No
40	FAAF Helicopter Defueling Area	Interim Action Sites ROD	Yes	No
41	Crescent Bluff Fire Drill Area	Interim Action Sites ROD	No	No

DEH = Directorate of Engineering and Housing
FAAF = Fritzsche Army Airfield
ROD = Record of Decision

Table 4
Aquifer Cleanup Levels
Former Fort Ord, California

Chemicals of Concern	Maximum Contaminant Levels (MCLs)		Aquifer Cleanup Levels (ACLs) µg/L	Basis for Selection
	State (EPA) µg/L	Federal (EPA) µg/L		
Operable Unit 1				
Benzene	1.0	5.0	1.0	State MCL
Chloroform	--	100	2.0	Risk-based Calculation
1,1-Dichloroethane (1,1-DCA)	5.0	--	5.0	State MCL
1,2-Dichloroethane (1,2-DCA)	0.5	5.0	0.5	State MCL
1,1-Dichloroethylene (1,1-DCE)	6.0	7.0	6.0	State MCL
Total 1,2-Dichloroethylene	6.0	70	6.0	Lowest MCL for Isomers
Methyl Ethyl Ketone	--	--	1,900	EPA IX. PRG 1995
Tetrachloroethylene (PCE)	5.0	5.0	5.0	State MCL
1,1,1-Trichloroethane (1,1,1-TCA)	200	200	200	State MCL
Trichloroethylene (TCE)	5.0	5.0	5.0	State MCL
Operable Unit 2				
Benzene	1.0	5.0	1.0	State MCL
Carbon Tetrachloride	0.5	5.0	0.5	State MCL
Chloroform	--	100	2.0	Risk-based Calculation
1,1-Dichloroethane (1,1-DCA)	5.0	--	5.0	State MCL
1,2-Dichloroethane (1,2-DCA)	0.5	5.0	0.5	State MCL
Cis-1,2-Dichloroethylene	6.0	70.0	6.0	Lowest MCL for Isomers
Methylene chloride	5.0	5.0	5.0	State MCL
1,2-Dichloropropane	5.0	5.0	1.0	Risk-based Calculation
Tetrachloroethylene (PCE)	5.0	5.0	3.0	Risk-based Calculation
Trichloroethylene (TCE)	5.0	5.0	5.0	State MCL
Vinyl Chloride	0.5	2.0	0.1	Risk-based Calculation
Sites 2 and 12				
Chloroform	--	100	2.0	Risk-based Calculation
1,2-Dichloroethane (1,2-DCA)	0.5	5.0	0.5	State MCL

Table 4
Aquifer Cleanup Levels
Former Fort Ord, California

Chemicals of Concern	Maximum Contaminant Levels (MCLs)		Aquifer Cleanup Levels (ACLs) µg/L	Basis for Selection
	State (EPA) µg/L	Federal (EPA) µg/L		
Cis-1,2-Dichloroethylene	6.0	70.0	6.0	Lowest MCL for Isomers
1,1-Dichloroethylene (1,1-DCE)	6.0	7.0	6.0	State MCL
1,3-Dichloropropene (total)	0.5	--	0.5	State MCL
Tetrachloroethylene (PCE)	5.0	5.0	5.0	Risk-based Calculation
Trichloroethylene (TCE)	5.0	5.0	5.0	State MCL
Vinyl Chloride	0.5	2.0	0.1	Risk-based Calculation
Operable Unit Carbon Tetrachloride Plume				
A-Aquifer				
Carbon Tetrachloride	0.5	5.0	0.5	State MCL
Chloroform	--	100	2.0	Risk-based Calculation
Methylene chloride	5.0	5.0	5.0	State MCL
1,1-Dichloroethylene (1,1-DCE)	6.0	7.0	6.0	State MCL
Cis-1,2-Dichloroethylene	6.0	70.0	6.0	Lowest MCL for Isomers
Tetrachloroethylene (PCE)	5.0	5.0	5.0	State MCL
Trichloroethylene (TCE)	5.0	5.0	5.0	State MCL
Vinyl Chloride	0.5	2.0	0.1	Risk-based Calculation
Upper 180-Foot Aquifer				
Carbon Tetrachloride	0.5	5.0	0.5	State MCL
Lower 180-Foot Aquifer				
Carbon Tetrachloride	0.5	5.0	0.5	State MCL
1,2-Dichloroethane (1,2-DCA)	0.5	5.0	0.5	State MCL

Notes:
EPA = Environmental Protection Agency
MCL = Maximum Contaminant Level
PRG = Preliminary Remediation Goal
µg/L = micrograms per liter

Table 5
Incidental Military Munitions Items Found
Former Fort Ord, California

Reports of Incidental Munitions 2016, Former Fort Ord, California

Number	Date Found	Item(s) found / Reported by	Location	Quantity	Type	Disposition
1	7-Jan-16	Eight cartridges, 40mm practice, M407A1, expended, reported by ESCA RP Team during routine erosion monitoring	ESCA property, Interim Action Ranges (Army transferred)	8	MD	FORA MEC safety officer responded. Items determined to expended.Removed to ESCA RP MD storage for recycle.
2	12-Jan-16	Rocket, 35mm sub- caliber, practice, M73, reported by ESCA RP Team (Weston Solutions)	ESCA property, Interim Action Ranges (Army transferred)	1	UXO	FORA RP UXO Tech identified item as UXO. Blown-in-place and rendered safe by Monterey County Sheriff on 8 Feb.
3	10-Feb-16	Four rocket, 3.5- inch, practice, M29 series, reported by BLM habitat workers	Range 37, Unit 21 (restricted, Army owned)	4	MD	Army MEC Safety responded. Items determined to be four rockets, 3.5- inch, practice, M29 series, expended. Disposed as MD for recycle.
4	12-Feb-16	Suspect projectile reported by CSUMB Return of the Natives (RON) while digging holes for a BLM planting event	BLM property – FONM – Pilarcitos Canyon Road (Army transferred)	1	MD	Vandenberg AFB EOD responded and identified the item as a mortar, projectile, 81mm, training, M68m, expended. The item was turned over to BRAC MMRP contractor for inspection and recycle.
5	17-Feb-16	Rocket motors, M222/M223 (Dragon), reported by Kemron	Range 48 (restricted, Army owned)	1	UXO	Army MEC Safety responded. Item determined to be two UXO, rocket motors, M222/M223 (Dragon). Stored in explosive storage locker (ESL) pending detonation.
6	16-Mar-16	Hand grenades and fuzes, found by building demolition crews and reported by CSUMB University PD	CSUMB property (Army transferred)	5	DMM	Monterey County (MOC) Sheriff responded and identified item as hand grenade, practice, unknown model with M228 training fuze plus additional M228 fuzes, Items were removed by MOCO Bomb Squad.
7	23-Mar-16	Signal flare found by demolition crews during building deconstruction. Item reported by CSUMB University PD	CSUMB property (Army transferred)	1	DMM	MOCO Sheriff responded and identified item as signal, illumination, ground, parachute, M127A1. MOCO bomb squad removed item for disposal. Classified as DMM.
8	N/A	N/A	Unknown Item	N/A	N/A	Incorrect entry to database. Item determined not to be munitions or munitions related.
9	3-Aug-16	Hand grenade, riot, CN1, ABC-M25A1, reported by USACE OESS during site walk	Cal Trans property – south of S. Boundary Rd near Laguna Seca (Army transferred)	1	DMM	Vandenberg AFB EOD responded and identified item as discarded military munition (DMM). Detonated by Vandenberg EOD following removal to Impact Area.
10	23-Aug-16	Hand grenade discovered during building demolition and was reported by CSUMB University PD	CSUMB property (Army transferred)	1	DMM	Monterey County (MOCO) Sheriff responded and identified item as hand grenade, smoke, M18 series. MOCO bomb squad removed item for disposal. Classified as DMM.

Table 5
Incidental Military Munitions Items Found
Former Fort Ord, California

Reports of Incidental Munitions 2016, Former Fort Ord, California (Continued)

Number	Date Found	Item(s) found / Reported by	Location	Quantity	Type	Disposition
11	24-Aug-16	Unknown flare found during earth moving activities at landfill. Reported by contractor site safety officer	OU2 Landfills (restricted, Army owned)	1	MD	USACE OESS responded and determined item to be a Signal, illumination, ground, model unknown, expended. Disposed as MD for recycle.
12	29-Aug-16	Suspected 40mm projectile, fired, discovered in Dunes State park. Reported by MOCO Sheriff bomb squad	Dunes State Park (Army transferred)	1	UXO	MOCO Sheriff responded. Item was suspected 40mm projectile, fired, with type unknown due to degradation. Suspect UXO. MOCO bomb squad detonated item in place to render safe.
13	31-Aug-16	Projectile with cartidge, reported by Benchmark Communities	East Garrison, intersection of Fremont Street and Chapel Hill Road (Army transferred)	1	DMM	MOCO Sheriff responded and identified item as 20mm projectile, unfired with cartridge. MOCO bomb squad determined item to be TP round, M204 following render safe procedure. Classified as DMM.
14	29-Nov-16	Fuze for a projectile reported by ESCA annual surface monitoring team (Weston Solutions)	ESCA property (restricted, Army transferred)	1	MD	FORA MEC Safety responded. Item determined to be a projectile fuze, model unknown, expended. Disposed as MD for recycle.
15	29-Nov-16	Ignitor, Fuze, M60 reported by ESCA annual surface monitoring team (Weston Solutions)	ESCA property (restricted, Army transferred)	1	MD	FORA MEC Safety responded. Item identified and disposed as MD for recycle.
16	29-Nov-16	Projectile reported by ESCA annual surface monitoring team (Weston Solutions)	ESCA property (restricted, Army transferred)	1	MD	FORA MEC Safety responded. Item identified as 14.5mm subcaliber, practice, M181 series, expended and disposed as MD for recycle.
17	29-Nov-16	Two projectile casings, 40mm, model unknown, reported by ESCA annual surface monitoring team (Weston Solutions)	ESCA property (restricted, Army transferred)	2	MD	FORA MEC Safety responded. Items identified and disposed as MD for recycle.
18	29-Nov-16	Eighteen projectile casings, 40mm, model unknown, reported by ESCA annual surface monitoring team (Weston Solutions)	ESCA property (restricted, Army transferred)	18	MD	FORA MEC Safety responded. Items identified and disposed as MD for recycle.
19	29-Nov-16	Ten projectile casings, 40mm, model unknown, reported by ESCA annual surface monitoring team (Weston Solutions)	ESCA property (restricted, Army transferred)	10	MD	FORA MEC Safety responded. Items identified and disposed as MD for recycle.
20	29-Nov-16	Two rocket, 35mm sub-caliber, practice, M73, reported by ESCA annual surface monitoring team (Weston Solutions)	ESCA property (restricted, Army transferred)	2	MD	FORA MEC Safety responded. Items identified and disposed as MD for recycle.
21	20-Dec-16	Hand grenade discovered during building demolition and was reported by CSUMB University PD	CSUMB property (Army transferred)	1	DMM	Monterey County (MOCO) Sheriff responded and identified item as hand grenade, smoke, M18 series. MOCO bomb squad removed item for disposal. Classified as DMM.

Table 5
Incidental Military Munitions Items Found
Former Fort Ord, California

Reports of Incidental Munitions 2017, Former Fort Ord, California

Number	Date Found	Item(s) found / Reported by	Location	Quantity	Type	Disposition
1	3-Jan-17	Hand grenade simulator discovered during building demolition and reported by CSUMB University PD	CSUMB property (Army transferred)	1	DMM	Monterey County (MOCO) Sheriff responded and identified item as Simulator, hand grenade, M116 series. MOCO bomb squad removed item for disposal. Classified as DMM.
2	13-Jan-17	Suspect 40mm and 35mm sub-caliber, practice, M73 munitions debris (MD) reported by ESCA during erosion monitoring	Interim Action Range – Development Parcel E40, ESCA property (restricted, Army transferred)	17	MD	FORA MEC Safety responded. Items identified and disposed as MD for recycle.
3	2-Feb-17	35mm sub-caliber, practice, M73, and suspect 40mm MD reported by ESCA during erosion monitoring	Interim Action Range – Development Parcel E40, ESCA property (restricted, Army transferred)	8	MD	FORA MEC Safety responded. Items identified and disposed as MD for recycle.
4	23-Feb-17	Rocket, 3.5-inch, practice, M29 found at landfill. Reported by contractor site safety officer	OU2 Landfills (restricted, Army owned)	1	MD	Kemron UXO Tech III responded and confirmed item to be expended. Disposed as MD for recycle.
5	1-Mar-17	Signal, Illumination, M125A1 and one 40mm cartridge case found by BLM volunteers during plant monitoring	Remote, off-trail location south of Barloy Spur Road, BLM property (Army transferred)	2	MD	USACE OESS responded and determined items to be expended. Disposed as MD for recycle.
6	8-Mar-17	Flare, surface, trip, M49A1 discovered during building demolition and reported by CSUMB University PD	CSUMB property (Army transferred)	1	DMM	MOCO Sheriff responded and identified item. MOCO bomb squad removed item for disposal. Classified as DMM.
7	29-Mar-17	Multiple misc. suspect 40mm MD reported by ESCA during erosion monitoring	Interim Action Range – Development Parcel E40, ESCA property (restricted, Army transferred)	3	MD	FORA MEC Safety responded. Items identified as MD and disposed for recycle.
8	6-Apr-17	35mm sub-caliber, practice, M73, reported by ESCA during biological transect inspection	Interim Action Range, ESCA property (restricted, Army transferred)	1	MD	FORA MEC Safety responded. Items identified and disposed as MD for recycle.
9	10-Apr-17	Two signals, illumination, ground, M125 series reported by ESCA RP team during routine veg monitoring.	East Garrison MRA, ESCA property (unrestricted, Army transferred)	1	MD	FORA MEC Safety responded. Items were identified as munitions debris and removed for recycle.
10	28-Apr-17	35mm sub-caliber, practice, M73, reported by ESCA during biological transect inspection	Interim Action Range, ESCA property (restricted, Army transferred)	1	MD	FORA MEC Safety responded. Items identified and disposed as MD for recycle.

Table 5
Incidental Military Munitions Items Found
Former Fort Ord, California

Reports of Incidental Munitions 2017, Former Fort Ord, California (Continued)

Number	Date Found	Item(s) found / Reported by	Location	Quantity	Type	Disposition
11	27-Jul-17	Two 40mm green star parachute flares, M661 and one Grenade, hand, smoke, M18 (green) discovered during building demolition and reported by CSUMB University PD	CSUMB property (Army transferred)	3	DMM	MOCO Sheriff responded and identified item. MOCO bomb squad removed item for disposal. Classified as DMM.
12	25-Aug-17	Cartridge, training, 40mm, M781, full round with cartridge percussion primer impinged discovered during vegetation removal activities in tertiary containment line	Barloy Canyon Road and Border Road near E. Garrison housing	1	DMM	Item was inspected by UXO Tech II escort and confirmed by USACE OESS that only explosive hazard was the expelling charge in cartridge. Item was classified as DMM and removed for disposal by detonation due to presence of expelling charge.
13	29-Aug-17	Partial mortar, illumination, 60mm, M83 series uncovered during soil excavation activities and reported by Gilbane Safety Officer	West of houses on Harvey Court in Abrams Park neighborhood	1	MD	Kemron UXOSO responded and identified item as expended before removing for disposal as MD.
14	5-Sep-17	Parts and pieces of projectile, smoke, 40mm, cartridge cases of 40mm and one flare, signal, M74A1, expended reported by vegetation removal crew during containment line cutting	North of Hayrake Road, east of Parker Flats, ESCA property (unrestricted, Army transferred)	17	MD	Items were examined by UXO Technicians and once determined to be MD, were left in place in field.
15	18-Sep-17	Fuze, hand grenade, discovered during shrub and tree removal activities and reported by Goodfellow Top Grade Construction	East Garrison Phase 3 area at Watkins Gate Road and Reservation Road (unrestriced, Army transferred)	1	DMM	MOCO Sheriff responded and identified the fuze as DMM. It was removed for proper render safe procedures and disposal.
16	18-Sep-17	Plastic shells of mine, training, unknown model discovered during shrub and tree removal activities and reported by Goodfellow Top Grade Construction	East Garrison Phase 3 area at Watkins Gate Road and Reservation Road (unrestricted, Army transferred)	2	MD	MOCO Sheriff responded and identified items as no explosive hazard. MOCO bomb squad removed items for disposal.
17	26-Sep-17	Flare, Signal, M127A, body reported by BLM Law Enforcement Officer	Near Pilarcitos Canyon Road and Jack's Road on BLM property (unrestricted, Army transferred)	1	MD	USACE OESS identified item and removed as MD for recycle.
18	15-Nov-17	One fuze, grenade, M213 reported by contractor site safety officer	Outside entrance of OU2 Landfills (unrestricted, Army transferred)	1	DMM	USACE OESS responded to location and identified items. Fuze was removed for detonation as DMM.
19	15-Nov-17	Several Mk II grenade fuzes, expended, reported by contractor site safety officer	Outside entrance of OU2 Landfills (unrestricted, Army transferred)	5	MD	USACE OESS responded to location and identified items. Expended fuzes were removed as MD for recycle.

Table 5
Incidental Military Munitions Items Found
Former Fort Ord, California

Reports of Incidental Munitions 2018, Former Fort Ord, California

Number	Date Found	Item(s) found / Reported by	Location	Quantity	Type	Disposition
1	17-Jan-18	Projectile, 60mm Mortar, Training M69	Ord Community residential neighborhood; 200 ft northwest of Noumea Road between New Guinea and Bataan Roads.	1	MD	Item was identified as MD by USACE OESS and removed as scrap
2	22-Mar-18	M2125A1 Green Star Clusters (4); An-M8 HC Smoke Canisters (2)	Buried in the backyard of a residential home on Wahl Cort in Preston Park neighborhood of Marina.	6	DMM	Items were identified as live (MEC) and were removed by the MOCO Bomb Squad to be rendered safe (DMM).
3	10-May-18	Rocket Motor, 2.36 inch	BLM weeds crew noticed the item on the ground while in Impact Area Unit 21 conducting weed abatement.	1	MD	Item was reported by Kemron UXO Escort, identified as MPPEH by OESS, and removed for detonation. Following detonation, item was identified as MD.
4	15-May-18	Rocket, 3.5-inch, practice, M29 series (2)	BLM weeds crew noticed the item on the ground while in Impact Area Unit 21 conducting weed abatement.	2	MD	Item was reported by Kemron UXO Escort, identified as MPPEH by OESS, and removed for detonation. Following detonation, item was identified as MD (practice rounds).
5	23-May-18	Cartridge cases, 40mm (projectile removed/case intact) (2)	BRAC biologist noticed the items in the footprint of Pond 5 (on currently dry ground) while monitoring. (Track 1 Plug-in BLM Area C, MRS-59).	2	MD	Items were determined to be expended by Kemron UXO Safety Officer and were removed as MD for proper disposal.
6	23-May-18	1-Partial 3.5-in rocket (MD); 1-M52 PD fuze housing (MD); 1-2.36-inch rocket motor	BLM reported finding items the week prior. USACE OESS went to examine them and found the fuze housing, an additional 3.5-inch rocket and the 2.36-inch rocket motor.	3	MD	The partial 3.5-inch rocket and the PD fuze were identified as MPPEH by the OESS to be expended and were removed as munitions debris for proper disposal. The 2.36-inch rocket was determined to be MPPEH. Following detonation operations, final determination was MD.
7	24-May-18	Grenade, hand, practice, M69	BLM operator was mowing on Lookout Ridge when he noticed the item on the ground.	1	MD	The USACE OESS determined the item to be a practice grenade with an expended fuze. The item was removed as MD for proper sotrage and recycling.
8	11-Jun-18	Pot, 10 lb, smoke, HC, screening, M1	A UXO escort accompanying BLM volunteers in Unit B-3W discovered several excavations and metallic debris laid out. The smoke pot was sitting on the surface.	1	MD	Kemron UXO Safety Officer determinded the item to be an expended smoke pot. Item was removed as MD for proper storage and recycling.
9	16-Nov-18	Grenade, rifle, antitank, practice, M11 series	Project personnel noticed the mostly buried item while jogging on a trail in Monterey county lands east of Addington Rd. and North of Watkins Gate Road.	1	MD	USACE OESS and Kemron UXO Safety Officer identified the item to be an unknown rifle greande (MPPEH). Item was removed to secure storage pending detonation at which it was determined to be a practice rifle grenade (MD).

Table 5
Incidental Military Munitions Items Found
Former Fort Ord, California

Reports of Incidental Munitions 2019, Former Fort Ord, California

Number	Date Found	Item(s) found / Reported by	Location	Quantity	Type	Disposition
1	11-Jan-19	Grenade, training, MKI (RRD)	Fort Ord Dunes State Park; along the beach off of the First Street tunnel.	1	RRD	Monterey County Bomb Squad responded and detonated the item. Army UXO qualified personnel determined item was a training MKI grenade, which is wholly inert (not containing explosives). Item was classified as range related debris (RRD).
2	11-Feb-19	Signal, Illumination, Ground Parachute White Star M127 A1 (MD)	South of Trail 14/Border Road in the Fort Ord National Monument	1	MD	Item was not initially located; incorrect coordinates. After a similar report was received on 23 March 2019, the item was located on 27 March 2019 and determined to be a M127A1 signal flare. Item was removed as munitions debris (MD) for proper storage and recycling. Appears to be same item as reported on 23 March 2019.
3	23-Mar-19	Signal, Illumination, Ground Parachute White Star M127 A1 (MD)	South of Trail 14/Border Road in the Fort Ord National Monument	1	MD	This appears to be the same item reported on 11 February 2019. It was located on 27 March 2019 and determined to be a M127A1 signal flare. Item was removed as munitions debris (MD) for proper storage and recycling.
4	4-May-19	Piece of M48 series fuze, expended (MD)	Hawkeye Road 250 feet west of Pond 72.	1	MD	Senior UXO Supervisor identified the item and removed it for recycling.
5	6-May-19	Signal, Illumination, Ground M125 Series (2) (MD)	Northeast corner of Eucalyptus Road and Hennekens Ranch Road.	2	MD	The USACE OESS identified the items and removed them for recycling.
6	3-Sep-19	Grenade, Hand, Illuminating MK1 (MD)	A contractor digging in the backyard of a residence in Marina near Imjin Blvd found the item.	1	MD	Monterey County Bomb Squad responded and detonated the item.
7	7-Nov-19	3.5-inch rocket motor (MD)	On the ground at the OU2 Landfills approximately 15 feet from a dirt road and 75 feet from a pile of wood waste in the "borrow area" between cells E and F.	1	MD	USACE OESS and UXOSO inspected the item and determined it to be non-hazardous. It was removed and placed in scrap bins for recycling.
8	4-Dec-19	Munitions debris form signal, illumination ground (MD)	Northeast of Pond 101EE off of Watkins Gate Road near Henneksn Ranch Road in the Fort Ord National monument.	1	MD	UXOSO inspected item and determined it to be non-hazardous. It was removed and placed in scrap bins for recycling.
9	19-Dec-19	Grenade, Hand, Smoke HC AN-M8 (DMM)	Construction site at 3rd Avenue near California Avenue in Marina	1	DMM	Workers at a construction site found the item on the ground surface. USACE OESS and UXOSO inspected the item and determined it was a pyrotechnic with the pin present; contained energetics. Monterey County Bomb Squad transported the item to their facility, and detonated it.

Table 5
Incidental Military Munitions Items Found
Former Fort Ord, California

Reports of Incidental Munitions 2020, Former Fort Ord, California

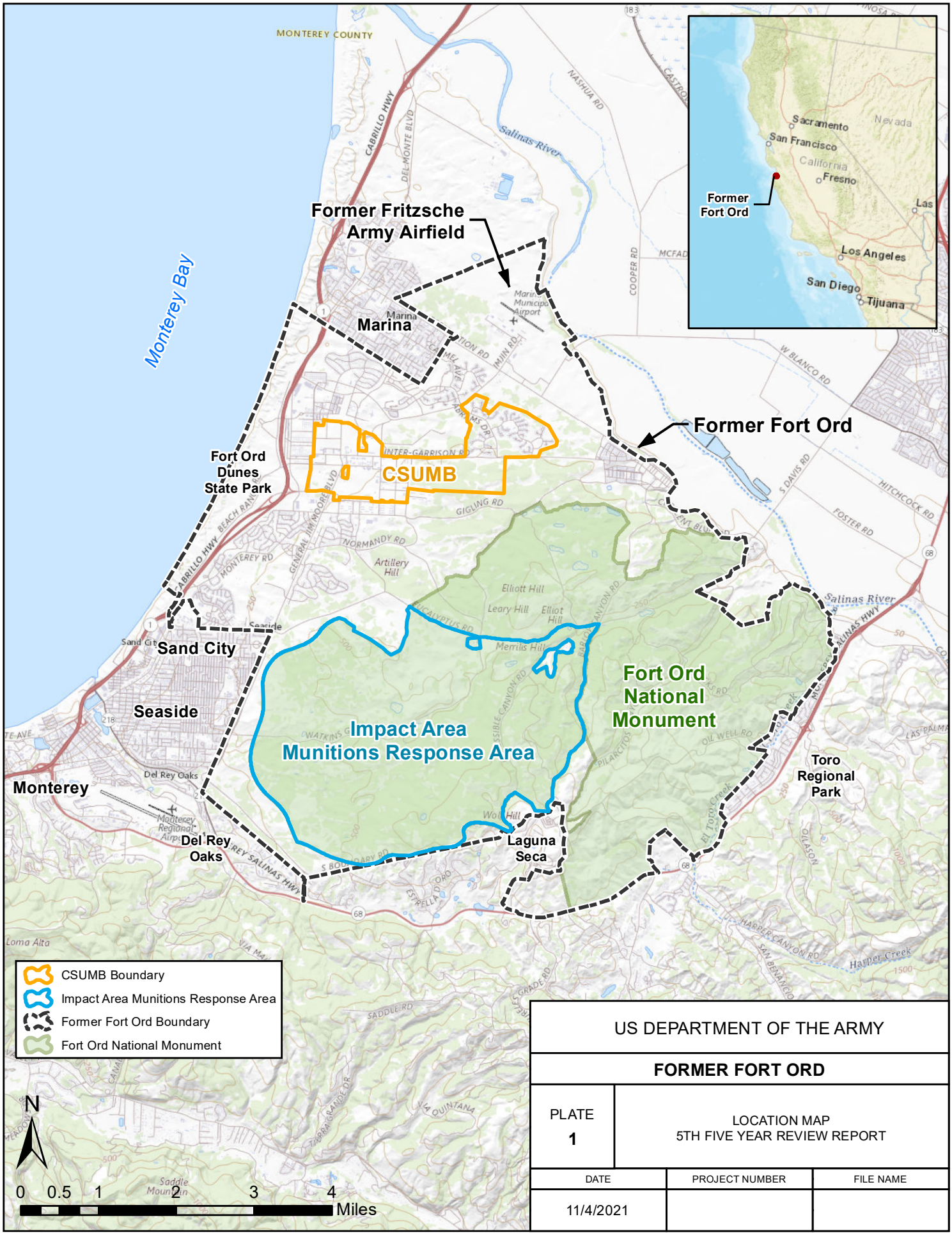
ID	Date Found	Item(s) found / Reported by	Location	Quantity	Type	Disposition
1	3-Mar-20	3.5-inch Rocket, General Series	Impact Area; Unit 21	1	ISD	On 3/3/2020 a UXO escort accompanying the BLM Weed Crew located a 3.5-inch rocket mostly buried in the ground of Unit 21 along Riso Ridge Road in the Impact Area MRA. GPS coordinates recorded were incorrect. When UXO personnel returned to recover the item it could not be located. It was put on the list for Annual Surface Monitoring. GPS coordinates are approximate.
2	26-Apr-20	Signal, Illumination, Ground: Parachuts, White Star M127 series	University of Santa Cruz Fort Ord Natural Reserve	1	MD	A researcher found the item on the University of Santa Cruz Fort Ord Natural Reserve. It was identifed as munitions debris and removed for scrap/recycling.
3	29-Apr-20	Fuze, Grenade Rifle (Practice)	OU2 Landfills	1	MD	Ahtna staff discovered two munitions-type items next to an access road at the OU2 Landfill. One item was non-munitions-related. The second item was identified as a Fuze, Grenade Rifle (Practice). It was determined to be munitions debris and was removed for scrap/recycling. The item was found approximately 1 1/2 feet north of an access road in the landfill north of Cell C, northeast of Cell B and southwest of Cell D. it may have been exposed by erosion.
4	13-May-20	Grenade Rifle Smoke M23 Series	910 2nd Avenue in Marina	1	MD	Workers demolishing buildings west of 910 2nd Avenue in Marina discovered the item underneath a concrete plank. It was identified as munitions debris and removed for scrap/recycling.
5	20-May-20	Signal, Illumination, Ground: M126 Series	CSUMB property (Army transferred)	1	MD	A researcher from California State University Monterey Bay (CSUMB) discovered two suspect items east of Joe Lloyd Way in Monterey county. They were identified as an expended Signal Illumination ground M126 Series and the launcher tube for the same. They were determined to be munitions debris (MD) and removed for scrap/recycling.
6	1-Jun-20	Mine, Antitank, Practice, M1, with Fuze	Eichelberger Court in Marina	1	ISD	A CSUMB staff member found the item on the ground under vegetation near a trail east of Eichelberger Court in Marina. The Monterey County Bomb Square responded, X-rayed the item, and detonated it. The item was likely a practice M1 antitank mine and would not have contained explosive filler. Only practice mines were used at Fort Ord. It may have contained a black powder and red phosphorous spotting charge that could have posed an explosive hazard. There was insufficient data to positively identify the item.
7	8-Dec-20	Fuze, Projectile, Point Detonating, M48 series	HA26	1	MD	On 12/08/2020, the item was discovered during a habitat monitoring inspection at HA26. It was determined to be munitions debris (MD) and removed for scrap/recycling.
8	25-Dec-20	Signal, Illumination, Ground (model unknown)	Trail 50 near Barloy Canyon Road	1	MD	A bicyclist reporting finding an item on Trail 50 near Barlow Canyon Road across from Trail 61 on 12/25/2020. When the BRAC office received the report on 12/28/2020, the item was not located. Using the photograph, it was determined to be a Signal, Illumination, Ground (model unknown); munitions debris (MD).

Notes:

Table 5
Incidental Military Munitions Items Found
Former Fort Ord, California

Acronyms:
BLM = Bureau of Land Management
BRAC = Base Realignment and Closure
CBRNE = Chemical, Biological, Radiological, Nuclear, and Explosives
CSUMB = California State University Monterey Bay
DGM = digital geophysical mapping
DMM = Discarded Military Munitions
ESCA = Environmental Services Cooperative Agreement
FORA = Fort Ord Reuse Authority
HA = Historical Area
HE = High Explosive
ISD = Insufficient Data
LAW = Light Antitank weapon
MD = Munitions Debris
MEC = Munitions and Explosives of Concern
mm = millimeter
MPPEH = Material Potentially Presenting An Explosive Hazard
MRS = Munitions Response Site
OE = Ordnance and Explosives
PG&E = Pacific Gas and Electric (Company)
Rd. = Road
RP = Remediation Program
RRD = range-related debris
TEA = Training Effectiveness Analysis
USACE = United States Army Corps of Engineers
UXO = unexploded ordnance

PLATES

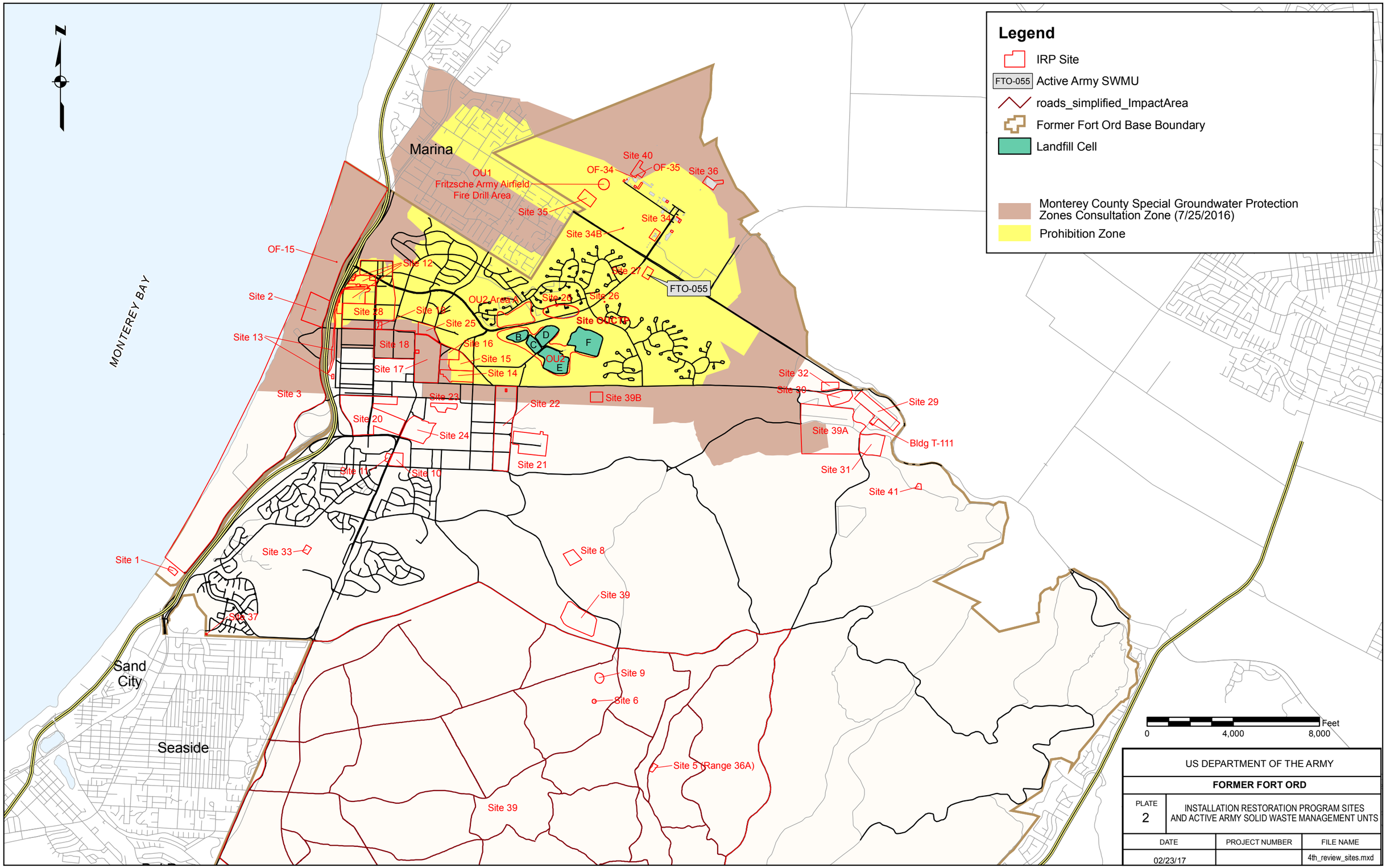


US DEPARTMENT OF THE ARMY

FORMER FORT ORD

PLATE	LOCATION MAP 5TH FIVE YEAR REVIEW REPORT
1	

DATE	PROJECT NUMBER	FILE NAME
11/4/2021		


N
MONTEREY BAY
Marina
Sand City
Seaside
OU1
Fritzsche Army Airfield
Fire Drill Area
OU2 Area A
Site OU2C
OU2
Site 40
OF-34
OF-35
Site 36
Site 35
Site 34
Site 34B
Site 27
FTO-055
Site 26
Site 25
Site 16
Site 15
Site 14
Site 12
Site 28
Site 18
Site 17
Site 13
Site 2
OF-15
Site 3
Site 23
Site 22
Site 39B
Site 20
Site 24
Site 21
Site 11
Site 10
Site 32
Site 30
Site 29
Site 39A
Bldg T-111
Site 31
Site 41
Site 1
Site 33
Site 37
Site 8
Site 39
Site 9
Site 6
Site 5 (Range 36A)
Site 39
B
C
D
E
F
Legend
IRP Site
FTO-055 Active Army SWMU
roads_simplified_ImpactArea
Former Fort Ord Base Boundary
Landfill Cell
Monterey County Special Groundwater Protection Zones Consultation Zone (7/25/2016)
Prohibition Zone
0
4,000
8,000
Feet
US DEPARTMENT OF THE ARMY
FORMER FORT ORD
PLATE 2
INSTALLATION RESTORATION PROGRAM SITES AND ACTIVE ARMY SOLID WASTE MANAGEMENT UNTS
DATE
PROJECT NUMBER
FILE NAME
02/23/17
4th_review_sites.mxd

N

MONTEREY BAY

OUCTP A-Aquifer
(0.5 µg/L)

OUCTP
Lower 180-foot Aquifer
(0.5 µg/L)

OUCTP
Upper 180-foot Aquifer
(0.5 µg/L)

2/12 PCE
Upper 180-foot Aquifer
(5 µg/L)

OU2 TCE A-Aquifer
(5 µg/L)

OU2 TCE
Upper 180-foot Aquifer
(5 µg/L)

Legend

- Groundwater Plume
- Roads
- Former Fort Ord Base Boundary

2016 Monterey County Special GroundwaterProtection Zones

- Consultation Zone
- Prohibition Zone

0 1,500 3,000 Feet

US DEPARTMENT OF THE ARMY		
FORMER FORT ORD		
PLATE 3	GROUNDWATER PLUMES JUNE 2016 5th FIVE YEAR REVIEW REPORT	
DATE	PROJECT NUMBER	FILE NAME
01/25/17		4TH_plumes16.mxd

N

Monterey Bay

OUCTP, A Aquifer
CT, 0.5 ug/L

OUCTP, A Aquifer
CT, 0.5 ug/L

OUCTP, Upper 180-Foot Aquifer
CT, 0.5 ug/L

OUCTP, Lower 180-Foot Aquifer
CT, 0.5 ug/L

2/12, Upper 180-Foot Aquifer
PCE, 5 ug/L

OU2, A Aquifer
TCE, 5 ug/L

OU2, Upper 180-Foot Aquifer
TCE, 5 ug/L

Legend

- Installation Historical Area
- GW Prohibition Zone
- GW Consultation Zone

US DEPARTMENT OF THE ARMY	
FORMER FORT ORD	
PLATE **4**	GROUNDWATER PLUMES THIRD QUARTER 2021 5TH FIVE YEAR REVIEW REPORT

DATE	PROJECT NUMBER	FILE NAME
8/30/2021		4TH_PLUMES21.MXD

N

OPERABLE UNIT 2 INJECTION

WESTERN NETWORK

EASTERN NETWORK

ABRAMS/IMJIN WELLS

BUNKER HILL WELLS

LANDFILL WELLS

CSUMB WELLS

OPERABLE UNIT 2 INJECTION

INF/IW-OU2-01-180
EW-OU2-03-A
EW-OU2-01-A
EW-OU2-01-180
EW-OU2-02-A
EW-OU2-04-A
EW-OU2-05-A
EW-OU2-06-A
EW-OU2-12-A
EW-OU2-11-AR
EW-OU2-02-180R
EW-OU2-10-A
EW-OU2-09-A
EW-OU2-07-A
EW-OU2-13-A
EW-OU2-19-A
EW-OU2-18-A
EW-OU2-12-180
EW-OU2-17-A
EW-OU2-11-180
EW-OU2-10-180
EW-OU2-05-180
EW-OU2-16-A
EW-OU2-06-180
EW-OU2-20-A
EW-OU2-09-180
EW-OU2-08-180
EW-OU2-07-180
EW-OU2-14-A
INF/IW-OU2-02-180
EW-OU2-03-180
EW-OU2-04-180
IW-OU2-04-180
IW-OU2-05-180

A
B
C
D
E
F

OU2 GROUNDWATER TREATMENT PLANT

CALIFORNIA AVE
3RD AVE
IMJIN PKWY
9TH ST
IM-JIN ST
8TH ST CUT-OFF
5TH ST
4TH AVE
5TH AVE
INTER-GARRISON RD
ABRAMS DR

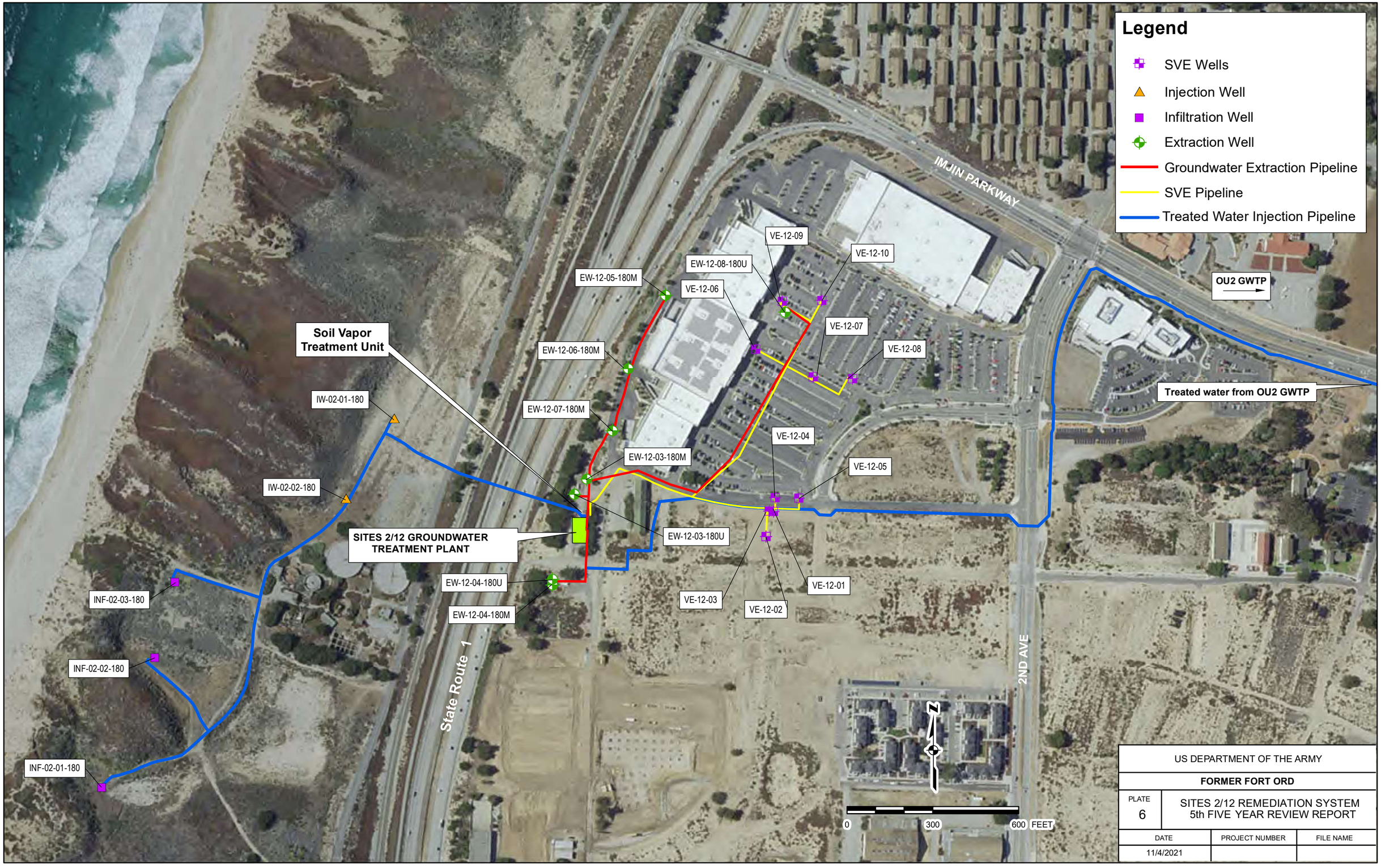
Legend

- Injection Well - Operated
- Extraction Well - Operated
- Extraction Well - Not Operated
- Extraction Well - Not Operated - No Pump
- Groundwater Extraction
- OU2 Treated Water Discharge
- Landfill Cell Area

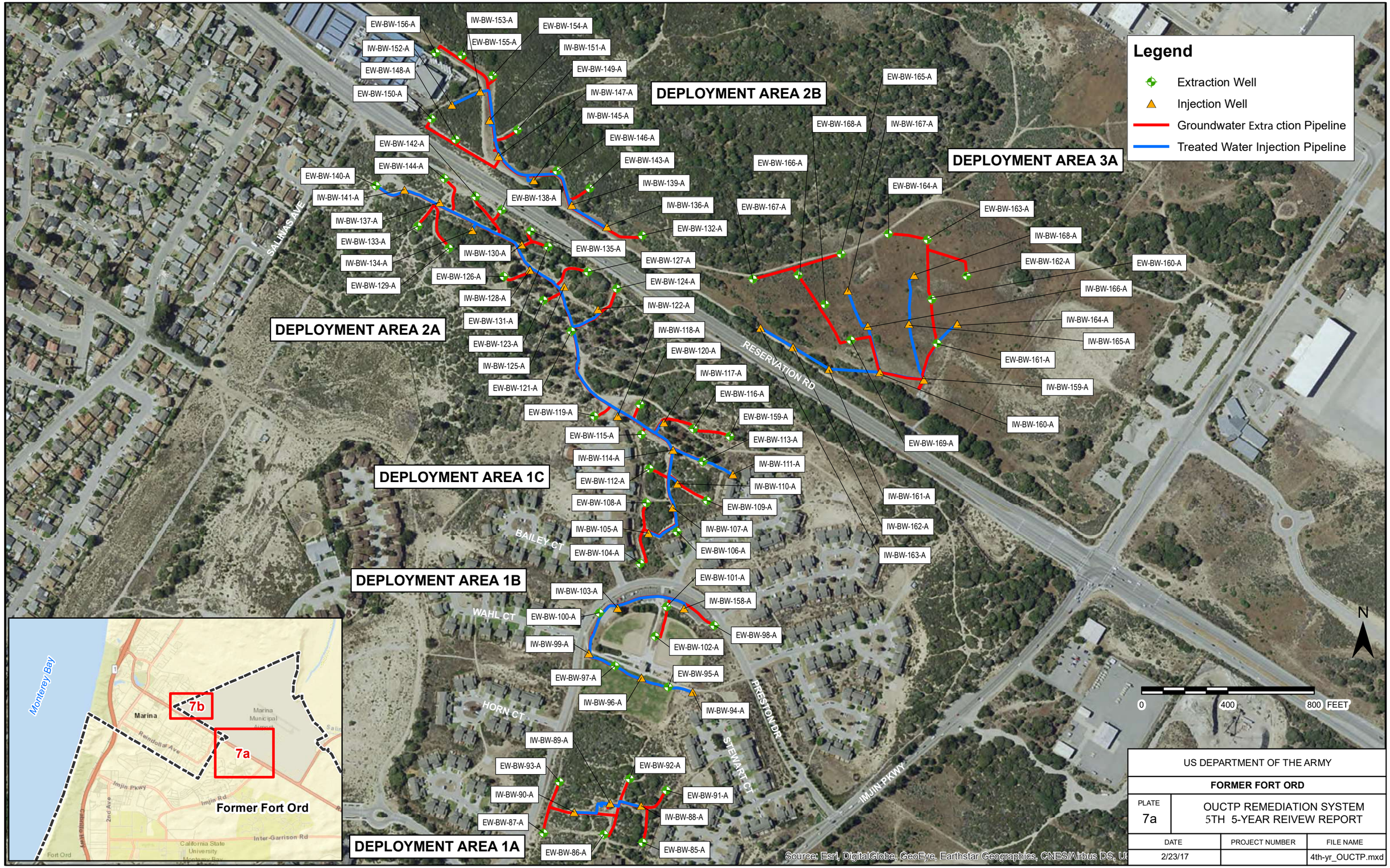
US DEPARTMENT OF THE ARMY

FORMER FORT ORD

PLATE	OPERABLE UNIT 2 GROUNDWATER REMEDIATION SYSTEM AND LANDFILLS 5th FIVE YEAR REVIEW REPORT	
5		
DATE	PROJECT NUMBER	FILE NAME
9/12/2021		4TH_PLUMES21.MXD



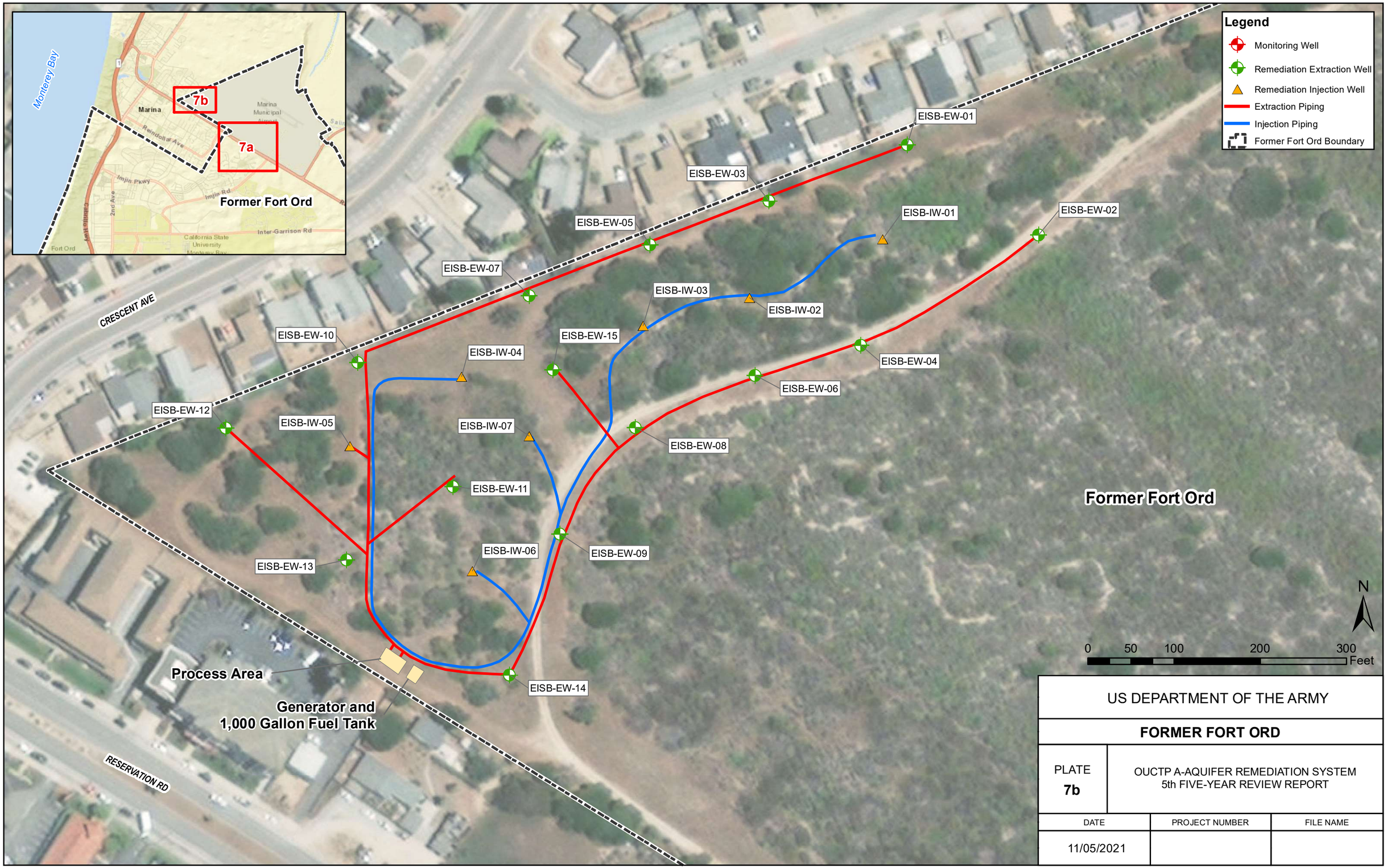
US DEPARTMENT OF THE ARMY		
FORMER FORT ORD		
PLATE 6	SITES 2/12 REMEDIATION SYSTEM 5th FIVE YEAR REVIEW REPORT	
DATE	PROJECT NUMBER	FILE NAME
11/4/2021		



US DEPARTMENT OF THE ARMY

FORMER FORT ORD

PLATE	OUCTP REMEDIATION SYSTEM 5TH 5-YEAR REIVEW REPORT	
7a		
DATE	PROJECT NUMBER	FILE NAME
2/23/17		4th-yr_OUCTP.mxd



US DEPARTMENT OF THE ARMY

FORMER FORT ORD

PLATE	OUCTP A-AQUIFER REMEDIATION SYSTEM 5th FIVE-YEAR REVIEW REPORT
7b	

DATE	PROJECT NUMBER	FILE NAME
11/05/2021		

N

MONTEREY BAY

Marina

Sand City

Seaside

Del Rey Oaks

Laguna Seca

HWY-1 (S)

IMJIN PKWY

RESERVATION RD

ABRAMS DR

INTER-GARRISON RD

LIGHTFIGHTER DR

GEN. JIM MOORE BLVD

GIGLING RD

BROADWAY AVE

FUNSTON RD

HENNEKENS RANCH RD

BARLOY CANYON RD

EUCALYPTUS RD

SOUTH BOUNDARY RD

HWY- 68

CSUMB Off-Campus MRA

County North MRA

Future East Garrison MRA

Parker Flats MRA

Seaside MRA

Interim Action Ranges MRA

Impact Area MRA

MOUT Site MRA

Del Rey Oaks MRA

DRO/Monterey MRA

Laguna Seca Parking MRA

Ranges 43-48

Ranges 43-48 (South)

Watkins Gate Burn Area (Unit)

Range 30A

"11-Grid Area"

MRS-16

15 SEA 01

15 SEA 02

15 SEA 03

15 SEA 04

15 DRO 01

15 DRO 01A

15 DRO 02

15 MOCO 01

15 MOCO 02

53 BLM

44 EDC

44 PBC

54 EDC

50 EXP

53 EXP

06 EXP

04A

04B

04C

13A

13B

13C

24A

24B

24C

24D

24E

27A

27B

27C

27D

27E

27F

27G

27H

27I

27J

27L

27M

27O

27P

27Q

27R

27S

27T

27U

27V

27W

27X

27Y

59A

59B

14A

14B

14C

14D

14E

32A

32B

32C

10A

10B

Parcels in MRS-13B Enlargement

NON-ESCA

Parcel F2.6 (Retained by Army)

Parcel L2.4.1

Parcel L2.3

MRS-13B

ESCA

MRS-31

MRS-13C

MRS-45

MRS-04A

MRS-27A

Saturated Area with PVC Markers

MRS-27H

MRS-16

MRS-58

MRS-BLM

Eucalyptus Rd.

Parker Flats Rd.

MRS-35

MRS-16 Enlargement

- Former Fort Ord Base Boundary
- Track 3 Impact Area MRA
- Munitions Response Site with Site Number (MRS- prefix not shown for clarity)
- Unit
- Track 1 Site
- Eucalyptus Fire Area (Actual)
- Watkins Gate Burn Area (Actual)
- Del Rey Oaks MRA
- Track 2 Parker Flats MRA
- BLM Area A
- BLM Area B (Track 2)
- BLM Area C
- MRS-16 (Track 2)
- Interim Action Ranges MRA

ESCA Group 1

- Parker Flats and Seaside MRA

ESCA Group 2

- CSUMB Off-Campus MRA

ESCA Group 3

- DRO/Monterey, Laguna Seca Pkng, and MOUT Site MRAs

ESCA Group 4

- Future East Garrison MRA

CSUMB - California State University Monterey Bay
DRO - Del Rey Oaks
ESCA - Environmental Services Cooperative Agreement
FORA - Fort Ord Reuse Authority
FOST - Finding of Suitability to Transfer
MOUT - Military Operations in Urban Terrain
MRA - Munitions Response Area
MRS - Munitions Response Site

0 4,500 9,000 Feet

US DEPARTMENT OF THE ARMY

FORMER FORT ORD

PLATE 8

MUNITIONS RESPONSE SITES
5th FIVE YEAR REVIEW REPORT

DATE	PROJECT NUMBER	FILE NAME
9/14/2021		

MONTEREY BAY

Marina

Sand City

Seaside

Del Rey Oaks

Laguna Seca

Legend

Transfer Status

- In Progress
- Not Started
- Retained
- Transferred
- F7.1 Fort Ord Parcel Number
- Former Fort Ord Boundary

N

0 4,500 9,000 Feet

US DEPARTMENT OF THE ARMY

FORMER FORT ORD

PLATE	Property Transfer Status Map September 2021 5th Five-Year Review Report
9	

DATE	FILE NAME
3/8/2017	5-yr_property_transfer.mxd

G:\ArcGIS\USACE\Fort_Ord\PROJECTS\5YR_review_2016\Map_Docs\5-yr_property_transfer.mxd 3/8/2017 3:16:41 PM Gilbane Icarr

Appendices

Appendix A
References

Appendix B
Field Documentation of Site Inspections and Interviews

Appendix C
Community Survey Responses

Appendix D
Glossary of Military Munitions Response Program Terms

Appendix E
Figures for the ESCA Areas

APPENDIX A

References

Report Section	Site Identification	Date of Document	Document Author, Year (In text Reference)	Document Title	Admin Record Number
References listed below were used to prepare this Five Year Review and were the current versions available at the time of the September 30, 2021 review period end date. Therefore, documents provided in this reference list that were not in a final version by September 30, 2021, may be subsequently replaced by a newer version in the Fort Ord Administrative Record.					
Sections 1 through 4					
1 to 4	General	11/19/1990	Army et al., 1990	*Federal Facility Agreement under CERCLA Section 120 Administrative Docket Number: 90-14. (Effective November 19, 1990) U.S. Department of the Army (Army), U.S. Environmental Protection Agency (EPA) Region 9, and State of California.*	BW-0119
1 to 4	General	6/1/1993	Army, 1993	*Fort Ord Disposal and Reuse Environmental Impact Statement (EIS). Final. Technical Assistance from Jones & Stokes Associates, Inc. (JSA 90-214S). U.S. Army Corp of Engineers. Sacramento District, Sacramento, CA*	BW-1348
1 to 4	General	6/1/2001	EPA, 2001	*U.S. EPA Comprehensive Five-Year Review Guidance (OSWER Directive 9355.7-03B-P, June 2001*	Not Applicable
1 to 4	General	3/30/2007	Army, 2007a	*Environmental Services Cooperative Agreement (ESCA) under the authority of Title 10 United States Code, Section 2701(d) - Environmental Restoration Program* (10 U.S.C. 2701)	ESCA-0031
1 to 4	General	7/26/2007	Army et al., 2007	*Federal Facility Agreement, CERCLA Section 120, Amendment No. 1 Related to Early Transfer Property Referenced in FOSET 5*	BW-0119B
1 to 4	General	2/27/2008	DTSC, 2008	*Memorandum of Agreement (MOA) Among the Fort Ord Reuse Authority (FORA), Monterey County, and Cities of Seaside, Monterey, Del Rey Oaks and Marina, California State University Montery Bay, University of California Santa Cruz, Monterey Peninsula College, and the Department of Toxic Substances Control (DTSC) Concerning Monitoring and Reporting on Environmental Restrictions on the Former Fort Ord.(MOA was finalized on February 27, 2008.) California Department of Toxic Substances Control*	Included in OE-0714A
1 to 4	General	7/25/2008	EPA, 2008	*Letter: Effective Date of Administrative Order on Consent (AOC). For Cleanup Of Portions Of The Former Fort Ord, U.S. EPA Region 9, CERCLA Docket No. R9-2007-03*	ESCA-0098
1 to 4	General (MRS Security Program)	6/20/2017	Fort Ord BRAC, 2017	*Fort Ord Munitions Response Site Security Program Annual Report 2016*	OE-0422Q
1 to 4	General (MRS Security Program)	4/30/2018	Fort Ord BRAC, 2018	*Fort Ord Munitions Response Site Security Program Annual Report 2017*	OE-0422R
1 to 4	General (MRS Security Program)	5/15/2019	Fort Ord BRAC, 2019	*Fort Ord Munitions Response Site Security Program Annual Report 2018*	OE-0422S

1 to 4	General (MRS Security Program)	8/28/2020	Fort Ord BRAC, 2020	*Fort Ord Munitions Response Site Security Program Annual Report 2019*	OE-0422T
1 to 4	General (MRS Security Program)	6/25/2021	Fort Ord BRAC, 2021	*Fort Ord Munitions Response Site Security Program Annual Report 2020.*	OE-0422V
24	Other Investigations	5/18/2022	EPA, 2022	*EPA Adds Five PFAS Chemicals to List of Regional Screening and Removal Management Levels to Protect Human Health and the Environment, https://www.epa.gov/newsreleases/epa-adds-five-pfas-chemicals-list-regional-screening-and-removal-management-levels*	NA
Section 5					
5	OU1	2/16/1995	Army, 1995	*Record of Decision, Operable Unit I, Fritzsche Army Airfield Fire Drill Area. Fort Ord, California*	OU1-308
5	OU1	8/12/2010	Army, 2010	*Explanation of Significant Differences No. 1 Operable Unit I, Fritzsche Army Airfield Fire Drill Area. Fort Ord, California.*	OU1-581
5	OU1	9/8/2017	Army, 2017	*Final Fourth Five-Year Review Report for Fort Ord Superfund Site, Monterey, California. September 2017*	BW-2834
5	OU1	12/11/2017	HGL, 2017	*Final Closeout Report, Operable Unit 1 Groundwater Remediation, Fritzsche Army Airfield Fire Drill Area, Former Fort Ord, California*	OU1-631A
Section 6					
6	OU2	1989	Zheng, 1989	*PATH3D*	Not Applicable
6	OU2	4/1/1990	HLA, 1990	*Final Fort Ord Landfills: Preliminary Hydrogeologic Investigation, Vol I, Vol II Appendices A-G, Vol III Appendices H-L, April 20, 1990*	OU2-060
6	OU2	6/8/1993	Dames & Moore, 1993	*Final Remedial Investigation Report, Remedial Investigation/ Feasibility Study Fort Ord Landfills, Fort Ord California, June 8, 1993*	OU2-222
6	OU2	7/15/1994	Army, 1994	*Final Record of Decision, Operable Unit 2, Fort Ord Landfills, Fort Ord, California*	OU2-480
6	OU2	9/1994	Pollock, 1994	*User's Guide for MODPATH/MODPATH-PLOT, Version 3: A particle tracking post-processing package for MODFLOW, the U. S. Geological Survey finite-difference ground-water flow model*	Not Applicable
6	OU2	8/3/1995	Army, 1995a	*Explanation of Significant Differences, Operable Unit 2, Fort Ord Landfills, Fort Ord, California*	OU2-406

6	OU2	10/1/1995	HLA, 1995	*Final Remedial Investigation/Feasibility Study, Fort Ord, California, Volume II - Remedial Investigation Introduction and Basewide Hydrogeologic Characterization*	BW-1283A
6	OU2	1/4/1996	EPA, 1996	*Letter from EPA to Acting Deputy Assistant Secretary of the Army regarding Fort Ord - CERCLA Section 120(h)(3), Transfer of Property, Overlying OU-2 (Landfills) Groundwater Plume.*	OU2-495
6	OU2	8/13/1996	Army, 1996	*Explanation of Significant Differences, Area A, Operable Unit 2 Landfill, Fort Ord, California.*	OU2-458
6	OU2	1/13/1997	Army, 1997	*Explanation of Significant Differences, Consolidation of Remediation Waste in a Corrective Action Management Unit (CAMU) Operable Unit 2 Landfill, Fort Ord, California*	OU2-523
6	OU2	1/13/1997	Army, 1997a	*Record of Decision, Basewide Remedial Investigation Sites, Fort Ord, California.*	RI-025
6	OU2	12/1/1997	EA, 1997	*User's Guide for the Johnson and Ettinger (1991) Model for Subsurface Vapor Intrusion*	Not Applicable
6	OU2	6/1/2001	EPA, 2001	*Comprehensive Five-Year Review Guidance, OSWER Directive 9355.7-03B-P*	Not Applicable
6	OU2	9/13/2001	IT, 2001	*Construction Completion Report Operable Unit 2 Groundwater Remedy Expansion Revision 0, IT Corporation*	OU2-613
6	OU2	2005	Harbaugh., 2005	*MODFLOW-2005, The U.S. Geological Survey Modular Ground-Water Model—the Ground-Water Flow Process U.S. Geological Survey Techniques and Methods 6-A16*	Not Applicable
6	OU2	1/31/2005	Shaw, 2005	*Draft Final Remedial Action Construction Completion Report, Operable Unit 2 Landfills, Areas A through F, Former Fort Ord, California, January 2005*	OU2-630B
6	OU2	10/4/2006	Army, 2006	*Explanation of Significant Differences, No Further Action Related to Munitions and Explosives of Concern, Landfill Gas Control, Reuse of Treated Groundwater, Designation of CAMU Requirements as Applicable or Relevant and Appropriate Requirements (ARARs), Operable Unit 2 Landfills, Former Fort Ord, California*	OU2-656
6	OU2	5/21/2009	Shaw, 2009	*Field Work Variances #TII-138 modifies the Operation and Maintenance Plan, Operable Unit 2 Landfills, Former Fort Ord, California (Revision 2)*	OU2-593F.1
6	OU2	8/31/2009	Ahtna, 2009	*Final Operations and Maintenance Manual, Volume I, Operable Unit 2 (OU2) Groundwater Remedy, Former Fort Ord, California*	BW-2479G
6	OU2	2011	ESI, 2011	*Groundwater Vistas 6*	Not Applicable
6	OU2	1/10/2011	Shaw, 2011	*Field Work Variances #TII-154, Task Order #011, WAD 04, Operation and Maintenance Plan, Operable Unit 2 Landfills, Former Fort Ord, California (Revision 2)*	OU2-593F.3

6	OU2	10/1/2011	DTSC, 2011	*Final Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air (Vapor Intrusion Guidance), Dept. of Toxic Substance Control, California Environmental Protection Agency, October 2011*	Not Applicable
6	OU2	10/27/2011	Army, 2011	*Army letter to Marina in Motion forwarding the report "Understanding Soil Gas at the Former Fort Ord"*	BW-2588
6	OU2	6/8/2012	Ahtna, 2012	*Final Annual Groundwater Treatment Systems, Operation Data Summary Report, January through December 2011, Operable Unit 2 and Operable Unit Carbon Tetrachloride Plume Upper 180-Foot Aquifer Groundwater Remedies, Former Fort Ord, California*	BW-2604A
6	OU2	8/1/2012	ITSI Gilbane, 2012	*Final Design Report, Revised OU2 Landfill Area E Expansion Construction, Former Fort Ord, California*	OU2-683B
6	OU2	10/8/2014	Gilbane, 2014	*Final Construction Quality Control and Quality Assurance Report, Area E Phase 1, Operable Unit 2 Landfills, Former Fort Ord, California*	OU2-687B
6	OU2	4/29/2016	Ahtna, 2016d	*Final Annual Report, 2015, Operations and Maintenance, Operable Unit 2 Landfills, Former Fort Ord, California*	OU2-703
6	OU2	2/17/2017	Ahtna, 2017a	*Operable Unit 2 Fourth Quarter 2016 Groundwater Monitoring and Treatment System Report, Former Fort Ord, California*	OU2-706
	OU2	7/14/2017	Ahtna, 2017c	*Final Annual Report, 2016, Operations and Maintenance, Operable Unit 2 Landfills, Former Fort Ord, California*	OU2-708
6	OU2	2/9/2018	Ahtna, 2018	*Operable Unit 2 Fourth Quarter 2016 through Third Quarter 2017 Groundwater Monitoring and Treatment System Report, Former Fort Ord, California*	OU2-710
6	OU2	8/2/2019	Ahtna, 2019	*Operable Unit 2 Fourth Quarter 2017 through Third Quarter 2018 Groundwater Monitoring and Treatment System Report, Former Fort Ord, California*	OU2-719A
6	OU2	8/3/2019	RORE/ITSI, 2019	*Operations and Maintenance Manual, OU2 Groundwater Treatment Plant, Former Fort Ord, California*	Not Applicable
6	OU2	9/16/2019	Ahtna 2019b	*Final Operations and Maintenance Plan Revision 3 Operable Unit 2 Landfills Former Fort Ord, California*	OU2-59J3
6	OU2	12/22/2020	Ahtna, 2020	*Operable Unit 2 Annual Report Volume II Fourth Quarter 2018 through Third Quarter 2019 Groundwater Monitoring and Treatment System Operations and Maintenance Report, Former Fort Ord, California*	OU2-724B
6	OU2	2/2/2021	Ahtna, 2021	*Operable Unit 2 Annual Report Volume I Fourth Quarter 2018 through Third Quarter 2019 Landfill Gas Monitoring and Landfills Operations and Maintenance Former Fort Ord, California*	OU2-725B
6	OU2	4/26/2021	Ahtna, 2021q	*Quality Assurance Project Plan, Former Fort Ord, California, Volume 1, Appendix D, Revision 5, Operable Unit 2 Landfills*	OU2-702M

6	OU2	6/9/2021	Ahtna, 2021a	*Operable Unit 2 Groundwater Treatment System Evaluation and Optimization Report, Fort Ord, California*	OU2-728
6	OU2	9/2/2021	Ahtna, 2021b	*Operable Unit 2 Remedy Monitoring and Operations and Maintenance Fourth Quarter 2019 through Third Quarter 2020 Former Fort Ord, California*	OU2-729B
6	OU2	8/30/2021	Ahtna, 2021p	*Operable Unit 2 Second Quarter 2021 Groundwater Monitoring and Treatment System Report Former Fort Ord, California*	OU2-732
6	OU2	9/1/2021	Ahtna, 2021e	*Quality Assurance Project Plan, Former Fort Ord, California, Volume 1, Appendix A, Draft Final Revision 9, Groundwater Remedies and Monitoring at Sites 2 and 12, Operable Unit 2, and Operable Unit Carbon Tetrachloride Plume*	BW-2785N
6	OU2	9/10/2021	Ahtna, 2021m	*Draft Final Operable Unit 2 Groundwater Treatment System Evaluation and Optimization Report Former Fort Ord, California*	OU2-728A
6	OU2	6/1/2022	Ahtna, 2022a	*Final Operable Unit 2 Remedy Monitoring and Operations and Maintenance Fourth Quarter 2020 thorugh Third Quarter 2021 Former Fort Ord, California*	OU2-733B
6	OU2	6/24/2022	EPA, 2022	*EPA, Vapor Intrusion Screeninling Level Calculator, https://www.epa.gov/vaporintrusion/vapor-intrusion-screening-level-calculator*	NA
Section 7					
7.1	Site 2 and 12	10/1/1995	HLA, 1995	*Final Remedial Investigation/Feasibility Study, Fort Ord, California, Volume II - Remedial Investigation Introduction and Basewide Hydrogeologic Characterization*	BW-1283A
7.1	Site 2 and 12	10/1/1995	HLA, 1995a	*Final Remedial Investigation/Feasibility Study, Fort Ord, California, Volume V - Feasibility Study Sites 2 and 12, Sites 16 and 17, Site 3*	BW-1283Q
7.1	Site 2 and 12	1/13/1997	Army, 1997a	*Record of Decision, Basewide Remedial Investigation Sites, Fort Ord, California.*	RI-025
7.1	Site 2 and 12	6/1/1999	IT, 1999	*Draft Final Remedial Action Confirmation Report and Post-Remediation Health Risk Assessment Site 12 Remedial Action, Basewide Remediation Sites, Fort Ord, California, Revision 0*	BW-2031D
7.1	Site 2 and 12	6/1/2001	EPA, 2001	*Comprehensive Five-Year Review Guidance, OSWER Directive 9355.7-03B-P*	Not Applicable
7.1	Site 2 and 12	7/3/2002	EPA, 2002	*Concurrence letter from EPA to the Army Regarding the Sites 2/12 Groundwater Remedy, Operating Properly and Successfully Evaluation report, Former Fort Ord, California*	BW-2134C
7.1	Site 2 and 12	6/3/2003	Ahtna, 2003	*Draft Final Sites 2 and 12 In-Situ Chemical Oxidation Pilot Study Report, Former Fort Ord, California*	BW-2209G

7.1	Site 2 and 12	2/6/2006	Shaw, 2006	*Treatment Augmentation Work Plan, Sites 2 and 12 Groundwater Remedy Expansion, Former Fort Ord, California, February 2006, Revision 0*	BW-2375
7.1	Site 2 and 12	2/6/2008	Army, 2008	*Record of Decision, Carbon Tetrachloride Groundwater Contamination Study, Fort Ord, California*	OUCTP-0021D
7.1	Site 2 and 12	8/31/2009	Ahtna, 2009	*Final Operations and Maintenance Manual, Volume II Sites 2 and 12 (Sites 2/12) Groundwater Remedy, Former Fort Ord, California*	BW-2479G
7.1	Site 2 and 12	9/17/2012	Army, 2012	*Final Third Five-Year Review Report for Fort Ord Superfund Site, Monterey, California. September 2012*	BW-2632
7.1	Site 2 and 12	2/27/2015	Ahtna, 2015	*Final Remedial Investigation/Feasibility Study Addendum at Sites 2 and 12, Former Fort Ord, California*	BW-2721B
7.1	Site 2 and 12	7/10/2015	Ahtna, 2015b	*Final Remedial Action Work Plan Addendum Sites 2 and 12 Groundwater Remediation, Former Fort Ord, California, July 2015*	BW-2738B
7.1	Site 2 and 12	10/1/2015	Ahtna, 2015d	*Final Operations and Maintenance Manual Volume III, Sites 2 and 12 Soil Vapor Extraction and Treatment System, Former Fort Ord, California*	BW-2763A
7.1	Site 2 and 12	2/1/2016	Army, 2016	*Explanation of Significant Differences No. 1, Basewide Remedial Investigation Sites 2 and 12, Former Fort Ord, California*	BW-2794
7.1	Site 2 and 12	3/3/2017	Ahtna, 2017b	*Sites 2 and 12 Fourth Quarter 2016 Groundwater and Soil Gas Monitoring and Treatment System Report, Former Fort Ord, California*	BW-2822
7.1	Site 2 and 12	9/8/2017	Army, 2017	*Final Fourth Five-Year Review Report for Fort Ord Superfund Site, Monterey, California. September 2017*	BW-2834
7.1	Site 2 and 12	3/23/2018	Ahtna, 2018a	*Final Sites 2 and 12 Fourth Quarter 2016 through Third Quarter 2017 Groundwater and Soil Gas Monitoring and Treatment System Report, Former Fort Ord, California*	BW-2840A
7.1	Site 2 and 12	5/29/2018	Ahtna, 2018b	*Sites 2 and 12 First Quarter 2018 Groundwater and Soil Gas Monitoring and Treatment System Report, Former Fort Ord, California*	BW-2850
7.1	Site 2 and 12	2/22/2019	Ahtna, 2019a	*Sites 2 and 12 Fourth Quarter 2018 Groundwater and Soil Gas Monitoring and Treatment System Report, Former Fort Ord, California*	BW-2862
7.1	Site 2 and 12	7/8/2019	Ahtna, 2019b	*Final Sites 2 and 12 Fourth Quarter 2017 through Third Quarter 2018 Groundwater and Soil Gas Monitoring and Treatment System Report, Former Fort Ord, California*	BW-2861B
7.1	Site 2 and 12	8/12/2020	Ahtna, 2020d	*Final Sites 2 and 12 Fourth Quarter 2018 through Third Quarter 2019 Groundwater and Soil Gas Monitoring and Treatment System Report, Former Fort Ord, California*	BW-2881A

7.1	Site 2 and 12	2/9/2021	Ahtna, 2021n	*Quality Assurance Project Plan, Former Fort Ord, California, Volume I, Appendix A, Final Revision 8, Groundwater Remedies and Monitoring at Operable Unit 2, Sites 2 and 12, and Operable Unit Carbon Tetrachloride Plume*	BW-2785L
7.1	Site 2 and 12	6/2/2021	Ahtna, 2021f	*Final Sites 2 and 12 First Quarter 2021 Groundwater and Soil Gas Monitoring and Treatment System Report, Former Fort Ord, California*	BW-2895
7.1	Site 2 and 12	7/26/2021	Ahtna, 2021g	*Sites 2 and 12 Fourth Quarter 2019 through Third Quarter 2020 Groundwater and Soil Gas Monitoring and Treatment System Report, Former Fort Ord, California*	BW-2894B
7.1	Site 2 and 12	8/1/2021	Ahtna, 2021h	*Preliminary Draft Sites 2 and 12 Technical Memorandum Soil Gas Rebound Study Former Fort Ord, California*	TBD
7.1	Site 2 and 12	8/17/2021	Ahtna, 2021i	*Final Sites 2 and 12 Second Quarter 2021 Groundwater and Soil Gas Monitoring and Treatment System Report, Former Fort Ord, California*	BW-2903
7.1	Site 2 and 12	1/11/2022	Ahtna, 2021t	*Draft Sites 2 and 12 Fourth Quarter 2020 through Third Quarter 2021 Groundwater and Soil Gas Monitoring and Treatment System Report, Former Fort Ord, California*	BW-2909
7.1	Site 2 and 12	11/18/2021	Ahtna, 2021u	*Draft Sites 2 and 12 Technical Memorandum Soil Gas Rebound Study, Former Fort Ord, California*	BW-2905
7.1	Site 2 and 12	12/21/2021	Ahtna, 2021v	*Draft Sites 2 and 12 Site Closure Exit Strategy, Former Fort Ord, California*	BW-2906
7.2	Site 31	10/1/1995	HLA, 1995	*Final Remedial Investigation/Feasibility Study, Fort Ord, California, Volume I-VI - Site 31*	BW-1283A
7.2	Site 31	1/13/1997	Army, 1997a	*Record of Decision, Basewide Remedial Investigation Sites, Fort Ord, California*	RI-025
7.2	Site 31	4/29/1999	IT/HLA, 1999	*Remedial Action Confirmation Report, Site 31 Remedial Action, Basewide Remediation Sites, Former Fort Ord, California*	BW-2035
7.2	Site 31	9/20/1999	EPA, 1999	*Letter from the EPA dated September 20, 1999 to the Department of the Army regarding the Draft Final Remedial Action Confirmation Report, Site 31 Remedial Action, Basewide Remediation Sites, Former Fort Ord, California*	BW-2035B
7.2	Site 31	6/1/2001	EPA, 2001	*Comprehensive Five-Year Review Guidance, OSWER Directive 9355.7-03B-P*	Not Applicable
7.2	Site 31	6/1/2006	DTSC, 2006	*Letter from the California Department of Toxic Substances Control dated June 1, 2006 to the Department of Army regarding the Conditional No Further Action, Draft Final Site 31 Remedial Action Confirmation Report, Basewide Remedial Sites, Former Fort Ord, California*	BW-2035A.1
7.2	Site 31	9/1/2009	Cal/EPA, 2009	*Revised California Human Health Screening Levels for Lead, Integrated Risk Assessment Branch, OEHHA, Cal EPA*	Not Applicable

7.2	Site 31	7/10/2009	United States of America and Fort Ord Reuse Authoring FORA, 2009	*Exhibit B of Quitclaim Deed (No. DACA05-9-06-549)*	Not Applicable
7.2	Site 31	9/1/2011	DTSC, 2011a	*User's Guide To Leadspread 8 and Recommendations For Evaluation Of Lead Exposures In Adults, California Department of Toxic Substances Control (DTSC), Human and Ecological Risk Office (HERO). Model is available at: http://www.dtsc.ca.gov/AssessingRisk/leadspread8.cfm*	Not Applicable
7.2	Site 31	9/8/2017	Army, 2017	*Final Fourth Five-Year Review Report for Fort Ord Superfund Site, Monterey, California. September 2017*	BW-2834
7.2	Site 31	2/28/2017	KEMRON, 2017	*Final Technical Memorandum, Evaluation of Lead Concentrations at Selected Sites, Former Fort Ord, Monterey, California*	BW-2674B
7.2	Site 31	1/4/2019	KEMRON, 2019	*Revised Final Technical Memorandum, Evaluation of Lead Concentrations at Selected Sites, Former Fort Ord, Monterey County, California*	BW-2674C
7.3	Site 39	12/1/1994	HLA, 1994	*Draft Final Basewide Remedial Investigation Report, Remedial Investigation/Feasibility Study, Fort Ord, California. Prepared for USACE*	BW-1568
7.3	Site 39	1/1/1997	Army, 1997a	*Record of Decision, Basewide Remedial Investigation Sites, Fort Ord, California*	RI-025
7.3	Site 39	1/13/1997	Army, 1997b	*Interim Record of Decision Site 3 Beach Train fire Ranges Fort Ord, California*	BW-0070
7.3	Site 39	6/1/2001	EPA, 2001	*Comprehensive Five-Year Review Guidance, OSWER Directive 9355.7-03B-P*	Not Applicable
7.3	Site 39	8/1/2002	IT, 2002	*Draft Final Sampling and Analysis Plan, Characterization and Remediation Confirmation, Site 39, Ranges 18 and 19, Former Fort Ord, California*	RI-035A
7.3	Site 39	9/27/2006	Burleson, 2006	*Draft Wetland Monitoring and Restoration Plan, Former Fort Ord, California. Burleson Consulting, Inc*	BW-2453
7.3	Site 39	10/31/2007	MACTEC, 2007	*Final Report, Ecological Risk Assessment for Small Arms Ranges, Habitat Areas, Impact Area, Former Fort Ord, California. Revision 0. Shaw/MACTEC Engineering and Consulting*	BW-2226U
7.3	Site 39	10/31/2007	MACTEC/ABBL, 2007	*Revision 1, Ecological Risk Assessment for Site 39 Ranges, Habitat Areas, Impact Area, Former Fort Ord, California. MACTEC and Arcadis, Blasland, Bouck, and Lee, Inc.*	BW-2226U
7.3	Site 39	3/1/2008	MACTEC, 2008	*Final Feasibility Study Addendum Site 39 Ranges Former Fort Ord, California Revision 0. Prepared for Shaw on behalf of USACE.*	BW-2423F
7.3	Site 39	3/1/2009	Burleson, 2009	*Protocol for Conducting Vegetation Monitoring in Compliance with the Installation-Wide Multispecies Habitat Management Plan at Former Fort Ord*	BW-2454A

7.3	Site 39	8/25/2009	Army, 2009	*Final Record of Decision Amendment Site 39 Inland Ranges, Former Fort Ord, California. United States Department of the Army Base Realignment and Closure (BRAC).*	RI-041E
7.3	Site 39	9/30/2009	Duffy/Shaw, 2009	*Final Habitat Restoration Plan, Site 39 Inland Ranges, Former Fort Ord, California. Denise Duffy and Associates & Shaw E&I, Inc.*	BW-2450G
7.3	Site 39	11/24/2009	MACTEC/Shaw, 2009	*Comprehensive Basewide Range Assessment Report, Former Fort Ord, California, Revision 1*	BW-2300J
7.3	Site 39	12/1/2009	Shaw, 2009	*Final Remedial Design/Remedial Action Work Plan Site 39 Inland Ranges Remediation and OU 2 Landfills, Area E Construction Former Fort Ord, California*	RI-044D
7.3	Site 39	1/17/2012	Shaw, 2012	*Final Comprehensive Basewide Range Assessment Report, Former Fort Ord, California, Revision 2*	BW-2300L
7.3	Site 39	9/17/2012	Army, 2012	*Final Third Five-Year Review Report for Fort Ord Superfund Site, Monterey, California. September 2012*	BW-2632
7.3	Site 39	12/11/2014	CB&I, 2014	*Final (revised) Remedial Action Completion Report, Site 39 Inland Ranges Habitat Reserve, Former Fort Ord, California. ITSI Gilbane/CB&I Federal Services LLC.*	RI-047C
7.3	Site 39	4/30/2015	Tetra Tech, 2015	*Revisions of Protocol for Conducting Vegetation Monitoring for Compliance with the Installation-Wide Multispecies Habitat Management Plan, Former Fort Ord*	BW-2745
7.3	Site 39	11/15/2015	ITSI Gilbane, 2015	*Final Historical Area (HA) 23D Sampling Work Plan, Former Fort Ord, California*	BW-2760A
7.3	Site 39	6/21/2016	KEMRON, 2016	*Final Quality Assurance Project Plan Former Fort Ord, California Volume I, Appendix B, Soil Sampling, Basewide Range Assessment*	BW-2767B
7.3	Site 39	2/28/2017	KEMRON, 2017	*Final Technical Memorandum, Evaluation of Lead Concentrations at Selected Sites, Former Fort Ord, Monterey, California*	BW-2674B
7.3	Site 39	9/8/2017	Army, 2017	*Final Fourth Five-Year Review Report for Fort Ord Superfund Site, Monterey, California. September 2017*	BW-2834
7.3	Site 39	3/28/2018	KEMRON, 2018	*Final Sampling Results Technical Memorandum, Basewide Range Assessment Investigation, Site 39 Unit 23, Former Fort Ord, Monterey County, California*	BW-2842A
7.3	Site 39	3/30/2018	KEMRON, 2018a	*Final Sampling Results Technical Memorandum, Basewide Range Assessment Investigation, Site 39 Unit 5A and 9, Former Fort Ord, Monterey County, California*	BW-2835B
7.3	Site 39	1/4/2019	KEMRON, 2019	*Revised Final Technical Memorandum, Evaluation of Lead Concentrations at Selected Sites, Former Fort Ord, Monterey County, California*	BW-2674C
7.3	Site 39	1/25/2019	KEMRON, 2019a	*Final Sampling Results Technical Memorandum, Basewide Range Assessment Investigation, Site 39 Unit 31 Phase 1, Former Fort Ord, Monterey County, California*	BW-2856A

7.3	Site 39	5/17/2019	KEMRON, 2019b	*Final Sampling Results Technical Memorandum, Basewide Range Assessment Investigation, Site 39 Units 25 and 28, Former Fort Ord, Monterey County, California*	BW-2855B
7.3	Site 39	3/20/2020	KEMRON, 2020	*Final Sampling Results Technical Memorandum, Basewide Range Assessment Investigation, Site 39 Units 1, 2, 3, 7, 10, 33, and Watkins Gate Burn Area North and South, Former Fort Ord, Monterey County, California*	BW-2831B
7.4	Site 33	9/30/1995	HLA, 1995	*Final Remedial Investigation/Feasibility Study, Fort Ord, California, Volume I-VI - Site 33*	BW-1283A
7.4	Site 33	1/13/1997	Army, 1997a	*Record of Decision, Basewide Remedial Investigation Sites, Fort Ord, California*	RI-025
7.4	Site 33	6/1/2001	EPA, 2001	*Comprehensive Five-Year Review Guidance, OSWER Directive 9355.7-03B-P*	Not Applicable
7.4	Site 33	2/4/2005	Army, 2005	*Letter from the Department of Army dated Feb 4, 2005 to the Seaside Resort Development regarding the process for removing the deed restriction at Site 33*	IAFS-223A
7.4	Site 33	1/1/2016	GEM, 2016	*Final, Sampling and Analysis Plan, Site 33 Maintenance Yard, Bayonet and Blackhorse Golf Course, 1 McClure Way, Seaside, California 93950*	Not Applicable
7.4	Site 33	9/8/2017	Army, 2017	*Final Fourth Five-Year Review Report for Fort Ord Superfund Site, Monterey, California. September 2017*	BW-2834
7.4	Site 33	2/28/2017	KEMRON, 2017	*Final Technical Memorandum, Evaluation of Lead Concentrations at Selected Sites, Former Fort Ord, Monterey, California*	BW-2674B
7.4	Site 33	7/10/2021	GEM, 2021	*Final Remedial Action Completion Report, Site 33 Maintenance Yard Bayonet and Black Horse Golf Course, Seaside, CA*	Not Applicable
Section 8					
8	Site 3	10/19/1995	HLA, 1995	*Basewide Remedial Investigation/Feasibility Study, Former Fort Ord, California,Volume II - Remedial Investigation, Site 3*	BW-1283I
8	Site 3	1/13/1997	Army, 1997c	*Interim Record of Decision Site 3 Beach Trainfire Ranges Fort Ord, California.*	SITE3-070
8	Site 3	9/30/1998	HLA, 1998	*Draft Final Additional Ecological Risk Evaluations, Site 3 - Beach Trainfire Ranges, Former Fort Ord, California. Prepared for USACE.*	SITE3-093
8	Site 3	8/7/2000	IT, 2000	*Final Remedial Action Confirmation Report and Post-Remediation Risk Assessment, Site 3 Remedial Action, Basewide Remedial Action Investigation Sites Fort Ord, California. IT Corporation.*	SITE3-105A
8	Site 3	6/1/2001	EPA, 2001	*Comprehensive Five-Year Review Guidance, OSWER Directive 9355.7-03B-P*	Not Applicable

8	Site 3	3/25/2005	Army, 2005a	*Record of Decision, No Further Action Related to Munitions and Explosives of Concern - Track 1 Sites; No Further Remedial Action with Monitoring for Ecological Risks from Chemical Contamination at Site 3 (MRS-22), Former Fort Ord, California. (signed by USEPA April 26, 2005)*	OE-0526
8	Site 3	11/16/2006	Army, 2006a	*Letter to clarify the Army's understanding regarding the agreement to collect spent bullets from the Beach Ranges (MRS Site 22 also called Site 3)*	OE-0604
8	Site 3	04/2007	Cal/EPA, 2007	*Development of Health Criteria for School Site Risk Assessment Pursuant to Health and Safety Code Section 901(G): Child-Specific Benchmark Change in Blood Lead Concentration for School Site Risk Assessment, Final Report, Integrated Risk Assessment Branch, OEHHA, Cal EPA*	Not Applicable
8	Site 3	11/9/2007	DTSC, 2007	*Fort Ord Dunes State Park Memorandum of Understanding and Land Use Covenant between DTSC and Department of Parks and Recreation.*	OTH-223G.2
8	Site 3	09/2009	Cal/EPA, 2009	*Revised California Human Health Screening Levels for Lead, Integrated Risk Assessment Branch, OEHHA, Cal EPA.*	Not Applicable
8	Site 3	09/2011	DTSC, 2011a	*User's Guide To Leadspread 8 and Recommendations For Evaluation Of Lead Exposures In Adults, California Department of Toxic Substances Control (DTSC), Human and Ecological Risk Office (HERO). Model is available at: http://www.dtsc.ca.gov/AssessingRisk/leadspread8.cfm*	Not Applicable
8	Site 3	11/1/2016	Chenega, 2016	*Final 2016 Annual Biological Monitoring Report, Fort Ord Dunes State Park, Former Fort Ord, California*	BW-2812
8	Site 3	9/8/2017	Army, 2017	*Final Fourth Five-Year Review Report for Fort Ord Superfund Site, Monterey, California. September 2017*	BW-2834
8	Site 3	1/4/2019	KEMRON, 2019	*Revised Final Technical Memorandum, Evaluation of Lead Concentrations at Selected Sites, Former Fort Ord, Monterey County, California*	BW-2674C
Section 9					
9	IA Sites	11/4/1993	Army, 1993a	*Superfund Proposed Plan - Interim Action Remedial Excavations Are Proposed for Cleanup of Selected Areas*	IAFS-051
9	IA Sites	11/4/1993	HLA, 1993	*Final Interim Action Feasibility Study, Impacted Surface Soil Remediation.*	IAFS-050
9	IA Sites	2/23/1994	Army, 1994a	*Interim Action Record of Decision, Contaminated Surface Soil Remediation, Fort Ord, California. Signed February 23, 1994*	IAFS-089
9	IA Sites	9/8/2017	Army, 2017	*Final Fourth Five-Year Review Report for Fort Ord Superfund Site, Monterey, California. September 2017*	BW-2834

9	IA Sites	2/28/2017	KEMRON, 2017	*Final Technical Memorandum, Evaluation of Lead Concentrations at Selected Sites, Former Fort Ord, Monterey, California*	BW-2674B
Section 10					
10	OUCTP	10/1/1995	HLA, 1995	*Final Remedial Investigation/Feasibility Study, Fort Ord, California, Volume II - Remedial Investigation Introduction and Basewide Hydrogeologic Characterization.*	BW-1283A
10	OUCTP	11/10/1999	HLA, 1999	*Draft Final Carbon Tetrachloride Investigation Report, Fort Ord, California.*	BW-1997U
10	OUCTP	6/1/2001	EPA, 2001	*Comprehensive Five-Year Review Guidance, OSWER Directive 9355.7-03B-P*	Not Applicable
10	OUCTP	9/1/2004	Shaw, 2004	*Draft Final Report March 2004 Indoor Air Sampling Lexington Court Former Fort Ord, California*	OUCTP-0008K
10	OUCTP	4/19/2006	MACTEC, 2006	*Final Operable Unit Carbon Tetrachloride Plume Groundwater Remedial Investigation/Feasibility Study, Former Fort Ord, California, Volumes I through V.*	OUCTP-0011P
10	OUCTP	5/9/2006	Shaw, 2006a	*Draft Final Evaluation Report, Pilot Soil Vapor Extraction and Treatment, Operable Unit Carbon Tetrachloride Plume, Former Fort Ord, California*	OUCTP-0013C
10	OUCTP	2/6/2008	Army, 2008	*Record of Decision, Carbon Tetrachloride Groundwater Contamination Study, Former Fort Ord, California.*	OUCTP-0021D
10	OUCTP	8/12/2009	Shaw, 2009a	*Final Operable Unit Carbon Tetrachloride Plume Enhanced In Situ Bioremediation Pilot Study Completion Report, Former Fort Ord, California, Revision 0.*	OUCTP-0041G
10	OUCTP	8/31/2009	Ahtna, 2009	*Final Operations and Maintenance Manual, Volume I, Operable Unit 2 (OU2) Groundwater Remedy, Former Fort Ord, California.*	BW-2479G
10	OUCTP	7/9/2010	Shaw, 2010	*Final Operable Unit Carbon Tetrachloride Plume, Upper 180-Foot Aquifer Remedial Design, Former Fort Ord, California*	OUCTP-0036P
10	OUCTP	3/22/2012	Ahtna, 2012a	*Report of Quarterly Monitoring, April through June 2011, Groundwater Monitoring Program, Sites 2 and 12, OU2 and OUCTP, Former Fort Ord, California*	BW-2607
10	OUCTP	9/17/2012	Army, 2012	*Final Third Five-Year Review Report for Fort Ord Superfund Site, Monterey, California. September 2012*	BW-2632
10	OUCTP	9/19/2012	Shaw, 2012a	*Final Operable Unit Carbon Tetrachloride Plume Upper 180-Foot Aquifer Remedial Action Construction Completion Report*	OUCTP-0054B
10	OUCTP	7/26/2016	Ahtna, 2016h	*Final Operable Unit Carbon Tetrachloride Plume Remedial Action Work Plan Addendum, Former Fort Ord, California*	OUCTP-0036K.3
10	OUCTP	8/29/2016	Ahtna, 2016i	*Final Operable Unit Carbon Tetrachloride Plume Second Quarter 2016 Groundwater Monitoring Report, Former Fort Ord, California*	OUCTP-0073B

10	OUCTP	9/8/2017	Army, 2017	*Final Fourth Five-Year Review Report for Fort Ord Superfund Site, Monterey, California. September 2017*	BW-2834
10	OUCTP	3/23/2018	Ahtna, 2018c	*Operable Unit Carbon Tetrachloride Plume Fourth Quarter 2016 through Third Quarter 2017 Groundwater Monitoring Report Former Fort Ord, California*	OUCTP-0081A
10	OUCTP	12/17/2018	Ahtna, 2018d	*Monitoring Well Decommissioning Completion Report Former Fort Ord, California*	BW-2857A
10	OUCTP	7/8/2019	Ahtna, 2019d	*Monitoring Well Installation Completion Report Former Fort Ord, California*	BW-2866A
10	OUCTP	8/2/2019	Ahtna, 2019e	*Operable Unit Carbon Tetrachloride Plume Fourth Quarter 2017 through Third Quarter 2018 Groundwater Monitoring Report Former Fort Ord, California*	OUCTP-0085B
10	OUCTP	8/2/2019	Ahtna, 2019f	*Operable Unit 2 Fourth Quarter 2017 through Third Quarter 2018 Groundwater Monitoring and Treatment System Report, Former Fort Ord, California*	OU2-719A
10	OUCTP	2/13/2020	Ahtna, 2020g	*Operable Unit Carbon Tetrachloride Plume Deployment Area 3A Data Summary Report Enhanced In Situ Bioremediation Former Fort Ord, California*	OUCTP-0090B
10	OUCTP	12/22/2020	Ahtna, 2020h	*Operable Unit 2 Annual Report Volume II Fourth Quarter 2018 through Third Quarter 2019 Groundwater Monitoring and Treatment System Operations and Maintenance Report, Former Fort Ord, California*	OU2-724B
10	OUCTP	2/9/2021	Ahtna, 2021o	*Quality Assurance Project Plan, Former Fort Ord, California, Volume I, Appendix A, Final Revision 8, Groundwater Remedies and Monitoring at Operable Unit 2, Sites 2 and 12, and Operable Unit Carbon Tetrachloride Plume*	BW-2785L
10	OUCTP	2/26/2021	Ahtna, 2021j	*Operable Unit Carbon Tetrachloride Plume Fourth Quarter 2018 through Third Quarter 2019 Groundwater Monitoring Report Former Fort Ord, California*	OUCTP-0092B
10	OUCTP	6/1/2021	Ahtna, 2021k	*Operable Unit Carbon Tetrachloride Plume Fourth Quarter 2019 through Third Quarter 2020 Groundwater Monitoring Report Former Fort Ord, California*	OUCTP-0096B
10	OUCTP	6/30/2021	Ahtna, 2021b	*Operable Unit 2 Remedy Monitoring and Operations and Maintenance Fourth Quarter 2019 through Third Quarter 2020 Former Fort Ord, California*	OU2-729B
10	OUCTP	6/24/2022	EPA, 2022	*EPA, Vapor Intrusion Screeninling Level Calculator, https://www.epa.gov/vaporintrusion/vapor-intrusion-screening-level-calculator*	NA
10	OUCTP	5/1/2022	Ahtna, 2022	*Draft Final Operable Unit Carbon Tetrachloride Plume Fourth Quarter 2020 through Third Quarter 2021 Groundwater Monitoring Report, Former Fort Ord, California*	OUCTP-0101A

Section 11					
11	Track 0	6/19/2002	Army, 2002	*Final Record of Decision No Action Regarding Ordnance-Related Investigation, Former Fort Ord, California (Track 0).*	OE-0406
11	Track 0	9/17/2012	Army, 2012	*3rd Five-Year Review Report for Fort Ord Superfund Site, Monterey County, California*	BW-2632
Section 12					
12	Track 1	3/10/2005	Army, 2005a	*Record of Decision: No Further Action Related to Munitions and Explosives of Concern - Track 1 Sites/No Remedial Action with Monitoring for Ecological Risks from Chemical Contamination at Site 3 (MRS-22), Former Fort Ord, Monterey, California*	OE-0526
12	Track 1	5/6/2005	Army, 2005b	*Track 1 Plug-in Approval Memorandum MRS-6 Expansion Area, Former Fort Ord, Monterey, California.*	OE-0529
12	Track 1	3/23/2006	Army, 2006b	*Track 1 Plug-in Approval Memorandum East Garrison Areas 2 and 4 NE, Former Fort Ord, Monterey, California.*	OE-0559A
12	Track 1	5/31/2006	Army, 2006c	*Track 1 Plug-in Approval Memorandum Multiple Sites, Groups 1-5, Former Fort Ord, California.*	OE-0591
12	Track 1	2/16/2010	Army, 2010a	*Final Track 1 Plug-in Approval Memorandum, County North Munitions Response Area, Former Fort Ord, California.*	ESCA-0169A
12	Track 1	3/24/2011	Army, 2011a	*Track 1 Plug-in Approval Memorandum BLM-Headquarters and MRS-35, Former Fort Ord, California.*	OE-0740
12	Track 1	3/24/2011	Army, 2011b	*Track 1 Plug-in Approval Memorandum MRS-24A, MRS-24C, and Parcel E20c.1, Former Fort Ord, California.*	OE-0741A
12	Track 1	9/8/2017	Army, 2017	*Final Fourth Five-Year Review Report for Fort Ord Superfund Site, Monterey, California. September 2017*	BW-2834
12	Track 1	10/1/2018	Army, 2018	*Track 1 Plug-In Approval Memorandum, Bureau of Land Management (BLM) Area C, Former Fort Ord, CA*	OE-0939
Section 13					
13	Track 2, Parker Flats	10/1988	EPA, 1988	*US EPA Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA, EPA/540/G-89/004 OWSER Directive 9355.3-01 October 1988*	Not Applicable
13	Track 2, Parker Flats	6/13/1997	FORA, 1997	*Fort Ord Base Reuse Plan.*	Not Applicable
13	Track 2, Parker Flats	8/31/2006	MACTEC, 2006a	*Final Track 2 Munitions Response Remedial Investigation/ Feasibility Study, Parker Flats Munitions Response Area, Former Fort Ord, California, Volume 1 Remedial Investigation, Volume III Feasibility Study.*	OE-0523N

13	Track 2, Parker Flats	2/27/2008	DTSC, 2008	*Memorandum of Agreement (MOA) Among the Fort Ord Reuse Authority (FORA), Monterey County, and Cities of Seaside, Monterey, Del Rey Oaks and Marina, California State University Monterey Bay, University of California Santa Cruz, Monterey Peninsual College, and the*	Included in OE-0714A
13	Track 2, Parker Flats	8/26/2008	Army, 2008a	*Record of Decision Parker Flats Munitions Response Area, Track 2 Munitions Response Site, Former Fort Ord, California. Dated June 24, 2008. USEPA signature date is August 26, 2008.*	OE-0661
13	Track 2, Parker Flats	6/30/2009	MACTEC/Shaw, 2009a	*Final Remedial Design/Remedial Action Work Plan, Parker Flats Munitions Response Area, Former Fort Ord, California, Revision 1.*	OE-0667J
13	Track 2, Parker Flats	7/27/2009	EPA, 2009	EPA Letter: *Remedial Action Completion at the Parker Flats Munitions Response Area*	OE-0667L
13	Track 2, Parker Flats	8/4/2009	ESCA RP Team, 2009	*Final Remedial Design/Remedial Action, Land Use Controls Implementation, and Operation and Maintenance Plan, Parker Flats Munitions Response Area Phase I, Former Fort Ord, Monterey County, California.*	ESCA-0166
13	Track 2, Parker Flats	3/4/2010	Army, 2010b	Memorandum to Presidio of Monterey from Army (Fort Ord BRAC): *Selected Munitions Response Remedy for the Joe Lloyd Way Industrial Area (Parcel F2.6) within Ord Military Community.*	OE-0710
13	Track 2, Parker Flats	1/3/2017	FORA, 2017	*Land Use Covenant Annual Reports for Reporting Period July 1, 2015 to June 30, 2016.*	ESCA-0332
13	Track 2, Parker Flats	1/30/2017	Fort Ord BRAC, 2017a	*Report of Annual Monitoring of Land Use Controls (Parker Flats Parcels F2.6, L2.4.1, and L2.3) for the 2016 reporting period.*	OE-0894.1
13	Track 2, Parker Flats	3/29/2017	FORA, 2017a	*Final Residential Protocol Implementation Technical Report, Parker Flats Munitions Response Area, FORA ESCA Remediation Program, Former Fort Ord, Monterey County, California.*	ESCA-0311C
13	Track 2, Parker Flats	6/20/2017	Fort Ord BRAC, 2017	*Fort Ord Munitions Response Site Security Program Annual Report 2016.*	OE-0422Q
13	Track 2, Parker Flats	9/8/2017	Army, 2017	*4th Five-Year Review Report for Fort Ord Superfund Site Monterey County, California.*	BW-2834
13	Track 2, Parker Flats	2/27/2018	Fort Ord BRAC, 2018a	*Report of Annual Monitoring of Land Use Controls (Parker Flats Parcels F2.6, L2.4.1, and L2.3) for the 2017 reporting period.*	OE-0919
13	Track 2, Parker Flats	4/17/2018	FORA, 2018a	*Land Use Covenant Annual Reports for Reporting Period July 1, 2016 to June 30, 2017.*	ESCA-0355
13	Track 2, Parker Flats	4/30/2018	Fort Ord BRAC, 2018	*Fort Ord Munitions Response Site Security Program Annual Report 2017.*	OE-0422R
13	Track 2, Parker Flats	5/21/2018	Army, 2018a	*Explanation of Significant Differences No. 1 Record of Decision Parker Flats Munitions Response Area, Track 2 Munitions Response Site, Former Fort Ord, California.*	ESCA-0356
13	Track 2, Parker Flats	11/30/2018	FORA, 2018b	*Land Use Covenant Annual Reports for Reporting Period July 1, 2017 to June 30, 2018.*	ESCA-0367
13	Track 2, Parker Flats	1/25/2019	Fort Ord BRAC, 2019a	*Report of Annual Monitoring of Land Use Controls (Parker Flats Parcels F2.6, L2.4.1, and L2.3) for the 2018 reporting period.*	OE-0945

13	Track 2, Parker Flats	5/15/2019	Fort Ord BRAC, 2019	*Fort Ord Munitions Response Site Security Program Annual Report 2018.*	OE-0422S
13	Track 2, Parker Flats	12/15/2019	FORA, 2019	*Land Use Covenant Annual Reports for Reporting Period July 1, 2018 to June 30, 2019.*	ESCA-0381
13	Track 2, Parker Flats	12/19/2019	ESCA, 2019	*Revised Final Group 1 Land Use Controls Implementation Plan/Operation and Maintenance Plan, Seaside and Parker Flats Munitions Response Areas, FORA ESCA Remediation Program, Former Fort Ord, Monterey County, California.*	ESCA-0361E
13	Track 2, Parker Flats	1/28/2020	Fort Ord BRAC, 2020a	*Report of Annual Monitoring of Land Use Controls (Parker Flats Parcels F2.6, L2.4.1, and L2.3) for the 2019 reporting period.*	OE-0981
13	Track 2, Parker Flats	8/17/2020	Monterey County Department of Health, 2020	*Land Use Covenant Annual Reports for Reporting Period July 1, 2019 to June 30, 2020.*	ESCA-0386
13	Track 2, Parker Flats	8/28/2020	Fort Ord BRAC, 2020	*Fort Ord Munitions Response Site Security Program Annual Report 2019.*	OE-0422T
13	Track 2, Parker Flats	2/5/2021	Fort Ord BRAC, 2021a	*Report of Annual Monitoring of Land Use Controls (Parker Flats Parcels F2.6, L2.4.1, and L2.3) for the 2020 reporting period.*	OE-1001
13	Track 2, Parker Flats	6/25/2021	Fort Ord BRAC, 2021	*Fort Ord Munitions Response Site Security Program Annual Report 2020.*	OE-0422V
Section 14					
14	Interim Action Sites	9/20/2002	Army, 2002a	*Record of Decision, Interim Action for Ordnance and Explosives at Ranges 43-48, Range 30A, and Site OE-16, Former Fort Ord, California.*	OE-0414
14	Interim Action Sites	5/15/2008	Army, 2008b	*Record of Decision, Impact Area Munitions Response Area Track 3 Munitions Response Site, Former Fort ord, California, Dated April 18, 2008 (signed by USEPA on May 15, 2008).*	OE-0647
14	Interim Action Sites	1/18/2017	Army, 2017a	*Record of Decision, Interim Action Ranges Munitions Response Area, Former Fort Ord, California.*	ESCA-0331
14	Interim Action Sites	3/9/2017	Army, 2017b	*Final Record of Decision, Track 2, Bureau of Land management Area B and Munitions Response Site 16, Former Fort Ord, California.*	OE-0897
14	Interim Action Sites	9/8/2017	Army, 2017	*Final Fourth Five-Year Review Report for Fort Ord Superfund Site, Monterey, California. September 2017*	BW-2834
Section 15					
15	Track 3	10/1988	EPA, 1988	*US EPA Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA, EPA/540/G-89/004 OWSER Directive 9355.3-01 October 1988*	Not Applicable

15	Track 3	4/1/1997	USACE, 1997	*Installation-Wide Multispecies Habitat Management Plan for Former Fort Ord, California.*	BW-1787
15	Track 3	6/13/1997	FORA, 1997	*Fort Ord Base Reuse Plan.*	Not Applicable
15	Track 3	9/20/2002	Army, 2002a	*Final Record of Decision, Interim Action for Ordnance and Explosives at Ranges 43-48, Range 30A, and Site OE-16, Former Fort Ord, California (signed)*	OE-0414
15	Track 3	6/25/2007	MACTEC, 2007	*Final Track 3 Impact Area Munitions Response Area, Munitions Response Remedial Investigation/Feasibility Study, Former Fort Ord, California, Volumes 1 and 2.*	OE-0596R
15	Track 3	1/26/2007	Parsons, 2007	*Final MRS-Ranges 43-48 Interim Action Technical Information Paper, Former Fort Ord, Monterey, California, Military Munitions Response Program.*	OE-0590L
15	Track 3	4/18/2008	Army, 2008b	*Record of Decision Impact Area Munitions Response Area Track 3 Munitions Response Site, Former Fort Ord, California.*	OE-0647
15	Track 3	8/4/2009	USACE, 2009	*Final Work Plan Remedial Design (RD)/Remedial Action (RA) Track 3 Impact Area Munitions Response Area (MRA) Munitions and Explosives of Concern (MEC) Removal, Former Fort Ord, California.*	OE-0660K
15	Track 3	2/11/2010	Shaw E&I, 2010	*Final Site-Specific Work Plan, Munitions and Explosives of Concern Remedial Action, Non-Burn Areas, Former Fort Ord, California.*	OE-0685D
15	Track 3	3/29/2011	Shaw, 2011a	*Final MRS-BLM Units 18 and 22, Munitions and Explosives of Concern, Remedial Action Report, (Track 3) Former Fort Ord California.*	OE-0721B
15	Track 3	11/7/2011	Army, 2011c	*Army Memorandum for Record - Minor Change to the Selected Remedy, Fort Ord Track 3 Impact Area Munitions Response Area (MRA).*	OE-0757
15	Track 3	12/30/2011	Shaw, 2011b	*Final MRS-BLM Units 14 and 19, Munitions and Explosives of Concern, Remedial Action Report, Former Fort Ord, California.*	OE-0753B
15	Track 3	6/6/2013	ITSI Gilbane, 2013a	*Final MRS-BLM Units 15, 21, 32, and 34, Munitions and Explosives of Concern, Remedial Action Report, Former Fort Ord, California.*	OE-0783B
15	Track 3	8/1/2014	ITSI Gilbane, 2014	*Final MRS-BLM Units 4, 11 and 12, Munitions and Explosives of Concern, Remedial Action Report, Former Fort Ord, California.*	OE-0799B
15	Track 3	10/30/2015	KEMRON, 2015a	*Final MRS-BLM Watkins Gate Burn Area MEC Remedial Action, Technical Memorandum, Former Fort Ord, California.*	OE-0832A
15	Track 3	10/30/2015	KEMRON, 2015b	*Draft Final of MRS-BLM Units 6, 7, 10, and 33, MEC Remedial Action Report, Former Fort Ord, California.*	OE-0867
15	Track 3	12/15/2015	KEMRON, 2015c	*Final Site-Specific Work Plan, Munitions and Explosives of Concern, Remedial Action MRS-BLM Unit 23 and in Support of Units 11 and 12 Prescribed Burns (Includes Portions of 5A, 9, 25, 28 and 31) Former Fort Ord, California.*	OE-0862B

15	Track 3	12/17/2015	Army, 2015a	*Letter from the Army to EPA documenting that 100-foot buffer is complete.*	OE-0854A.3
15	Track 3	2/12/2016	KEMRON, 2016a	*MRS-BLM Units 1, 2, and 3, MEC Remedial Action Technical Memorandum, Former Fort Ord, California.*	OE-0875
15	Track 3	2/29/2016	KEMRON, 2016b	*Final Site-Specific Work Plan, Munitions and Explosives of Concern, Remedial Action MRS-BLM Unit 28 Former Fort Ord, California.*	OE-0859B
15	Track 3	7/27/2016	POM Fire Department, 2016	*Draft Final MRS-BLM Units 25 and 31 Prescribed Burn Plan.*	OE-0881A
15	Track 3	7/29/2016	KEMRON, 2016c	*Draft Final, Site-Specific Work Plan, Munitions and Explosives of Concern Remedial Action, MRS-BLM Units 25 and 31, Former Fort Ord, California .*	OE-0880A
15	Track 3	8/8/2016	KEMRON, 2016d	*Field Work Variance No. 006 for Draft Final, Site-Specific Work Plan, Munitions and Explosives of Concern, Remedial Action, Units 25 and 31, Former Fort Ord, California .*	OE-0880A.2
15	Track 3	8/11/2016	KEMRON, 2016e	*MRS-BLM Units 5A and 9, MEC Remedial Action Technical Memorandum, Former Fort Ord, California.*	OE-0878A
15	Track 3	2/14/2017	KEMRON, 2017a	*MRS-BLM Unit 23, MEC Remedial Action Technical Memorandum, Former Fort Ord, California.*	OE-0893A
15	Track 3	2/22/2017	KEMRON, 2017j	*Final, Work Plan, Munitions with Sensitive Fuzes Field Study, Former Fort Ord, California.*	OE-0888B
15	Track 3	3/6/2017	KEMRON, 2017i	*Munitions and Explosives of Concern Track 3 Surface Area Monitoring Reports, Former Fort Ord, California, 2016.*	OE-0847G
15	Track 3	6/7/2017	USFWS, 2017	*Reinitiation of Formal Consultation for Cleanup and Property Transfer Actions Conducted at the Former Fort Ord, Monterey County, California (Original Consultation #8-8-09-F-74, 81440-2009-F-0334)*	BW-2747A
15	Track 3	6/20/2017	Fort Ord BRAC, 2017	*Fort Ord Munitions Response Site Security Program Annual Report 2016.*	OE-0422Q
15	Track 3	9/8/2017	Army, 2017	*4th Five-Year Review Report for Fort Ord Superfund Site Monterey County, California.*	BW-2834
15	Track 3	9/15/2017	KEMRON, 2017e	*Munitions and Explosives of Concern Track 3 Surface Area Monitoring Reports, Former Fort Ord, California, 2017.*	OE-0847H
15	Track 3	10/31/2017	KEMRON, 2017f	*Draft Final, MRS-BLM Units 5A and 9 Munitions and Explosives of Concern Remedial Action Report, Former Fort Ord, California.*	OE-0908A
15	Track 3	11/29/2017	KEMRON, 2017g	*MRS-BLM Unit 28 MEC Remedial Action Technical Memorandum, Former Fort Ord, California.*	OE-0910A
15	Track 3	12/12/2017	KEMRON, 2017h	*Technical Memorandum, Phase I Field Evaluation MRS-BLM Units 13/17/20, Former Fort Ord, California*	OE-0909A
15	Track 3	4/13/2018	KEMRON, 2018b	*MRS-BLM Unit 25 MEC Remedial Action Technical Memorandum, Former Fort Ord, California.*	OE-0915A

15	Track 3	4/30/2018	Fort Ord BRAC, 2018	*Fort Ord Munitions Response Site Security Program Annual Report 2017.*	OE-0422R
15	Track 3	5/2/2018	KEMRON, 2018d	*Field Work Variance No. 017 for Final Site-Specific Work Plan, Munitions and Explosives of Concern Remedial Action, Non-Burn Areas, Former Fort Ord, California.*	OE-0685D.14
15	Track 3	5/14/2018	Army, 2018b	*Army Letter U.S. Fish and Wildlife Service requesting re-initiation of formal consultation to address changes to effects of Army cleanup actions described in the Reinitiation of Formal Consultation for Cleanup and Property Transfer Actions Conducted at the Former Fort Ord, Monterey County, California (Original Consultation #8-8-09-F-74, 81440-2009-F-0334, June 2017)*	BW-2747A.1
15	Track 3	8/31/2018	KEMRON, 2018e	*Draft Final, MRS_BLM Unit 28 Munitions and Explosives of Concern, Remedial Action Report, Former Fort Ord, California.*	OE-0928A
15	Track 3	9/27/2018	KEMRON, 2018f	*Final MRS-BLM Units 1, 2, and 3 Munitions and Explosives of Concern, Remedial Action Report Revision 1, Former Fort Ord, California.*	OE-0920C
15	Track 3	11/30/2018	KEMRON, 2018g	*Final, Remedial Design (RD)/Remedial Action (RA) Work Plan Update Track 3 Impact Area Munitions Response Area (MRA) Munitions and Explosives of Concern (MEC) Removal, Former Fort Ord, California.*	OE-0929B
15	Track 3	1/25/2019	KEMRON, 2019h	*Munitions and Explosives of Concern Track 3 Surface Area Monitoring Reports, Former Fort Ord, California, 2018.*	OE-0847I
15	Track 3	2/22/2019	USFWS, 2019	*Changes to Vegetation Clearance Activities Under the Programmatic Biological Opinion for Cleanup and Property Transfer Actions Conducted at the Former Fort Ord, Monterey County, California (2017-F-0094).*	BW-2747A.2
15	Track 3	5/15/2019	Fort Ord BRAC, 2019	*Fort Ord Munitions Response Site Security Program Annual Report 2018.*	OE-0422S
15	Track 3	6/14/2019	KEMRON, 2019c	*Final, MRS-BLM Unit 25 Munitions and Explosives of Concern Remedial Action Report, Former Fort Ord, California.*	OE-0940B
15	Track 3	6/28/2019	KEMRON, 2019d	*Technical Memorandum MEC Remedial Action Track 3 Impact Area MRA MRS-Ranges 43-48 South, Former Fort Ord, California.*	OE-0949A
15	Track 3	7/31/2019	KEMRON, 2019e	*Final Pond 16 Impact Area MRA Geophysical Anomaly Investigation Technical Information Paper, Former Fort Ord, California.*	OE-0954A

15	Track 3	9/6/2019	KEMRON, 2019f	*Final, Field Evaluation Report Munitions Response MRS-BLM Units 13/17/20, Former Fort Ord, California.*	OE-0956A
15	Track 3	11/5/2019	KEMRON, 2019g	*Addendum to Final MRS-BLM Units 1, 2, and 3 Munitions and Explosives of Concern, Remedial Action Report Revision 1, Former Fort Ord, California.*	OE-0920E
15	Track 3	1/6/2020	KEMRON, 2020a	*Watkins Gate Burn Area Mortar Pits MEC Remedial Action Technical Information Paper, Former Fort Ord, California.*	OE-0965A
15	Track 3	1/14/2020	KEMRON, 2020b	*Final Field Study Report, Munitions with Sensitive Fuzes Field Study, Impact Area Munitions Response Area, Former Fort Ord, California.*	OE-0960A
15	Track 3	2/28/2020	KEMRON, 2020c	*MRS-BLM Unit 31 MEC Remedial Action Technical Information Paper, Former Fort Ord, California.*	OE-0975A
15	Track 3	3/25/2020	KEMRON, 2020d	*MRS-BLM Unit 23 Munitions and Explosives of Concern Remedial Action Report, Former Fort Ord, California.*	OE-0979A
15	Track 3	3/30/2020	KEMRON, 2020e	*Unit 23 Risk Reduction Technical Memorandum, Former Fort Ord, California.*	OE-0968B
15	Track 3	4/24/2020	KEMRON, 2020f	*Munitions and Explosives of Concern Track 3 Surface Area Monitoring Reports, Former Fort Ord, California, 2019.*	OE-0847J.5
15	Track 3	5/15/2020	KEMRON, 2020g	*Impact Area MRA and BLM Area B Structure Demolition and Removal Technical Information Paper, Former Fort Ord, California.*	OE-0983A
15	Track 3	6/26/2020	KEMRON, 2020h	*Volume 2, Technical Information Paper, Supplemental Subsurface MEC Removal Fuel Breaks Impact Area Munitions Response Area, Former Fort Ord, California.*	OE-0985
15	Track 3	6/29/2020	KEMRON, 2020i	*Volume 1, Technical Information Paper, Fuel Breaks Impact Area Munitions Response Area, Former Fort Ord, California.*	OE-0985A
15	Track 3	8/28/2020	Fort Ord BRAC, 2020	*Fort Ord Munitions Response Site Security Program Annual Report 2019.*	OE-0422T
15	Track 3	9/18/2020	KEMRON, 2020q	*MRS-Ranges 43-48 South Munitions and Explosives of Concern, Remedial Action Report, Former Fort Ord, California.*	OE-0984A
15	Track 3	3/15/2021	KEMRON, 2021	*2020 Track 3 Annual Surface Monitoring Report, Former Fort Ord, California.*	OE-0847K
15	Track 3	6/25/2021	Fort Ord BRAC, 2021	*Fort Ord Munitions Response Site Security Program Annual Report 2020.*	OE-0422V
Section 16					
16	Track 2, Del Rey Oaks	10/1988	EPA, 1988	*US EPA Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA, EPA/540/G-89/004 OWSER Directive 9355.3-01 October 1988*	Not Applicable
16	Track 2, Del Rey Oaks	12/28/2000	USA Environmental, Inc., (USA), 2000	*Final After Action Report, 100% Grid Sampling, Inland Range Contract, Former Fort Ord, California, Site OE-15B .*	OE-0287A

16	Track 2, Del Rey Oaks	4/24/2001	USA, 2001a	*Final After Action Report, Geophysical Sampling, Investigation & Removal, Inland Range Contract, Former Fort Ord, California, Site Del Rey Oaks Group .*	OE-0293A
16	Track 2, Del Rey Oaks	9/23/2001	USA, 2001b	*Final 4' OE Removal After Action Report, Inland Range Contract, Former Fort Ord, OE-15 (Roads and Trails).*	OE-0316
16	Track 2, Del Rey Oaks	9/30/2001	USA, 2001c	*Gridstats/Sitestats Sampling After Action Report, Inland Range Contract, Former Fort Ord, California, Site MRS-43 and OE-15 DRO.1.*	OE-0336
16	Track 2, Del Rey Oaks	9/30/2001	USA, 2001d	*Final 4-Foot OE Removal & Investigation After Action Report, Inland Range Contract, Former Fort Ord, California, IT Corporation Support (HTW) .*	OE-0340
16	Track 2, Del Rey Oaks	10/13/2001	USA, 2001e	*Final 100% Grid Sampling 4' OE Removal Former Fort Ord, California. Site OE-15 Seaside 1-4, DRO.02, and MoCo 1 & 2 , After Action Report.*	OE-0338
16	Track 2, Del Rey Oaks	11/15/2001	USA, 2001f	*Final 4' OE Removal After Action Report, Inland Range Contract, Former Fort Ord, California, Former Fort Ord Fuel Breaks.*	OE-0362
16	Track 2, Del Rey Oaks	8/11/2003	Parsons, 2003	*Final OE-15 DRO 01-2 After-Action Report Geophysical Investigation of Eastern Boundary, Excavation of Range 26 Berm, and Clearance of Machine Gun Links from 12-Grid Area.*	OE-0293J
16	Track 2, Del Rey Oaks	7/28/2004	Army, 2004	*Finding of Suitability for Early Transfer (FOSET) with CERCLA 120(h)(3) Covenant Deferral, Del Rey Oaks Parcels. (Signed Version).*	FOSET-003K
16	Track 2, Del Rey Oaks	8/22/2007	MACTEC, 2007a	*Final Track 2 Munitions Response Remedial Investigation/ Feasibility Study, Del Rey Oaks Munitions Response Area, Former Fort Ord, California, Revision 1.*	OE-0615Q
16	Track 2, Del Rey Oaks	2/27/2008	DTSC, 2008	*Memorandum of Agreement (MOA) Among the Fort Ord Reuse Authority (FORA), Monterey County, and Cities of Seaside, Monterey, Del Rey Oaks and Marina, California State University Montery Bay, University of California Santa Cruz, Monterey Peninsula College, and the Department of Toxic Substances Control (DTSC) Concerning Monitoring and Reporting on Environmental Restrictions on the Former Fort Ord.* (MOA was finalized on February 27, 2008.)	Included in OE-0714A
16	Track 2, Del Rey Oaks	3/18/2008	DTSC, 2008a	*Letter from DTSC to Army conveying March 2008 Residential Protocol.*	OE-0637A
16	Track 2, Del Rey Oaks	11/21/2008	Army, 2008c	*Final Record of Decision, Del Rey Oaks Munitions Response Area, Track 2 Munitions Response Site, Former Fort Ord, California, Dated October 6, 2008. Signed by USEPA November 21, 2008.*	OE-0670

16	Track 2, Del Rey Oaks	7/30/2010	ARCADIS, 2010	*Draft Final Remedial Design/Remedial Action Work Plan, Del Rey Oaks Munitions Response Area, Former Fort Ord, Del Rey Oaks, California. (Includes MOA with FORA, et al. and DTSC Concerning Monitoring and Reporting on Environmental Restrictions.)*	OE-0714A
16	Track 2, Del Rey Oaks	8/20/2010	EPA, 2010	*Remedial Action Completion at the Del Rey Oaks Munitions Response Area.*	OE-0714A.2
16	Track 2, Del Rey Oaks	1/17/2012	Shaw, 2012	*Final Comprehensive Basewide Range Assessment Report, Former Fort Ord, California, Revision 2 (Volume 1-3)*	BW-2300L
16	Track 2, Del Rey Oaks	9/17/2012	City of Del Rey Oaks, 2012	*Amendment No. 1 and Partial Termination of Covenant to Restrict Use of Property Environmental Restriction.*	N/A
16	Track 2, Del Rey Oaks	1/3/2017	FORA, 2017	*Land Use Covenant Annual Reports for Reporting Period July 1, 2015 to June 30, 2016.*	ESCA-0332
16	Track 2, Del Rey Oaks	6/20/2017	Fort Ord BRAC, 2017	*Fort Ord Munitions Response Site Security Program Annual Report 2016.*	OE-0422Q
16	Track 2, Del Rey Oaks	9/8/2017	Army, 2017	*4th Five-Year Review Report for Fort Ord Superfund Site Monterey County, California.*	BW-2834
16	Track 2, Del Rey Oaks	4/17/2018	FORA, 2018a	*Land Use Covenant Annual Reports for Reporting Period July 1, 2016 to June 30, 2017.*	ESCA-0355
16	Track 2, Del Rey Oaks	4/30/2018	Fort Ord BRAC, 2018	*Fort Ord Munitions Response Site Security Program Annual Report 2017.*	OE-0422R
16	Track 2, Del Rey Oaks	11/30/2018	FORA, 2018b	*Land Use Covenant Annual Reports for Reporting Period July 1, 2017 to June 30, 2018.*	ESCA-0367
16	Track 2, Del Rey Oaks	5/15/2019	Fort Ord BRAC, 2019	*Fort Ord Munitions Response Site Security Program Annual Report 2018.*	OE-0422S
16	Track 2, Del Rey Oaks	8/28/2020	Fort Ord BRAC, 2020	*Fort Ord Munitions Response Site Security Program Annual Report 2019.*	OE-0422T
16	Track 2, Del Rey Oaks	12/15/2019	FORA, 2019	*Land Use Covenant Annual Reports for Reporting Period July 1, 2018 to June 30, 2019.*	ESCA-0381
16	Track 2, Del Rey Oaks	8/17/2020	Monterey County Department of Health, 2020	*Land Use Covenant Annual Reports for Reporting Period July 1, 2019 to June 30, 2020.*	ESCA-0386
16	Track 2, Del Rey Oaks	6/25/2021	Fort Ord BRAC, 2021	*Fort Ord Munitions Response Site Security Program Annual Report 2020.*	OE-0422V
Section 17					
17	Track 2, MRS-34	7/29/2015	Army, 2015b	*Final Record of Decision, Track 2 Munitions Response Site 34, Former Fritzsche Army Airfield, Former Fort Ord, California .*	OE-0866
17	Track 2, MRS-34	9/8/2017	Army, 2017	*4th Five-Year Review Report for Fort Ord Superfund Site Monterey County, California.*	BW-2834

Section 18					
18	BLM Area B and MRS-16	4/19/1995	Army, 1995b	*Memorandum of Understanding Between the U.S. Army and U.S. Department of the Interior, Bureau of Land Management*	OE-0006A
18	BLM Area B and MRS-16	10/18/1996	Army, 1996a	*Letter of Transfer, Portion of Former Fort Ord from the Department of the Army to the Department of the Interior, Bureau of Land Management Parcel A, Parcel B and Range Control Compound*	OE-0152
18	BLM Area B and MRS-16	9/20/2002	Army, 2002a	*Record of Decision, Interim Action for Ordnance and Explosives at Ranges 43-48, Range 30A, and Site OE-16, Former Fort Ord, California.*	OE-0414
18	BLM Area B and MRS-16	7/14/2009	Shaw, 2009b	*Final MRS-16 Munitions and Explosives of Concern, Remedial Action Report, Former Fort Ord, California, Revision 1, July 2009.*	OE-0682F
18	BLM Area B and MRS-16	4/8/2015	Army, 2015c	*Superfund Proposed Plan, Remedial Action is Proposed for BLM Area B and Muitions Response Site 16, Track 2 Munitions Response Remedial Investigation/Feasibility Study, Former Fort Ord, California*	OE-0846
18	BLM Area B and MRS-16	5/6/2015	Gilbane, 2015	*Final, Revision 2, Track 2 Munitions Response Remedial Investigation/Feasibility Study, BLM Area B and MRS-16, Former Fort Ord, California*	OE-0802D
18	BLM Area B and MRS-16	3/9/2017	Army, 2017b	*Final Record of Decision Track 2 Bureau of Land Management Area B and Munitions Response Site 16, Former Fort Ord, California*	OE-0897
18	BLM Area B and MRS-16	9/8/2017	Army, 2017	*4th Five-Year Review Report for Fort Ord Superfund Site Monterey County, California.*	BW-2834
18	BLM Area B and MRS-16	9/22/2017	POMFD, 2017	*Final, BLM Area B - Units A, B, and C Prescribed Burn Plan, Former Fort Ord, California.*	OE-0901B
18	BLM Area B and MRS-16	10/31/2017	KEMRON, 2017b	*Final Work Plan, Remedial Design (RD)/Remedial Action (RA) Track 2 Bureau of Land Management Area B and Munitions Response Site 16, Former Fort Ord, California.*	OE-0899B
18	BLM Area B and MRS-16	12/7/2017	KEMRON, 2017c	*Final, Site-Specific Work Plan, Munitions and Explosives of Concern Remedial Action, BLM Area B, Former Fort Ord, California.*	OE-0900B
18	BLM Area B and MRS-16	4/30/2018	Fort Ord BRAC, 2018b	*Land Use Control (LUC) Annual Report Form, BLM Area B & MRS-16, Former Fort Ord for 2017 reporting period.*	OE-0925
18	BLM Area B and MRS-16	4/30/2018	Fort Ord BRAC, 2018	*Fort Ord Munitions Response Site Security Program Annual Report 2017.*	OE-0422R

18	BLM Area B and MRS-16	6/29/2018	KEMRON, 2018c	*Final Interim Land Use Control Implementation Plan Track 2 Bureau of Land Management Area B and Munitions Response Site 16, Former Fort Ord, California.*	OE-0907B
18	BLM Area B and MRS-16	7/10/2018	KEMRON, 2018h	*Bureau of Land Management Area B Unit B-3E-NE, Munitions and Explosives of Concern Remedial Action Technical Information Paper, Former Fort Ord, California.*	OE-0930
18	BLM Area B and MRS-16	8/31/2018	Chenega, 2018	*Final, Prescribed Burn 2017, BLM Area B - Units B and C After-Action Report, Former Fort Ord, California.*	OE-0922B
18	BLM Area B and MRS-16	11/15/2018	KEMRON, 2018i	*Bureau of Land Management Area B Unit B-3E, Munitions and Explosives of Concern Remedial Action Technical Information Paper, Former Fort Ord, California.*	OE-0936A
18	BLM Area B and MRS-16	2/13/2019	KEMRON, 2019i	*Bureau of Land Management Area B Unit B-3W, Munitions and Explosives of Concern Remedial Action Technical Information Paper, Former Fort Ord, California.*	OE-0941A
18	BLM Area B and MRS-16	4/29/2019	Fort Ord BRAC, 2019b	*Land Use Control (LUC) Annual Report Form, BLM Area B & MRS-16, Former Fort Ord for 2018 reporting period.*	OE-0953
18	BLM Area B and MRS-16	5/15/2019	Fort Ord BRAC, 2019	*Fort Ord Munitions Response Site Security Program Annual Report 2018.*	OE-0422S
18	BLM Area B and MRS-16	6/14/2019	KEMRON, 2019j	*Bureau of Land Management Area B Unit C, Munitions and Explosives of Concern Remedial Action Technical Information Paper, Former Fort Ord, California.*	OE-0943B
18	BLM Area B and MRS-16	1/9/2020	KEMRON, 2020j	*Bureau of Land Management Area B Unit B-2A, Munitions and Explosives of Concern Remedial Action Technical Information Paper, Former Fort Ord, California.*	OE-0958A
18	BLM Area B and MRS-16	3/10/2020	KEMRON, 2020k	*Final BLM Area B Track 2 Ponds Geophysical Investigation Technical Information Paper, Former Fort Ord, California.*	OE-0966B
18	BLM Area B and MRS-16	3/19/2020	KEMRON, 2020L	*Bureau of Land Management Area B Unit A Munitions and Explosives of Concern Remedial Action Technical Information Paper, Former Fort Ord, California.*	OE-0974A
18	BLM Area B and MRS-16	3/25/2020	KEMRON, 2020m	*Final Bureau of Land Management Area B Unit B Technical Information Paper for Public Access on Trails, Former Fort Ord, California.*	OE-0978A
18	BLM Area B and MRS-16	4/21/2020	Fort Ord BRAC, 2020b	*Land Use Control (LUC) Annual Report Form, BLM Area B & MRS-16, Former Fort Ord for 2019 reporting period.*	OE-0990
18	BLM Area B and MRS-16	8/28/2020	Fort Ord BRAC, 2020	*Fort Ord Munitions Response Site Security Program Annual Report 2019.*	OE-0422T
18	BLM Area B and MRS-16	9/18/2020	Chenega Tri-Services, 2020	*Interim Land Use Control Implementation Plan Update, Track 2 Bureau of Land Management Area B and Munitions response Site 16, Former Fort Ord, California.*	OE-0993B
18	BLM Area B and MRS-16	10/2/2020	KEMRON, 2020p	*Bureau of Land Management Area B Remedial Action Report (2017-2019), Former Fort Ord, California.*	OE-0982A

18	BLM Area B and MRS-16	4/20/2021	Fort Ord BRAC, 2021b	*Land Use Control (LUC) Annual Report Form, BLM Area B & MRS-16, Former Fort Ord for 2020 reporting period.*	OE-1002
18	BLM Area B and MRS-16	6/25/2021	Fort Ord BRAC, 2021	*Fort Ord Munitions Response Site Security Program Annual Report 2020.*	OE-0422V
Sections 19 through 22					
19	ESCA Group 1	6/13/1997	FORA, 1997	*Fort Ord Base Reuse Plan.*	Not Applicable
19	ESCA Group 1	3/18/2008	DTSC, 2008a	*Letter from DTSC to Army conveying March 2008 Residential Protocol.*	OE-0637A
19	ESCA Group 1	8/6/2008	Army, 2008a	*Record of Decision Parker Flats Munitions Response Area Track 2 Munitions Response Site, Former Fort Ord, California.*	OE-0661
19	ESCA Group 1	12/17/2008	ESCA RP Team, 2008	*Final Group 1 Remedial Investigation/Feasibility Study Work Plan, Seaside Munitions Response Area and Parker Flats Munitions Response Area Phase II, Former Fort Ord, Monterey County, California.*	ESCA-0124
19	ESCA Group 1	9/21/2013	ESCA RP Team, 2013a	*Final Technical Information Paper, Parker Flats Munitions Response Area Phase II, Former Fort Ord, Monterey County, California.*	ESCA-0270A
19	ESCA Group 1	1/3/2017	FORA, 2017	*Land Use Covenant Annual Reports for Reporting Period July 1, 2015 to June 30, 2016.*	ESCA-0332
19	ESCA Group 1	3/29/2017	ESCA RP Team, 2017	*Final Group 1 Residential Protocol Implementation Technical Report, Seaside Munitions Response Area, Former Fort Ord, Monterey County, California.*	ESCA-0306C
19	ESCA Group 1	3/29/2017	ESCA RP Team, 2017a	*Final Residential Protocol Implementation Technical Report, Parker Flats Munitions Response Area, Former Fort Ord, Monterey County, California.*	ESCA-0311C
19	ESCA Group 1	5/4/2017	ESCA RP Team, 2017b	*Final Group 1 Remedial Investigation/Feasibility Study*	ESCA-0318B
19	ESCA Group 1	12/12/2017	ESCA RP Team, 2017c	*Final Group 1 Supplemental Residential Protocol Implementation Technical Report, Seaside Munitions Response Area, Former Fort Ord, Monterey County, California.*	ESCA-0342B
19	ESCA Group 1	4/17/2018	FORA, 2018a	*Land Use Covenant Annual Reports for Reporting Period July 1, 2016 to June 30, 2017.*	ESCA-0355
19	ESCA Group 1	6/18/2018	Arcadis/Weston, 2018	*On-Call Construction Support Plan Aquifer Storage and Recovery Well Site Expansion and Monterey Peninsula Water Supply Projects*	SITEFILE-54005
19	ESCA Group 1	9/19/2018	Army, 2018c	*Record of Decision Group 1 Seaside and Parker Flats (Phase II) Munitions Response Areas, Former Fort Ord, California*	ESCA-0359
19	ESCA Group 1	11/30/2018	FORA, 2018b	*Land Use Covenant Annual Reports for Reporting Period July 1, 2017 to June 30, 2018.*	ESCA-0367

19	ESCA Group 1	2/28/2019	EPA, 2019	*Remedial Action Completion at Group 1-Seaside and Parker Flats (Phase II) and Group 4-Future East Garrison Munitions Response Areas, Former Fort Ord, Monterey County, CA*	ESCA-0370
19	ESCA Group 1	11/5/2019	Arcadis/Weston, 2019	*Final Programmatic On-Site Construction Support Plan, Roadways and Utilities, Seaside MRA*	SITEFILE-54009
19	ESCA Group 1	12/15/2019	FORA, 2019	*Land Use Covenant Annual Reports for Reporting Period July 1, 2018 to June 30, 2019.*	ESCA-0381
19	ESCA Group 1	12/19/2019	ESCA RP Team, 2019	*Revised Final Group 1 Land Use Controls Implementation Plan / Operation and Maintenance Plan, Seaside and Parker Flats Munitions Response Areas, Former Fort Ord, Monterey County, California.*	ESCA-0361E
19	ESCA Group 1	4/14/2020	EPA, 2020	*Site-Wide Remedial Action Completion Report, FORA Environmental Services Cooperative Agreement (ESCA) Remediation Program, Former Fort Ord, Monterey County, California, March 2020*	ESCA-0383.3
19	ESCA Group 1	8/17/2020	Monterey County Department of Health, 2020	*Land Use Covenant Annual Reports for Reporting Period July 1, 2019 to June 30, 2020.*	ESCA-0386
19	ESCA Group 1	7/6/2021	Weston, 2021	*Final Programmatic On-Site Construction Support Plan Appendix A, Roadways and Utilities, Seaside MRA*	SITEFILE-54009A
20	ESCA Group 2	6/13/1997	FORA, 1997	*Fort Ord Base Reuse Plan.*	Not Applicable
20	ESCA Group 2	11/15/2007	Army, 2007b	*Final Finding of Suitability for Early Transfer (FOSET), Former Fort Ord, California, Environmental Services Cooperative Agreement (ESCA) Parcels and Non-ESCA Parcels (Operable Unit Carbon Tetrachloride Plume) (FOSET 5).*	FOSET-004J
20	ESCA Group 2	3/18/2008	DTSC, 2008a	*Letter from DTSC to Army conveying March 2008 Residential Protocol.*	OE-0637A
20	ESCA Group 2	2/16/2010	Army, 2010a	*Final Track 1 Plug-In Approval Memorandum, County North Munitions Response Area, Former Fort Ord, California.*	ESCA-0169A
20	ESCA Group 2	10/8/2012	ESCA RP Team, 2012a	*Final Residential Quality Assurance Process Pilot Study Technical Information Paper CSUMB Off-Campus Munitions Response Area, Former Fort Ord, Monterey County, California.*	ESCA-0257B
20	ESCA Group 2	2/18/2013	ESCA RP Team, 2013b	*Final Group 2 Remedial Investigation/Feasibility Study, California State University Off-Campus Munitions Response Area, Former Fort Ord, Monterey County, California.*	ESCA-0177E
20	ESCA Group 2	2/28/2014	DTSC, 2014	*Letter from DTSC to FORA regarding FORA email dated January 22, 2014, for evaluation (contrast and comparison) of Fort Ord ESCA RQA Process and the DTSC Statewide Residential Protocol.*	Not Applicable

20	ESCA Group 2	10/21/2014	ESCA RP Team, 2014	*Final Residential Protocol Implementation Report, California State University Off-Campus Munitions Response Area, Former Fort Ord, Monterey County, California. October 21.*	ESCA-0284B
20	ESCA Group 2	2/26/2015	Army, 2015d	*Record of Decision Group 2 California State University Monterey Bay Off-Campus Munitions Response Area, Former Fort Ord, California.*	ESCA-0298
20	ESCA Group 2	1/3/2017	FORA, 2017	*Land Use Covenant Annual Reports for Reporting Period July 1, 2015 to June 30, 2016.*	ESCA-0332
20	ESCA Group 2	9/8/2017	Army, 2017	*Final Fourth Five-Year Review Report for Fort Ord Superfund Site, Monterey, California. September 2017*	BW-2834
20	ESCA Group 2	4/17/2018	FORA, 2018a	*Land Use Covenant Annual Reports for Reporting Period July 1, 2016 to June 30, 2017.*	ESCA-0355
20	ESCA Group 2	9/7/2018	ESCA RP Team, 2018	*Final Group 2 Land Use Controls Implementation Plan/ Operation and Maintenance Plan, California State University Off-Campus Munitions Response Area, Former Fort Ord, Monterey County, California.*	ESCA-0305B
20	ESCA Group 2	9/27/2018	EPA, 2018	*Remedial Action Completion at Interim Action Ranges, California State University Monterey Bay Off-Campus, Del Rey Oaks/Monterey, Laguna Seca Parking, and Military Operations in Urban Terrain Site Munitions Response Areas, Former Fort Ord, Monterey County, CA*	ESCA-0363
20	ESCA Group 2	11/30/2018	FORA, 2018b	*Land Use Covenant Annual Reports for Reporting Period July 1, 2017 to June 30, 2018.*	ESCA-0367
20	ESCA Group 2	12/15/2019	FORA, 2019	*Land Use Covenant Annual Reports for Reporting Period July 1, 2018 to June 30, 2019.*	ESCA-0381
20	ESCA Group 2	4/14/2020	EPA, 2020	*Site-Wide Remedial Action Completion Report, FORA Environmental Services Cooperative Agreement (ESCA) Remediation Program, Former Fort Ord, Monterey County, California, March 2020*	ESCA-0383.3
20	ESCA Group 2	8/17/2020	Monterey County Department of Health, 2020	*Land Use Covenant Annual Reports for Reporting Period July 1, 2019 to June 30, 2020.*	ESCA-0386
21	ESCA Group 3	4/1/1997	USACE, 1997	*Installation-Wide Multispecies Habitat Management Plan for Former Fort Ord, California (HMP). With technical assistance from Jones and Stokes Associates, Sacramento, California.*	BW-1787
21	ESCA Group 3	6/13/1997	FORA, 1997	*Fort Ord Base Reuse Plan.*	Not Applicable
21	ESCA Group 3	4/19/2001	USA, 2001g	*Final After Action Report, Site OE-14D (14 West), Former Fort Ord, California.*	OE-0301A

21	ESCA Group 3	11/15/2007	Army, 2007b	*Final Finding of Suitability for Early Transfer (FOSET), Former Fort Ord, California, Environmental Services Cooperative Agreement (ESCA) Parcels and Non-ESCA Parcels (Operable Unit Carbon Tetrachloride Plume) (FOSET 5).*	FOSET-004J
21	ESCA Group 3	7/31/2012	ESCA RP Team, 2012b	*Final Group 3 Remedial Investigation/Feasibility Study, Del Rey Oaks/Monterey, Laguna Seca Parking, and Military Operations in Urban Terrain Site Munitions Response Areas, Former Fort Ord, Monterey County, California.*	ESCA-0249B
21	ESCA Group 3	11/25/2014	Army, 2014	*Record of Decision, Group 3 Del Rey Oaks/Monterey, Laguna Seca Parking, and Military Operations in Urban Terrain Site Munitions Response Areas, Former Fort Ord, California.*	ESCA-0293
21	ESCA Group 3	1/3/2017	FORA, 2017	*Land Use Covenant Annual Reports for Reporting Period July 1, 2015 to June 30, 2016.*	ESCA-0332
21	ESCA Group 3	4/17/2018	FORA, 2018a	*Land Use Covenant Annual Reports for Reporting Period July 1, 2016 to June 30, 2017.*	ESCA-0355
21	ESCA Group 3	9/21/2018	ESCA RP Team, 2018	*Final Group 3 Land Use Controls Implementation Plan/Operation and Maintenance Plan, Del Rey Oaks/Monterey, Laguna Seca Parking, and Military Operations in Urban Terrain Site Munitions Response Areas, Former Fort Ord, Monterey County, California.*	ESCA-0301B
21	ESCA Group 3	9/27/2018	EPA, 2018	*Remedial Action Completion at Interim Action Ranges, California State University Monterey Bay Off-Campus, Del Rey Oaks/Monterey, Laguna Seca Parking, and Military Operations in Urban Terrain Site Munitions Response Areas, Former Fort Ord, Monterey County, CA*	ESCA-0363
21	ESCA Group 3	11/30/2018	FORA, 2018b	*Land Use Covenant Annual Reports for Reporting Period July 1, 2017 to June 30, 2018.*	ESCA-0367
21	ESCA Group 3	12/15/2019	FORA, 2019	*Land Use Covenant Annual Reports for Reporting Period July 1, 2018 to June 30, 2019.*	ESCA-0381
21	ESCA Group 3	4/14/2020	EPA, 2020	*Site-Wide Remedial Action Completion Report, FORA Environmental Services Cooperative Agreement (ESCA) Remediation Program, Former Fort Ord, Monterey County, California, March 2020*	ESCA-0383.3
21	ESCA Group 3	8/17/2020	Monterey County Department of Health, 2020	*Land Use Covenant Annual Reports for Reporting Period July 1, 2019 to June 30, 2020.*	ESCA-0386
22	ESCA Group 4	4/1/1997	USACE, 1997	*Installation-Wide Multispecies Habitat Management Plan for Former Fort Ord, California (HMP). With technical assistance from Jones and Stokes Associates, Sacramento, California.*	BW-1787
22	ESCA Group 4	6/13/1997	FORA, 1997	*Fort Ord Base Reuse Plan.*	Not Applicable

22	ESCA Group 4	3/18/2008	DTSC, 2008a	*Letter from DTSC to Army conveying March 2008 Residential Protocol.*	OE-0637A
22	ESCA Group 4	10/8/2010	ESCA RP Team, 2010	*Final Group 4 Remedial Investigation/Feasibility Study Work Plan, Future East Garrison Munitions Response Area, Former Fort Ord, Monterey County, California.*	ESCA-0233C
22	ESCA Group 4	2/28/2014	DTSC, 2014	*Letter from DTSC to FORA regarding FORA email dated January 22, 2014, for evaluation (contrast and comparison) of Fort Ord ESCA RQA Process and the DTSC Statewide Residential Protocol.*	Not Applicable
22	ESCA Group 4	4/15/2016	ESCA RP Team, 2016	*Final Group 4 Remedial Investigation Technical Information Paper, Future East Garrison Munitions Response Area, Former Fort Ord, Monterey County, California.*	ESCA-0320A
22	ESCA Group 4	6/15/2017	ESCA RP Team, 2017b	*Final Residential Protocol Implementation Technical Report, Future East Garrison Munitions Response Area, Former Fort Ord, Monterey County, California.*	ESCA-0326B
22	ESCA Group 4	6/21/2017	ESCA RP Team, 2017d	*Final Group 4 Remedial Investigation/Feasibility Study, Future East Garrison Munitions Response Area, Former Fort Ord, Monterey County, California*	ESCA-0322B
22	ESCA Group 4	9/19/2018	Army, 2018	*Final Record of Decision Group 4 Future East Garrison Munitions Response Area, Former Ft. Ord, California.*	ESCA-0360
22	ESCA Group 4	2/22/2019	ESCA RP Team, 2019a	*Final Land Use Controls Implementation Plan / Operation and Maintenance Plan, Future East Garrison Munitions Response Area, Former Fort Ord, California*	ESCA-0364B
22	ESCA Group 4	2/28/2019	EPA, 2019	*Remedial Action Completion at Group 1-Seaside and Parker Flats (Phase II) and Group 4-Future East Garrison Munitions Response Areas, Former Fort Ord, Monterey County, CA*	ESCA-0370
22	ESCA Group 4	4/14/2020	EPA, 2020	*Site-Wide Remedial Action Completion Report, FORA Environmental Services Cooperative Agreement (ESCA) Remediation Program, Former Fort Ord, Monterey County, California, March 2020*	ESCA-0383.3
Section 23					
23	ESCA IA Ranges	10/1/1988	EPA, 1988	*US EPA Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA, EPA/540/G-89/004 OWSER Directive 9355.3-01 October 1988*	Not Applicable
23	ESCA IA Ranges	3/7/2002	Harding ESE, 2002	*Final Interim Action Ordnance and Explosives Remedial Investigation/Feasibility Study For Ranges 43-48, Range 30A, Site OE-16, Former Fort Ord, California.*	OE-0332JJ
23	ESCA IA Ranges	9/20/2002	Army, 2002a	*Record of Decision, Interim Action for Ordnance and Explosives at Ranges 43-48, Range 30A, and Site OE-16, Former Fort Ord, California.*	OE-0414

23	ESCA IA Ranges	1/26/2007	Parsons, 2007	*Final MRS-Ranges 43-48 Interim Action Technical Information Paper, Former Fort Ord, Monterey, California, Military Munitions Response Program.*	OE-0590L
23	ESCA IA Ranges	5/24/2011	ESCA RP Team, 2011	*Final Phase II Interim Action Work Plan, Interim Action Ranges Munitions Response Area, Former Fort Ord, Monterey County, California.*	ESCA-0252B
23	ESCA IA Ranges	1/28/2015	ESCA RP Team, 2015a	*Final Interim Remedial Action Completion Report, Interim Action Ranges Munitions Response Area, Phase II, Former Fort Ord, Monterey County, California.*	ESCA-0285B
23	ESCA IA Ranges	10/23/2015	ESCA RP Team, 2015b	*Final Focused Feasibility Study, Interim Action Ranges Munitions Response Area, Former Fort Ord, Monterey County, California.*	ESCA-0310A
23	ESCA IA Ranges	1/3/2017	FORA, 2017	*Land Use Covenant Annual Reports for Reporting Period July 1, 2015 to June 30, 2016.*	ESCA-0332
23	ESCA IA Ranges	1/18/2017	Army, 2017a	*Record of Decision, Interim Action Ranges Munitions Response Area, Former Fort Ord, California*	ESCA-0331
23	ESCA IA Ranges	9/8/2017	Army, 2017	*4th Five-Year Review Report for Fort Ord Superfund Site Monterey County, California.*	BW-2834
23	ESCA IA Ranges	4/17/2018	FORA, 2018a	*Land Use Covenant Annual Reports for Reporting Period July 1, 2016 to June 30, 2017.*	ESCA-0355
23	ESCA IA Ranges	8/8/2018	FORA, 2018c	*Final Land Use Controls Implementation Plan/Operation and Maintenance Plan, Interim Action Ranges Munitions Response Area, Former Fort Ord, Monterey County, California.*	ESCA-0337B
23	ESCA IA Ranges	9/27/2018	EPA, 2018	*Remedial Action Completion at Interim Action Ranges (IAR), California State University Monterey Bay Off-Campus (Group 2), Del Rey Oaks/Monterey, Laguna Seca Parking, and Military Operations in Urban Terrain Site (Group 3) Munitions Repsonse Areas, Former Fort Ord, Monterey County, CA.*	ESCA-0363
23	ESCA IA Ranges	11/30/2018	FORA, 2018b	*Land Use Covenant Annual Reports for Reporting Period July 1, 2017 to June 30, 2018.*	ESCA-0367
23	ESCA IA Ranges	12/15/2019	FORA, 2019	*Land Use Covenant Annual Reports for Reporting Period July 1, 2018 to June 30, 2019.*	ESCA-0381
23	ESCA IA Ranges	2/18/2020	FORA ESCA RP, 2020	*2019 Annual Natural Resource Monitoring, Mitigation, and Management Report - Covering Activities Conducted from 1 January 2019 through 31 December 2019, FORA ESCA RP.*	ESCA-0382
23	ESCA IA Ranges	6/15/2020	USFWS, 2020	*Request for Cessation of Monitoring in Environmental Services Cooperative Agreement Munitions Response Areas Under the Programmatic Biological Opinion for Cleanup and Property Transfer Actions Conducted at the Former Fort Ord, Monterey County, California (2017-F-0094).*	ESCA-0385
23	ESCA IA Ranges	8/17/2020	Monterey County Department of Health, 2020	*Land Use Covenant Annual Reports for Reporting Period July 1, 2019 to June 30, 2020.*	ESCA-0386

Section 24					
24	Other Investigations	3/30/2022	Ahtna, 2022r	*Draft Final Preliminary Assessment Narrative Report Per- and Polyfluoroalkyl Substances, Former Fort Ord, California*	BW-2904A
24	Other Investigations	5/18/2022	EPA, 2022a	*EPA Adds Five PFAS Chemicals to List of Regional Screening and Removal Management Levels to Protect Human Health and the Environment, https://www.epa.gov/newsreleases/epa-adds-five-pfas-chemicals-list-regional-screening-and-removal-management-levels*	NA
24	Other Investigations	6/15/2022	EPA, 2022b	*EPA Announces New Drinking Water Health Advisories for PFAS Chemicals, https://www.epa.gov/newsreleases/epa-announces-new-drinking-water-health-advisories-pfas-chemicals-1-billion-bipartisan*	NA

APPENDIX B

Site Inspection Forms

Five-Year Review Site Inspection Checklist
Operable Unit 2

I. SITE INFORMATION	
Site name: Operable Unit 2	**Date of inspection: August 5, 2021**
Location and Region: Former Fort Ord, California	**EPA ID: CA7210020676**
Agency, office, or company leading the five-year review: U.S. Department of the Army	**Weather/temperature: Sunny/high 60's low 70's**

Remedy Includes: (Check all that apply)

- x Landfill cover/containment
- x Access controls
- x Institutional controls
- x Groundwater pump and treatment
- ☐ Surface water collection and treatment
- ☐ Monitored natural attenuation
- x Groundwater containment
- ☐ Vertical barrier walls
- x **Other Video monitoring with telematics installed (enhancement to the institutional control)**

Attachments: ☐ Inspection team roster attached x **Site inspection photos attached**

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** **Derek Lieberman** (Name) **Ahtna Senior Program Manager** (Title) **08/05/2021** (Date)
   Interviewed ☐ at site ☐ at office ☐ by phone Phone no. **831.384.3735**
   Problems, suggestions; ☐ Report attached _____

2a. **O&M staff** **Eric Schmidt** (Name) **Ahtna Landfills Task Manager** (Title) **08/05/2021** (Date)
   Interviewed **x at site** ☐ at office ☐ by phone Phone no. **831.384.3735**
   Problems, suggestions; ☐ Report attached _____

2b. **O&M staff** **Mark Fisler** (Name) **Ahtna Senior Treatment System Operator** (Title) **08/05/2021** (Date)
   Interviewed **x at site** ☐ at office ☐ by phone Phone no. **831.384.3735**
   Problems, suggestions; ☐ Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

   Agency _____
   Contact _____ (Name) _____ (Title) _____ (Date) _____ (Phone no.)

4. **Other interviews** (optional) ☐ Report attached.

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)				
1.	**O&M Documents**			
	x O&M manual	x Readily available	x Up to date	☐ N/A
	x As-built drawings	x Readily available	x Up to date	☐ N/A
	x Maintenance logs	x Readily available	x Up to date	☐ N/A
	Remarks: **Documents maintained in the U.S. Department of the Army contractor's OU2 GWTP Office.**			
2.	**Site-Specific Health and Safety Plan**	x Readily available	x Up to date	☐ N/A
	x Contingency plan/emergency response plan	x Readily available	x Up to date	☐ N/A
	Remarks: **Accident Prevention Plan in accordance with EM 385-1-1 Safety and Health Requirements Manual maintained in the U.S. Department of the Army contractor's OU2 GWTP office.**			
3.	**O&M and OSHA Training Records**	x Readily available	x Up to date	☐ N/A
	Remarks: **Documents maintained in the U.S. Department of the Army contractor's OU2 GWTP office**.			
4.	**Permits and Service Agreements**			
	☐ Air discharge permit	☐ Readily available	☐ Up to date	☐ N/A
	☐ Effluent discharge	☐ Readily available	☐ Up to date	☐ N/A
	☐ Waste disposal, POTW	☐ Readily available	☐ Up to date	☐ N/A
	x **Other permits: Landfill**	x Readily available	x Up to date	☐ N/A
	Remarks: **Permit maintained at contractors office**			
5.	**Gas Generation Records**	x Readily available	x Up to date	☐ N/A
	Remarks: **Records maintained for associated landfill in the Annual Reports.**			
6.	**Settlement Monument Records**	x Readily available	☐ Up to date	☐ N/A
	Remarks: **Records maintained in the Admin Records.**			
7.	**Groundwater Monitoring Records**	☐ Readily available	x Up to date	☐ N/A
	Remarks: **Records maintain in the Admin records at Fortordcleanup.com and on FODIS (online)**			
8.	**Leachate Extraction Records**	☐ Readily available	☐ Up to date	x N/A
	Remarks_____			
9.	**Discharge Compliance Records**			
	x Air	☐ Readily available	x Up to date	☐ N/A
	x Water (effluent)	☐ Readily available	x Up to date	☐ N/A
	Remarks: **Records maintained in the Annual Reports.**			
10.	**Daily Access/Security Logs**	x Readily available	☐ Up to date	☐ N/A
	Remarks: **Records maintained in the U.S. Department of the Army contractor's OU2 GWTP office.**			

IV. O&M COSTS

1. **O&M Organization**
   ☐ State in-house ☐ Contractor for State
   ☐ PRP in-house ☐ Contractor for PRP
   ☐ Federal Facility in-house ☒ Contractor for Federal Facility
   ☐ Other_____

2. **O&M Cost Records**
   ☐ Readily available ☒ Up to date
   ☒ Funding mechanism/agreement in place
   Original O&M cost estimate **$485,000/yr (1994$) per OU2 ROD** ☐ Breakdown attached

   Total annual cost by year for review period if available

From	08/2016 (Date)	To	08/2017 (Date)	$1,205,831 (Total cost)	☒ Breakdown attached
From	08/2017 (Date)	To	08/2018 (Date)	$1,202,587 (Total cost)	☒ Breakdown attached
From	08/2018 (Date)	To	08/2019 (Date)	$1,590,266 (Total cost)	☒ Breakdown attached
From	08/2019 (Date)	To	08/2020 (Date)	$1,418,035 (Total cost)	☒ Breakdown attached
From	08/2020 (Date)	To	08/2021 (Date)	$920,000 (Total cost)	☒ Breakdown attached

3. **Unanticipated or Unusually High O&M Costs During Review Period**
   Describe costs and reasons: **Costs are higher than original estimates due to significant expansion of groundwater extraction and treatment operations and inclusion of thermal treatment Unit (TTU) for landfill gas that were not in the original ROD estimates, in addition to inflation.**

V. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

A. Fencing

1. **Fencing damaged** ☐ Location shown on site map ☒ Gates secured ☐ N/A
   Remarks: **GWTP compound and Landfill perimeter fenced; fencing in good condition. Keys to gate locks are properly controlled and assigned to appropriate personnel.**

B. Other Access Restrictions

1. **Signs and other security measures** ☐ Location shown on site map ☐ N/A
   Remarks: **Gates closed to keep general access from entering.**

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented ☐ Yes **x** No ☐ N/A
Site conditions imply ICs not being fully enforced ☐ Yes **x** No ☐ N/A

Type of monitoring (*e.g.*, self-reporting, drive by): **Site inspections, self-reporting**
Frequency: **Annually**
Responsible party/agency: **U.S. Department of the Army**
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date **x** Yes ☐ No ☐ N/A
Reports are verified by the lead agency **x** Yes ☐ No ☐ N/A

Specific requirements in deed or decision documents have been met **x** Yes ☐ No ☐ N/A
Violations have been reported ☐ Yes **x** No ☐ N/A
Other problems or suggestions: ☐ Report attached

2. **Adequacy** **x ICs are adequate** ☐ ICs are inadequate ☐ N/A
Remarks_____

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map **x No vandalism evident**
Remarks_____

2. **Land use changes on site** ☐ N/A
Remarks: **New GWTP**

3. **Land use changes off site** **x** N/A
Remarks_____

VI. GENERAL SITE CONDITIONS

A. Roads ☐ Applicable ☐ N/A

1. **Roads damaged** ☐ Location shown on site map **x** Roads adequate ☐ N/A
Remarks_____

B. Other Site Conditions

Remarks _____

_____

VII. LANDFILL COVERS x Applicable ☐ N/A

A. Landfill Surface

1. **Settlement** (Low spots) ☐ Location shown on site map ☐ Settlement not evident
   Areal extent_____ Depth_____
   Remarks: **Minor low spots at Area F due to trench and fill disposal method.**

2. **Cracks** ☐ Location shown on site map x Cracking not evident
   Lengths_____ Widths_____ Depths_____
   Remarks_____
   _____

3. **Erosion** ☐ Location shown on site map x Erosion not evident
   Areal extent_____ Depth_____
   Remarks_____
   _____

4. **Holes** ☐ Location shown on site map x Holes not evident
   Areal extent_____ Depth_____
   Remarks: **Minor burrowing under control.**

5. **Vegetative Cover** ☐ Grass x Cover properly established ☐ No signs of stress
   ☐ Trees/Shrubs (indicate size and locations on a diagram)
   Remarks: **Small shrubs about one foot, willows low risk of penetration to landfill cap.**

6. **Alternative Cover (armored rock, concrete, etc.)** x N/A
   Remarks_____
   _____

7. **Bulges** ☐ Location shown on site map x Bulges not evident
   Areal extent_____ Height_____
   Remarks_____
   _____

8. **Wet Areas/Water Damage** x Wet areas/water damage not evident
   ☐ Wet areas ☐ Location shown on site map Areal extent_____
   ☐ Ponding ☐ Location shown on site map Areal extent_____
   ☐ Seeps ☐ Location shown on site map Areal extent_____
   ☐ Soft subgrade ☐ Location shown on site map Areal extent_____
   Remarks_____
   _____

9. **Slope Instability** ☐ Slides ☐ Location shown on site map x No evidence of slope instability
   Areal extent_____
   Remarks_____
   _____

B. Benches ☒ Applicable ☐ N/A

(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)

1. **Flows Bypass Bench** ☐ Location shown on site map ☒ N/A or okay
   Remarks_____

2. **Bench Breached** ☐ Location shown on site map ☒ N/A or okay
   Remarks_____

3. **Bench Overtopped** ☐ Location shown on site map ☒ N/A or okay
   Remarks_____

C. Letdown Channels ☐ Applicable ☒ N/A

(Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)

1. **Settlement** ☐ Location shown on site map ☒ No evidence of settlement
   Areal extent_____ Depth_____
   Remarks_____

2. **Material Degradation** ☐ Location shown on site map ☒ No evidence of degradation
   Material type_____ Areal extent_____
   Remarks_____

3. **Erosion** ☐ Location shown on site map ☒ No evidence of erosion
   Areal extent_____ Depth_____
   Remarks_____

4. **Undercutting** ☐ Location shown on site map **x** No evidence of undercutting
Areal extent_____ Depth_____
Remarks_____

5. **Obstructions** Type_____ **x** No obstructions
☐ Location shown on site map Areal extent_____
Size_____
Remarks_____

6. **Excessive Vegetative Growth** Type_____
x No evidence of excessive growth
☐ Vegetation in channels does not obstruct flow
☐ Location shown on site map Areal extent_____
Remarks_____

D. Cover Penetrations **x** Applicable ☐ N/A

1. **Gas Vents** ☐ Active **x** Passive
x Properly secured/locked **x** Functioning **x** Routinely sampled **x** Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance
☐ N/A
Remarks_____

2. **Gas Monitoring Probes**
x Properly secured/locked **x** Functioning **x** Routinely sampled **x** Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks_____

3. **Monitoring Wells** (within surface area of landfill)
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance **x** N/A
Remarks_____

4. **Leachate Extraction Wells**
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance **x** N/A
Remarks_____

5. **Settlement Monuments** **x** Located ☐ Routinely surveyed ☐ N/A
Remarks_____

E. Gas Collection and Treatment ☒ Applicable ☐ N/A

1. **Gas Treatment Facilities**
   ☒ Flaring ☒ Thermal destruction ☐ Collection for reuse
   ☒ Good condition ☐ Needs Maintenance
   Remarks_____

2. **Gas Collection Wells, Manifolds and Piping**
   ☒ Good condition ☐ Needs Maintenance
   Remarks_____

3. **Gas Monitoring Facilities** (*e.g.*, gas monitoring of adjacent homes or buildings)
   ☐ Good condition ☐ Needs Maintenance ☒ N/A
   Remarks_____

F. Cover Drainage Layer ☒ Applicable ☐ N/A

1. **Outlet Pipes Inspected** ☒ Functioning ☐ N/A
   Remarks_____

2. **Outlet Rock Inspected** ☒ Functioning ☐ N/A
   Remarks_____

G. Detention/Sedimentation Ponds ☒ Applicable ☐ N/A

1. **Siltation** Areal extent_____ Depth_____ ☐ N/A
   ☒ Siltation not evident
   Remarks_____

2. **Erosion** Areal extent_____ Depth_____
   ☒ Erosion not evident
   Remarks_____

3. **Outlet Works** ☐ Functioning ☒ N/A
   Remarks_____

4. **Dam** ☐ Functioning ☒ N/A
   Remarks_____

H. Retaining Walls ☐ Applicable ☒ N/A

1. **Deformations** ☐ Location shown on site map ☐ Deformation not evident
   Horizontal displacement_____ Vertical displacement_____
   Rotational displacement_____
   Remarks_____

2. **Degradation** ☐ Location shown on site map ☐ Degradation not evident
   Remarks_____

I. Perimeter Ditches/Off-Site Discharge ☒ Applicable ☐ N/A

1. **Siltation** ☐ Location shown on site map ☒ Siltation not evident
   Areal extent_____ Depth_____
   Remarks_____

2. **Vegetative Growth** ☐ Location shown on site map ☐ N/A
   ☒ Vegetation does not impede flow
   Areal extent_____ Type_____
   Remarks_____

3. **Erosion** ☐ Location shown on site map ☒ Erosion not evident
   Areal extent_____ Depth_____
   Remarks_____

4. **Discharge Structure** ☒ Functioning ☐ N/A
   Remarks_____

VIII. VERTICAL BARRIER WALLS ☐ Applicable ☒ N/A

1. **Settlement** ☐ Location shown on site map ☐ Settlement not evident
   Areal extent_____ Depth_____
   Remarks_____

2. **Performance Monitoring** Type of monitoring_____
   ☐ Performance not monitored
   Frequency_____ ☐ Evidence of breaching
   Head differential_____
   Remarks_____

IX. GROUNDWATER/SURFACE WATER REMEDIES ☒ Applicable ☐ N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines ☒ Applicable ☐ N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
☒ Good condition ☒ All required wells properly operating ☐ Needs Maintenance ☐ N/A
Remarks_____

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
☒ Good condition☐ Needs Maintenance
Remarks_____

3. **Spare Parts and Equipment**
☒ Readily available ☐ Good condition☐ Requires upgrade ☐ Needs to be provided
Remarks_____

B. Surface Water Collection Structures, Pumps, and Pipelines ☐ Applicable ☒ N/A

1. **Collection Structures, Pumps, and Electrical**
☐ Good condition☐ Needs Maintenance
Remarks_____

2. **Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
☐ Good condition☐ Needs Maintenance
Remarks_____

3. **Spare Parts and Equipment**
☐ Readily available ☐ Good condition☐ Requires upgrade ☐ Needs to be provided
Remarks_____

C. Treatment System x Applicable ☐ N/A

1. **Treatment Train** (Check components that apply)
☐ Metals removal ☐ Oil/water separation ☐ Bioremediation
☐ Air stripping x Carbon adsorbers
☐ Filters_____
☐ Additive (*e.g.*, chelation agent, flocculent)_____
☐ Others_____
x Good condition ☐ Needs Maintenance
x Sampling ports properly marked and functional
x Sampling/maintenance log displayed and up to date
x Equipment properly identified
x Quantity of groundwater treated annually **435 million gallons (2019-2020)**
☐ Quantity of surface water treated annually
Remarks **Volume of treated water calculated from sum of volumes from OU2 and OUCTP in the Fourth Quarter 2019 through Third Quarter 2020 Quarterly Report.**

2. **Electrical Enclosures and Panels** (properly rated and functional)
☐ N/A x Good condition ☐ Needs Maintenance
Remarks_____
_____

3. **Tanks, Vaults, Storage Vessels**
☐ N/A x Good condition x Proper secondary containment ☐ Needs Maintenance
Remarks_____
_____

4. **Discharge Structure and Appurtenances**
☐ N/A x Good condition ☐ Needs Maintenance
Remarks_____
_____

5. **Treatment Building(s)**
☐ N/A x Good condition (esp. roof and doorways) ☐ Needs repair
x Chemicals and equipment properly stored
Remarks_____
_____

6. **Monitoring Wells** (pump and treatment remedy)
x Properly secured/locked x Functioning x Routinely sampled x Good condition
x All required wells located ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

D. Monitoring Data

1. Monitoring Data
x Is routinely submitted on time x Is of acceptable quality

2. Monitoring data suggests:
☐ Groundwater plume is effectively contained ☐ Contaminant concentrations are declining

D. Monitored Natural Attenuation

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ All required wells located ☐ Needs Maintenance ☒ N/A
Remarks_____
_____

X. OTHER REMEDIES

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

The OU2 groundwater treatment system is generally functioning in accordance with the system design and modification criteria. Based on quarterly and annual reports the system is capturing and reducing the groundwater plume at OU2; however, the A-Aquifer has lost effective capture of the COC plume due to a groundwater divide. Additionally, the Upper 180-foot TCE plume is migrating east through a discontinuity in the Intermediate 180-Foot Aquitard. Currently these areas of lost capture have not left the protection zone, but additional action is recommended for the future. The OU2 Landfill cover system is functioning in accordance with the design criteria.

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

C.	**Early Indicators of Potential Remedy Problems**
	Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future. **A high rate of submersible pump failure has occurred in the last 2 years increasing projected O&M costs. The Upper 180-foot Aquifer is migrating east into the lower 180-foot aquifer showing signs of increased TCE concentrations which will require maintenance on additional wells and increase costs. COCs migrating outside of the zone of effective capture in the A-Aquifer will require an expansion of Eastern Network A wells north of the Abrams/Imjin Network to reduce the time of cleanup.**
D.	**Opportunities for Optimization**
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. **To effectively reduce the contaminant plume in the Upper 180-foot aquifer the evaluation and optimization report of 2021 recommends one or more Upper 180-foot aquifer EWs east of Area F to prevent vertical migration of OU2 COCs into the Lower 180-foot Aquifer.** **Monitoring tasks will be improved through replacing air/vacuum valves on all new Upper 180-Foot Aquifer EW's to remedy breakage caused by lids. Upgrades on radio communications between the GWTP and EW networks.** **Other recommendations include implementing a long-term preventative maintenance schedule to include video logging of the EW casing screen at each major EW rehabilitation, testing annually for specific capacity and pump performance and take field parameter measurements quarterly. See 2021 OU2 GWTS Evaluation and Optimization Report for more recommendations.**
E.	**Additional Questions/Comments**

1. What is your current role as it relates to the site?

Derek Lieberman is the Senior Program Manager for Ahtna.

2. Explain the purpose of the system and list what contaminants it is treating for
GWTS: protect human health and comply with federal and state law by returning groundwater to a condition that will allow beneficial uses to occur, including potential future use as a drinking water source. Specifically, the remedial action objective is to remediate chemicals of concern (COCs) in the A-Aquifer and Upper 180-Foot Aquifer to federal or State drinking water Maximum Contaminant Levels or lower for some COCs. These goals are accomplished through hydraulic control and containment of contaminated groundwater, and through extraction and treatment of groundwater exceeding ACLs. The OU2 groundwater plume is characterized by the presence of eleven COCs in groundwater in the A-Aquifer and Upper 180-Foot Aquifer at concentrations above their respective ACLs: benzene, carbon tetrachloride, chloroform, 1,1-DCA, 1,2-DCA, cis-1,2-DCE, 1,2-DCP, methylene chloride, PCE, TCE, and vinyl chloride. Landfills engineered cover system: prevent rainwater percolation through waste buried in the landfills and prevent exposure of sanitary waste in the landfills materials to the surrounding environment.
Landfill gas extraction and treatment system: provide for the protection of public health and safety and the environment in accordance with Title 27 of California Code of Regulations, which requires that methane concentrations do not exceed 5 percent by volume (%v) in air at the landfill property boundary. Also,

control trace gases to prevent adverse acute and chronic exposure to toxic and/or carcinogenic compounds.

2-A. What is your overall impression of the system with regards to safety, efficiency and effectiveness?

The system is very safe due to GWTP operator's diligence and safe workspace. Power costs went up with new GWTP as expected. The effectiveness of the Upper 180-foot Aquifer and A-Aquifer could be improved by expanding extraction well networks.

2-B. Have any system enhancements been made since the 2017 FYR? If so, explain
New GWTP wells (EW-OU2-17-A, EW-OU2-18-A, EW-OU2-19-A, and EW-OU2-20-A) (EW-OU2-10-180, EW-OU2-11-180, and EW-OU2-12-180)

2-C. Are there any improvements you recommend to system operation to improve these areas?

COCs migrating outside of the A-Aquifer will require an expansion of Eastern Network A wells north of the Abram/Imjin Network to reduce the time of cleanup.

3-A. Is there a continuous on-site O&M presence or is there the ability to monitor the system remotely (If so describe)?

Mark and Steven are on site everyday Monday through Friday. The SCADA system sensors for leak detection and can report problems via text/email 24/7. Mark and Steven do daily and weekly inspections of the Landfill.

3-B. If there is not continuous onsite presence, how often are personnel on-site during routine operations?

Monday through Friday 0700 to 1730.
3-C. Describe routine O&M activities.
Routine O&M activities are described in the *Annual Report 2018 Operations and Maintenance Operable Unit 2 (OU2) Landfills Former Fort Ord, California* (Administrative Record Number OU2-718)

3-D. Have there been any significant changes in O&M requirements, maintenance schedule and activities, or sampling routines since the last five-year review (September 2017)? If so please explain changes and reasons for change.

No changes have been made since the last FYR O&M requirements.

3-E. Have there been unexpected O&M difficulties or costs changes at the site since the last five year review?

O&M costs have been increased to provide maintenance due to down submersible pumps and increased electrical costs at the new GWTP.

4-A. Please describe what controls in place to prevent or reduce the impact of an unintended release of untreated water in the event of system upset.

Secondary containment of GWTP equipment and conveyance piping, leak detection systems, and automatic shutdown via SCADA protocols.

4-B. When was the last time these controls were inspected/tested and documented?

July 2020 (every two years)

4-C. Has there been any unintended release of untreated water since the last 5 year review? If so describe nature of release, lessons learned and changes to system and/or SOPs as a result.

N/A

5. Are you aware of any community concerns or complaints regarding the site or operation of the remediation treatment systems at the site?

N/A

F. System Conditions

1. Extraction, Injection & Monitoring Wells

a) Is there a regular well maintenance program? If so, What is the well maintenance protocol:

A regular well maintenance program is laid out in the 2018 Operations and Maintenance plan.

b) Can the prescribed well maintenance be carried out given the layout of the well and the available Personnel and equipment?

Yes.

c) When were the well(s) last developed and when will it (they) be redeveloped?

The nine new extraction wells were developed when installed. EW-OU2-12-180 was redeveloped in 2021 to clear out sediment buildup. Five A-Aquifer wells on the western network were redeveloped in 2016. There are no current plans for redevelopment of other wells.

d) Is there a maintenance schedule for the pump and how is it documented? Has there been excessive pump wear noticed due to sediments?

Submersible pumps at extraction wells EW-OU2-12-180 and EW-OU2-5A/6A were worn due to neglecting to replace the sediment vacuum. Now the pumps are up and running clean.

e) Are all of the flow meters/totalizers in good working order?

Yes.

f) Is there an inventory of appropriate spare parts for the pumps and related equipment?

Yes.

g) Is there an up-to-date logbook for recording performance & maintenance for each extraction well?

Yes.

2. General Treatment System Inspection

a) What is the design basis for the above-ground portion of the water treatment system? (e.g., minimum and maximum influent flow, influent concentrations, operating hours per day, expected downtime)

Total recharge design flow is 1,511 GPM and current total operational flow is approximately 1,200 GPM.
The average design flow rate for the new OU2 GWTP is 1,600 GPM.
Weighted average total of influent concentration of COCs averaged 8.78 ug/L over the 4Q 2016 through 3Q 2020 reporting period.
The plant operates 24 hours/day so expected downtime is less than 438 hours per year (i.e., 95% operability).

b) What is the average total of treated water annually?

435 MG (averaged 4Q 2016 through 3Q 2020).

c) What are the average total hours of down time annually?

The total hours of down time during 4Q 2016 through 3Q 2020 was 518.56 hours. 1,254 hours were associated with the transition from the old OU2 GWTP to the new plant in 2018.

d) List the amounts of consumable materials used in the treatment processes (e.g., acid, caustic, sequestering agents, coagulants, activated carbon).

e) What are the quantities of secondary waste products generated (e.g., sludge, spent activated carbon).

f) Are all ancillary equipment (pumps, blowers, valves, etc) are maintained per manufacturers recommendations?

Yes, maintain a file.

h) Do any pumps, blowers or ancillary equipment produce excessive noise?

No.

i) Are there any signs of wear or corrosion present on system components (i.e. ion exchange vessels, air stripper towers, vapor phase carbon vessels, pipes and/or ductwork)?

No.

Photographic Documentation

Client: US Dept. of Army
Location: Former Fort Ord OU2

Prepared by: USACE, SPK, EDE-E
Photographer: Mark Fisler and Jocelyn Barber

Photograph No. 1

Date: October 4, 2021

Site: OU2 GWTP

Description: New OU2 GWTP from outside, offices and storage in front, treatment vessels in rear under cover

Photograph No. 2

Date: October 4, 2021

Site: OU2 GWTP

Description: OU2 GWTP Backwash Tank

Photograph No. 3

Date: October 4, 2021

Site: OU2 GWTP

Description: OU2 GWTP Effluent Tank

Photograph No. 4

Date: October 4, 2021

Site: OU2 GWTP

Description: OU2 GWTP Effluent pumps
.

Photograph No. 5

Date: October 4, 2021

Site: OU2 GWTP

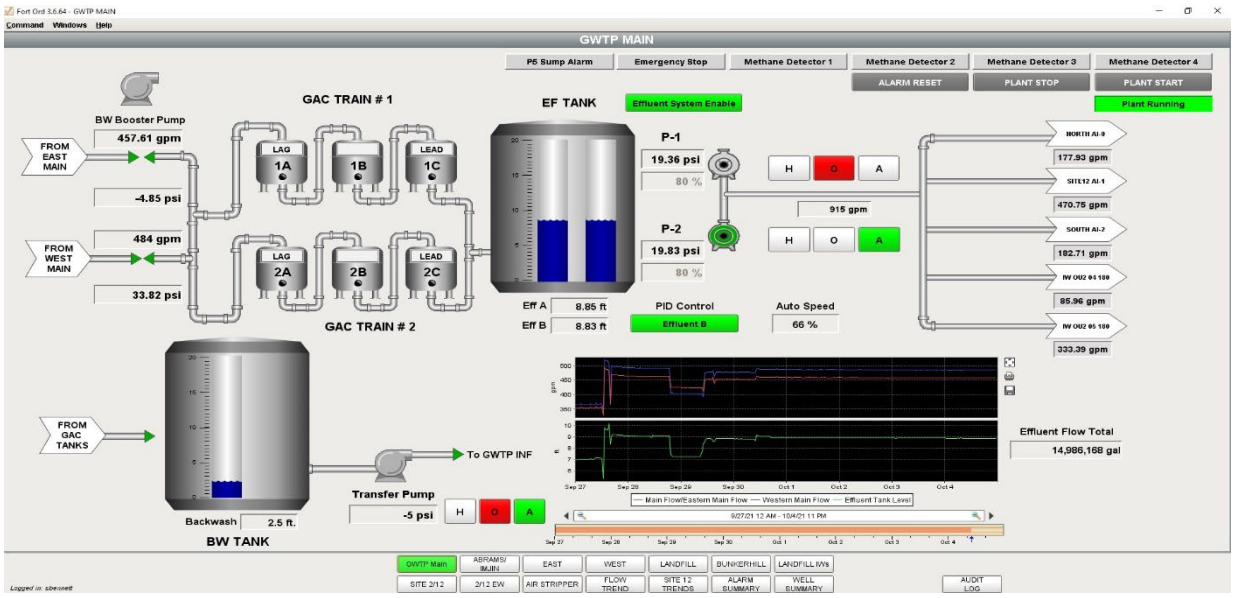
Description: OU2 GWTP Electrical Panel

Photograph No. 6

Date: October 4, 2021

Site: OU2 GWTP

Description: OU2 GWTP SCADA image



Photograph No. 7

Date: August 5, 2021

Site: OU2 GWTP

Description: OU2 GWTP GAC vessels in series looking east. Not pictured are 3 more GAC vessels in series north of the pictured system.

Photograph No. 8

Date: August 5, 2021

Site: OU2 GWTP

Description: Landfill gas extraction and treatment system TTU, looking north inside from the TTU compound.

Photograph No. 9

Date: August 5, 2021

Site: OU2 GWTP

Description: Landfill gas extraction and treatment system TTU control panel.

Photograph No. 10

Date: August 5, 2021

Site: OU2 GWTP

Description: Landfill gas extraction treatment system TTU influent manifold valves.

Photograph No. 11

Date: August 5, 2021

Site: OU2 GWTP

Description: Landfill's surface drainage feature looking east.

Photograph No. 12

Date: August 5, 2021

Site: OU2 GWTP

Description: Landfill surface drainage feature and landfill cell vegetative cover on left side of photo.

Photograph No. 13

Date: August 5, 2021

Site: OU2 GWTP

Description: Thirty-foot high utility pole on north side of Area F as a perch for predatory birds such as the red-tailed hawk.

Photograph No. 14

Date: August 5, 2021

Site: OU2 GWTP

Description: Landfill gas monitoring probe on east side of Area F.

Five-Year Review Site Inspection Checklist
OUCTP

I. SITE INFORMATION	
Site name: Operable Unit Carbon Tetrachloride Plume	**Date of inspection:** August 3rd, 2021
Location and Region: Former Fort Ord, California	**EPA ID:** CA7210020676
Agency, office, or company leading the five-year review: U.S Department of the Army	**Weather/temperature:** Cloudy, ~60-65°F

Remedy Includes: (Check all that apply)

- ☐ Landfill cover/containment
- ☐ Access controls
- X Institutional controls
- X Groundwater pump and treatment
- ☐ Surface water collection and treatment
- ☐ Other_____
- X Monitored natural attenuation
- X Groundwater containment
- ☐ Vertical barrier walls

Attachments: ☐ Inspection team roster attached X Site inspection photos attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** Derek Lieberman (Name) Ahtna Program Manager (Title) August 3,2021 (Date)
   Interviewed X at site ☐ at office ☐ by phone Phone no. 831-384-3735

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. **O&M Documents**
   - X O&M manual — X Readily available — X Up to date — ☐ N/A
   - X As-built drawings — X Readily available — X Up to date — ☐ N/A
   - X Maintenance logs — X Readily available — X Up to date — ☐ N/A

   Remarks: Maintenance logs are combined with OU2 logs

2. **Site-Specific Health and Safety Plan** — X Readily available — X Up to date — ☐ N/A
   - ☐ Contingency plan/emergency response plan — X Readily available — X Up to date — ☐ N/A

   Remarks: The APP also covers OU2 and Site 2/12.

3. **O&M and OSHA Training Records** — X Readily available — X Up to date — ☐ N/A
   Remarks: Kept by the Health and Safety Officer, Employees also keep digital copies.

4. **Permits and Service Agreements**
   - ☐ Air discharge permit — ☐ Readily available — ☐ Up to date — X N/A
   - ☐ Effluent discharge — ☐ Readily available — ☐ Up to date — X N/A
   - ☐ Waste disposal, POTW — ☐ Readily available — ☐ Up to date — X N/A
   - ☐ Other permits_____ — ☐ Readily available — ☐ Up to date — X N/A

5. **Gas Generation Records** — ☐ Readily available — ☐ Up to date — X N/A

6. **Settlement Monument Records** — ☐ Readily available — ☐ Up to date — X N/A

7. **Groundwater Monitoring Records** — X Readily available — X Up to date — ☐ N/A
   Remarks: Records maintained on FODIS.

8. **Leachate Extraction Records** — ☐ Readily available — ☐ Up to date — X N/A

9. **Discharge Compliance Records**

☐ Air	☐ Readily available	☐ Up to date	X N/A
X Water (effluent)	X Readily available	X Up to date	☐ N/A

10. **Daily Access/Security Logs** X Readily available X Up to date ☐ N/A

Remarks: Daily Access is logged via safety briefings required of anyone visiting the OU2 GWTP Office.

IV. O&M COSTS

1. **O&M Organization**

☐ State in-house ☐ Contractor for State
☐ PRP in-house ☐ Contractor for PRP
☐ Federal Facility in-house X Contractor for Federal Facility
☐ Other_____

2. **O&M Cost Records**

☐ Readily available X Up to date
X Funding mechanism/agreement in place
Original O&M cost estimate: $500,000/year per OUCTP ROD ☐ Breakdown attached

Total annual cost by year for review period if available

From: 08/01/2016 (Date)	To: 07/31/2017 (Date)	$1,914,000 (Total cost)	☐ Breakdown attached
From: 08/01/2017 (Date)	To: 07/31/2018 (Date)	$496,000 (Total cost)	☐ Breakdown attached
From: 08/01/2018 (Date)	To: 07/31/2019 (Date)	$461,000 (Total cost)	☐ Breakdown attached
From: 08/01/2019 (Date)	To: 07/31/2020 (Date)	$308,000 (Total cost)	☐ Breakdown attached
From: 08/01/2020 (Date)	To: 07/31/2021 (Date)	$285,000 (Total cost)	☐ Breakdown attached

3. **Unanticipated or Unusually High O&M Costs During Review Period**

Describe costs and reasons: 2017 had higher than average costs due to the additional EISB deployment Area (3A).

V. ACCESS AND INSTITUTIONAL CONTROLS X Applicable ☐ N/A

A. Fencing

1. **Fencing damaged** ☐ Location shown on site map X Gates secured ☐ N/A

Remarks: All fencing was in good condition.

B. Other Access Restrictions

1. **Signs and other security measures** ☐ Location shown on site map ☐ N/A

Remarks: Signs discouraging trespassing (i.e do not trespass) prevalent prior to entering the Deployment Area 3A and at the OU2 GWTP.

C. Institutional Controls (ICs)

1.	**Implementation and enforcement** Site conditions imply ICs not properly implemented ☐ Yes X No ☐ N/A Site conditions imply ICs not being fully enforced ☐ Yes X No ☐ N/A Type of monitoring (*e.g.*, self-reporting, drive by): self-inspections, self-reporting Frequency: Annually Responsible party/agency: U.S Department of the Army Contact _____ _____ _____ _____ Name Title Date Phone no. Reporting is up-to-date X Yes ☐ No ☐ N/A Reports are verified by the lead agency X Yes ☐ No ☐ N/A Specific requirements in deed or decision documents have been met X Yes ☐ No ☐ N/A Violations have been reported ☐ Yes X No ☐ N/A Other problems or suggestions: ☐ Report attached
2.	**Adequacy** X ICs are adequate ☐ ICs are inadequate ☐ N/A
D. General	
1.	**Vandalism/trespassing** ☐ Location shown on site map X No vandalism evident
2.	**Land use changes on site** X N/A
3.	**Land use changes off site** X N/A
VI. GENERAL SITE CONDITIONS	
A. Roads	X Applicable ☐ N/A
1.	**Roads damaged** ☐ Location shown on site map X Roads adequate ☐ N/A Remarks: Some potholes noted, but overall roads are still usable.
B. Other Site Conditions	**X N/A**
VII. LANDFILL COVERS	**□ Applicable X N/A**
VIII. VERTICAL BARRIER WALLS	**□ Applicable X N/A**
IX. GROUNDWATER/SURFACE WATER REMEDIES	X Applicable ☐ N/A
A. Groundwater Extraction Wells, Pumps, and Pipelines	X Applicable ☐ N/A
1.	**Pumps, Wellhead Plumbing, and Electrical** X Good condition X All required wells properly operating ☐ Needs Maintenance ☐ N/A
2.	**Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances** X Good condition ☐ Needs Maintenance
3.	**Spare Parts and Equipment** X Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided
B. Surface Water Collection Structures, Pumps, and Pipelines	☐ Applicable X N/A
C. Treatment System	X Applicable ☐ N/A

1.	**Treatment Train** (Check components that apply) ☐ Metals removal ☐ Oil/water separation X Bioremediation ☐ Air stripping X Carbon adsorbers ☐ Filters_____ X Additive (*e.g.*, chelation agent, flocculent): sodium lactate substrate injection ☐ Others_____ X Good condition ☐ Needs Maintenance X Sampling ports properly marked and functional X Sampling/maintenance log displayed and up to date X Equipment properly identified X Quantity of groundwater treated annually: approx. 30.5 million gallons (upper 180-Foot Aquifer only) ☐ Quantity of surface water treated annually_____ Remarks: Quantity of groundwater treated annually for the A-Aquifer and the Lower 180-Foot Aquifer cannot be determined due to the nature of the remedies.
2.	**Electrical Enclosures and Panels** (properly rated and functional) ☐ N/A X Good condition ☐ Needs Maintenance
3.	**Tanks, Vaults, Storage Vessels** ☐ N/A X Good condition X Proper secondary containment ☐ Needs Maintenance
4.	**Discharge Structure and Appurtenances** ☐ N/A X Good condition ☐ Needs Maintenance
5.	**Treatment Building(s)** ☐ N/A X Good condition (esp. roof and doorways) ☐ Needs repair ☐ Chemicals and equipment properly stored
6.	**Monitoring Wells** (pump and treatment remedy) X Properly secured/locked X Functioning X Routinely sampled X Good condition X All required wells located ☐ Needs Maintenance ☐ N/A
D. Monitoring Data	
1.	Monitoring Data X Is routinely submitted on time X Is of acceptable quality
2.	Monitoring data suggests: ☐ Groundwater plume is effectively contained X Contaminant concentrations are declining
D. Monitored Natural Attenuation	
1.	**Monitoring Wells** (natural attenuation remedy) X Properly secured/locked X Functioning X Routinely sampled X Good condition ☐ All required wells located ☐ Needs Maintenance ☐ N/A Remarks: Only newly installed Lower 180 Aquifer well inspected.
X. OTHER REMEDIES – N/A	
XI. OVERALL OBSERVATIONS	
A.	**Implementation of the Remedy**

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

The goal of the OUCTP groundwater remedy is to comply with federal and state laws and regulations by returning groundwater to a condition that will allow beneficial uses to occur, including potential future use as a source for drinking water, industrial water and agricultural water. Specifically, the objective is to remediate chemicals of concern (COCs) in the A-Aquifer, Upper 180-Foot Aquifer and Lower 180-Foot Aquifer to federal or State drinking water Maximum Contaminant Levels (MCLs) or lower for some COCs. These goals are accomplished through enhanced in situ bioremediation (EISB) and monitored natural attenuation (MNA) in the A-Aquifer, hydraulic control and containment of contaminated groundwater through extraction and treatment of groundwater exceeding ACLs in the Upper 180-Foot Aquifer, and MNA in the Lower 180-Foot Aquifer. The OUCTP groundwater plume is characterized by the presence of eight COCs in groundwater in the A-Aquifer, one COC in the Upper 180-Foot Aquifer, and two COCs in the Lower 180-Foot Aquifer at concentrations above their respective ACLs. The OUCTP groundwater remedies are generally functioning in accordance with system design and modification criteria. Based on monitoring and evaluation reports, EISB is reducing groundwater contamination in the A-Aquifer, operation of an extraction well (EW-OU2-09-180) connected to the OU2 groundwater treatment system is capturing and reducing groundwater contamination in the Upper 180-Foot Aquifer, and COC concentrations are declining in the Lower 180-Foot Aquifer as indicated by MNA data.

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

Current O&M procedures are consistent with approved O&M plans and are effective in maintaining long-term operations.

C. Early Indicators of Potential Remedy Problems

Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future.

None.

D. Opportunities for Optimization

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

A new OUCTP Upper 180-Foot Aquifer extraction well should be considered to enhance containment and control of the OUCTP in the Upper 180-Foot Aquifer.

E. Additional Questions/Comments

1. What is your current role as it relates to the site?

Derek Lieberman – Senior Program Manager for Ahtna

2. Explain the purpose of the system and list what contaminants it is treating for

Protect human health and comply with federal and state law by returning groundwater to a condition that will allow beneficial uses to occur, including potential future use as a drinking water source. Specifically, the objective is to remediate COCs in the A-Aquifer, Upper 180-Foot Aquifer, and Lower 180-Foot Aquifer to federal or State drinking water MCLs or lower for some COCs. These goals are accomplished through EISB and MNA in the A-Aquifer, hydraulic control and containment of contaminated groundwater through extraction and treatment of groundwater exceeding ACLs in the Upper 180-Foot Aquifer, and MNA in the Lower 180-Foot Aquifer. The OUCTP in the A-Aquifer is characterized by the presence of eight COCs in groundwater at concentrations above their respective ACLs: chloroform, 1,1-DCE, carbon tetrachloride, methylene chloride, total

1,2-DCE, PCE, TCE, and vinyl chloride. The OUCTP in the Upper 180-Foot Aquifer is characterized only by the presence of carbon tetrachloride in groundwater at concentrations above its ACL. The OUCTP in the Lower 180-Foot Aquifer is characterized by the presence of 1,2-DCA and carbon tetrachloride in groundwater at concentrations above their respective ACLs.

2-A. What is your overall impression of the system with regards to safety, efficiency and effectiveness?

Safety of the system is great. Ahtna has never had a reportable safety incident. Efficiency is great; the personnel involved with the system have a great deal of experience and familiarity with the system. The remedy is effective for the most part, but the remedy for the upper-180 foot aquifer could be improved. It has not been great at capturing the entire plume.

2-B. Have any system enhancements been made since the 2017 FYR? If so, explain.

Nothing major. The new GWTP was constructed in 2018 and the JV upsized the pump for EW-OU2-09-180.

2-C. Are there any improvements you recommend to system operation to improve these areas?

For the A-Aquifer, additional monitoring wells downgradient of the plume by the Deployment Area 3A and downgradient of some of the new monitoring wells by the OU1 area would beneficial. Maybe an additional EISB deployment, but it may not be cost effective since the concentrations of CT have dropped to within an order of magnitude about the ACL. For the Upper 180 foot aquifer, an additional extraction well would be ideal to better contain and control the plume.

3-A. Is there a continuous on-site O&M presence or is there the ability to monitor the system remotely (If so describe)?

There is an on-site O&M presence during the business day and the GWTP operators are able to monitor the system remotely as well using the supervisory control and data acquisition (SCADA) system.

3-B. If there is not continuous onsite presence, how often are personnel on-site during routine operations?

Monday through Friday 0700 to 1730.

3-C. Describe routine O&M activities.

Routine O&M activities related to the A-Aquifer remedy are described in the Draft Final Operable Unit Carbon Tetrachloride Plume Remedial Action Work Plan Addendum, Former Fort Ord, California.

Routine O&M activities related to the Upper 180-Foot Aquifer remedy are described in the Final Operations and Maintenance Manual, Volume I, Operable Unit 2 (OU2) Groundwater Remedy, Former Fort Ord, California.

Routine O&M activities related to the Lower 180-Foot Aquifer remedy are described in the Quality Assurance Project Plan, Former Fort Ord, California, Volume I, Appendix A, Final Revision 9, Groundwater Remedies and Monitoring at Operable Unit 2, Sites 2 and 12, and Operable Unit Carbon Tetrachloride Plume.

3-D. Have there been any significant changes in O&M requirements, maintenance schedule and activities, or sampling routines since the last five-year review (September 2017)? If so please explain changes and reasons for change.

No Significant Changes.

3-E. Have there been unexpected O&M difficulties or costs changes at the site since the last five year review?

No.

4-A. Please describe what controls in place to prevent or reduce the impact of an unintended release of untreated water in the event of system upset.

Secondary containment of GWTP equipment and conveyance piping, leak detection systems, and automatic shutdown via SCADA protocols.

4-B. When was the last time these controls were inspected/tested and documented?

They were last inspected July 2020. The controls are inspected/tested and documented once every other year.

4-C. Has there been any unintended release of untreated water since the last 5 year review? If so describe nature

of release, lessons learned and changes to system and/or SOPs as a result.

No.

5. Are you aware of any community concerns or complaints regarding the site or operation of the remediation treatment systems at the site?
No.

F. System Conditions

1. Extraction, Injection & Monitoring Wells

a) Is there a regular well maintenance program? If so, what is the well maintenance protocol:
The maintenance program consists of maintenance activities as described in Section 12.0 of the OU2 Groundwater Remedy O&M Manual, the OUCTP RAWP Addendum, and the Groundwater QAPP.

b) Can the prescribed well maintenance be carried out given the layout of the well and the available Personnel and equipment?
Yes

c) When were the well(s) last developed and when will it (they) be redeveloped?
The wells were last developed when they were installed. There are plans for redevelopment, but the date is TBD.

d) Is there a maintenance schedule for the pump and how is it documented? Has there been excessive pump wear noticed due to sediments?
There's no specific maintenance schedule, but that's something that Ahtna is working on. Currently the pumps are maintained when the operators think they should be. On average, the pumps last about 4 years. There has not been excessive pump wear noticed due to sediments.

e) Are all of the flow meters/totalizers in good working order?
Yes.

f) Is there an inventory of appropriate spare parts for the pumps and related equipment?
Yes.

g) Is there an up-to-date logbook for recording performance & maintenance for each extraction well?
Yes.

2. General Treatment System Inspection

a) What is the design basis for the above-ground portion of the water treatment system? (e.g., minimum and maximum influent flow, influent concentrations, operating hours per day, expected downtime)
For A-Aquifer EISB Deployment Area 3A: continuous operation (24 hours/day) of injection and extraction wells until sodium lactate is distributed throughout the deployment area (approximately 303 days of operation including initial injection and recirculation). Minimum flow rate was 25 gpm; maximum extraction rate was 105 gpm. This system was disassembled aboveground on January 16, 2019.

For Upper 180-Foot Aquifer groundwater extraction and treatment via EW-OU2-09-180 connected to the OU2 GWTS: Minimum influent flow = 50 gpm; maximum influent flow = 74 gpm; average influent concentration over last five years is 5.7 micrograms/liter; operates 24 hours/day; expected downtime is less than 438 hours per year (i.e., 95% operability).

For Lower 180-Foot Aquifer, there are no aboveground portions.

b) What is the average total of treated water annually? 30.5 million gallons for the upper 180- aquifer.

c) What are the average total hours of down time annually? Between 2017 and 2021, the system was down an average of 29% or approx. 2,500 hours annually. Downtime was high in 2018 (56%) due to the transition between the old and new GWTPs.

d) List the amounts of consumable materials used in the treatment processes (e.g., acid, caustic, sequestering agents, coagulants, activated carbon).
GAC, but this is also used for the OU2 treatment and so, the amount that can be directly attributed to OUCTP is negligible.

e) What are the quantities of secondary waste products generated (e.g., sludge, spent activated carbon).

There are some fines from the backwater and about 40,000 total spent activated carbon for the OU2 GWTP system as a whole.

f) Are all ancillary equipment (pumps, blowers, valves, etc) are maintained per manufacturers recommendations?

Yes.

h) Do any pumps, blowers or ancillary equipment produce excessive noise?

No.

i) Are there any signs of wear or corrosion present on system components (i.e. ion exchange vessels, air stripper towers, vapor phase carbon vessels, pipes and/or ductwork)?

No

Photographic Documentation

Client: US Dept. of Army
Location: Former Fort Ord OUCTP

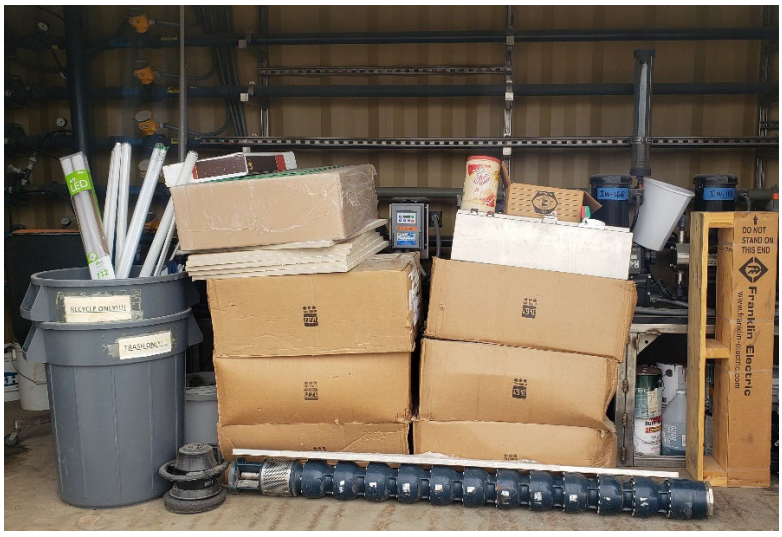
Prepared by: USACE, SPK, EDE-E
Photographer: Nancy Lam

Photograph No. 1

Date: August 3, 2021

Site: OUCTP

Description: Storage container for the processing system container and wellhead equipment from the Deployment Area 3A located at the OU2 GWTP. Storage container is normally closed and locked.



Photograph No. 2

Date: August 3, 2021

Site: OUCTP

Description: Upper-180 Foot Aquifer Extraction well EW-OU2-09-180 well vault. Area is gated and well vault is normally closed and locked.

Photograph No. 3

Date: August 3, 2021

Site: OUCTP

Description: A-Aquifer Extraction Well EW-BW-162-A with EW-BW-160-A and EW-BW-161-A in the background, facing south. Well is typically locked.

Photograph No. 4

Date: August 3, 2021

Site: OUCTP

Description: A- Aquifer Monitoring well MW-BW-94-AR with MW-BW-94-A in the background, facing east. Well is typically locked.

Photograph No. 5

Date: August 3, 2021

Site: OUCTP

Description: Lower 180-Foot Aquifer monitoring well MW-BW-59-180.

OSWER No. 9355.7-03B-P (Modified with Limited USACE RSE Checklist Info)

Five-Year Review Site Inspection Checklist
Sites 2 & 12

I. SITE INFORMATION	
Site name: Sites 2 & 12	**Date of inspection:** Aug 4, 2021
Location and Region: Former Fort Ord, CA	**EPA ID:** CA7210020676
Agency, office, or company leading the five-year review: U.S Department of the Army	**Weather/temperature:** Partly Cloudy ~60F

Remedy Includes: (Check all that apply)

- ☐ Landfill cover/containment
- ☐ Monitored natural attenuation
- **x Access controls**
- ☐ Groundwater containment
- **x Institutional controls**
- ☐ Vertical barrier walls
- **x Groundwater pump and treatment**
- ☐ Surface water collection and treatment
- **x Other** **SVE system, but offline since 2Q 2020**

Attachments: ☐ Inspection team roster attached **X Site inspection photos attached**

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** **Derek Lieberman** (Name) **Ahtna Program Manager** (Title) **Aug 4, 2021** (Date)
   Interviewed **x at site** ☐ at office ☐ by phone Phone no. _____
   Problems, suggestions; ☐ Report attached _____

2. **O&M staff** **Mike Fisler** (Name) **Treatment System Operator** (Title) **Aug 4, 2021** (Date)
   Interviewed **x at site** ☐ at office ☐ by phone Phone no. _____
   Problems, suggestions; ☐ Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

   Agency _____
   Contact _____ (Name) _____ (Title) _____ (Date) _____ (Phone no.)
   Problems; suggestions; ☐ Report attached _____

4. **Other interviews** (optional) ☐ Report attached.

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. **O&M Documents**
   - **X O&M manual** — **X Readily available** — **X Up to date** — ☐ N/A
   - **X As-built drawings** — **X Readily available** — **X Up to date** — ☐ N/A
   - **X Maintenance logs** — **X Readily available** — **X Up to date** — ☐ N/A

   Remarks: **Documents maintained at OU2 GWTP**

2. **Site-Specific Health and Safety Plan** — **X Readily available** — **X Up to date** — ☐ N/A
   ☐ Contingency plan/emergency response plan — **X Readily available** — **X Up to date** — ☐ N/A

   Remarks: **Documents maintained at OU2 GWTP**

3. **O&M and OSHA Training Records** — **X Readily available** — **X Up to date** — ☐ N/A

   Remarks: **Documents maintained at contractors (Ahtnas) office**

4. **Permits and Service Agreements**
   - ☐ Air discharge permit — ☐ Readily available — ☐ Up to date — **X N/A**
   - ☐ Effluent discharge — ☐ Readily available — ☐ Up to date — **X N/A**
   - ☐ Waste disposal, POTW — ☐ Readily available — ☐ Up to date — **X N/A**
   - ☐ Other permits_____ — ☐ Readily available — ☐ Up to date — **X N/A**

   Remarks: **Previous hazmat storage permit for sulfuric acid no longer needed as sulfuric acid removed from site**

5. **Gas Generation Records** — ☐ Readily available — ☐ Up to date — **X N/A**

   Remarks:

6. **Settlement Monument Records** — ☐ Readily available — ☐ Up to date — **X N/A**

   Remarks:

7. **Groundwater Monitoring Records** — **X Readily available** — **X Up to date** — ☐ N/A

   Remarks: **Publicly available online in admin**

8. **Leachate Extraction Records** — ☐ Readily available — ☐ Up to date — **X N/A**

   Remarks:

9. **Discharge Compliance Records**
   - ☐ Air — ☐ Readily available — ☐ Up to date — **X N/A**
   - **X Water (effluent)** — **X Readily available** — **X Up to date** — ☐ N/A

   Remarks: **Maintained in GW monitoring reports in publicly available online admin record SVE system offline currently, so no current air records, past reports online**

10. **Daily Access/Security Logs** — **X Readily available** — **X Up to date** — ☐ N/A

    Remarks: **Records maintained at OU2 GWTP**

IV. O&M COSTS

1. **O&M Organization**
   ☐ State in-house ☐ Contractor for State
   ☐ PRP in-house ☐ Contractor for PRP
   ☐ Federal Facility in-house **X Contractor for Federal Facility**
   ☐ Other_____

2. **O&M Cost Records**
   ☐ Readily available **X Up to date**
   ☐ Funding mechanism/agreement in place
   Original O&M cost estimate $495,000 per RI Sites ROD ☐ Breakdown attached

   Total annual cost by year for review period if available

From **August 2016**	To **July 2017**	**298,867.55**	☐ Breakdown attached
Date	Date	Total cost	
From **August 2017**	To **July 2018**	**309,327.90**	☐ Breakdown attached
Date	Date	Total cost	
From **August 2018**	To **July 2019**	**320,154.38**	☐ Breakdown attached
Date	Date	Total cost	
From **August 2019**	To **July 2020**	**239,440.74**	☐ Breakdown attached
Date	Date	Total cost	
From **August 2020**	To **July 2021**	**198,903.19**	☐ Breakdown attached
Date	Date	Total cost	

3. **Unanticipated or Unusually High O&M Costs During Review Period**
   Describe costs and reasons: **No/NA**

V. ACCESS AND INSTITUTIONAL CONTROLS X Applicable ☐ N/A

A. Fencing

1. **Fencing damaged** ☐ Location shown on site map **X Gates secured** ☐ N/A
   Remarks: **GWT facility fenced, in reasonably good condition, with gates secured**

B. Other Access Restrictions

1. **Signs and other security measures** ☐ Location shown on site map ☐ N/A
   Remarks: **Signs indicate USACE project, and provide emergency contacts and contacts for more information, as well as notification of security cameras**

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented ☐ Yes **X No** ☐ N/A
Site conditions imply ICs not being fully enforced ☐ Yes **X No** ☐ N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date **X Yes** ☐ No ☐ N/A
Reports are verified by the lead agency **X Yes** ☐ No ☐ N/A

Specific requirements in deed or decision documents have been met **X Yes** ☐ No ☐ N/A
Violations have been reported ☐ Yes ☐ No ☐ N/A
Other problems or suggestions: ☐ Report attached

2. **Adequacy** **X ICs are adequate** ☐ ICs are inadequate ☐ N/A
Remarks: _____

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map **X No vandalism evident**
Remarks**: No issues seen. In this review period, there once was some waste dumped outside of fencing, had removed. No other issues.**

2. **Land use changes on site X N/A**
Remarks: **No changes during review period**

3. **Land use changes off site X N/A**
Remarks: **No changes during review period**

VI. GENERAL SITE CONDITIONS

A. Roads **X Applicable** ☐ N/A

1. **Roads damaged** ☐ Location shown on site map **X Roads adequate** ☐ N/A
Remarks: _____

B. Other Site Conditions

Remarks: ___**The site is clean and well maintained**_____

VII. LANDFILL COVERS ☐ Applicable **X N/A**

VIII. VERTICAL BARRIER WALLS ☐ Applicable **X N/A**

IX. GROUNDWATER/SURFACE WATER REMEDIES **X Applicable** ☐ N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines **X Applicable** ☐ N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
X Good condition **X All required wells properly operating** ☐ Needs Maintenance ☐ N/A
Remarks: __**On day of site visit there was transformer failure in EW-12-08-180U, requiring shutdown. Was repaired by early next morning.**_____

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
X Good condition ☐ Needs Maintenance
Remarks:

3. **Spare Parts and Equipment**
X Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided
Remarks:

B. Surface Water Collection Structures, Pumps, and Pipelines ☐ Applicable **X N/A**

C. Treatment System **X Applicable** ☐ N/A

1. **Treatment Train** (Check components that apply)
☐ Metals removal ☐ Oil/water separation ☐ Bioremediation
X Air stripping **X Carbon adsorbers**
☐ Filters_____
☐ Additive (*e.g.*, chelation agent, flocculent)_____
☐ Others_____
X Good condition ☐ Needs Maintenance
X Sampling ports properly marked and functional
X Sampling/maintenance log displayed and up to date
X Equipment properly identified
X Quantity of groundwater treated annually___**60.6 million gallons**__
☐ Quantity of surface water treated annually_____
Remarks_____
_____

2. **Electrical Enclosures and Panels** (properly rated and functional)
☐ N/A **X Good condition** ☐ Needs Maintenance
Remarks:

3.	**Tanks, Vaults, Storage Vessels** ☐ N/A **X Good condition** **X Proper secondary containment** ☐ Needs Maintenance Remarks:
4.	**Discharge Structure and Appurtenances** ☐ N/A **X Good condition** ☐ Needs Maintenance Remarks:
5.	**Treatment Building(s)** ☐ N/A **X Good condition (esp. roof and doorways)** ☐ Needs repair **X Chemicals and equipment properly stored** Remarks:
6.	**Monitoring Wells** (pump and treatment remedy) **X Properly secured/locked** **X Functioning** **X Routinely sampled** **X Good condition** ☐ All required wells located ☐ Needs Maintenance ☐ N/A Remarks:
D. Monitoring Data	
1.	Monitoring Data **X Is routinely submitted on time** **X Is of acceptable quality**
2.	Monitoring data suggests: **X Groundwater plume is effectively contained** **X Contaminant concentrations are declining**

D. Monitored Natural Attenuation	
1.	**Monitoring Wells** (natural attenuation remedy) ☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition ☐ All required wells located ☐ Needs Maintenance **X N/A** Remarks_____ _____
X. OTHER REMEDIES	
	If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

A. Soil Vapor Extraction Wells and Pipelines **X Applicable** ☐ N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   X Good condition ☐ All required wells properly operating ☐ Needs Maintenance ☐ N/A
   Remarks: **System offline most of last two years as deemed no longer necessary as not impacting GW and no unacceptable risk from vapor intrusion**.

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   X Good condition ☐ Needs Maintenance
   Remarks_____

3. **Spare Parts and Equipment**
   X Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided
   Remarks_____

B. Treatment System **X Applicable** ☐ N/A

1. **Treatment Train** (Check components that apply)
   ☐ Metals removal ☐ Oil/water separation ☐ Bioremediation
   ☐ Air stripping **X Carbon adsorbers**
   ☐ Filters_____
   ☐ Additive (*e.g.*, chelation agent, flocculent)_____
   ☐ Others_____
   X Good condition ☐ Needs Maintenance
   X Sampling ports properly marked and functional
   ☐ Sampling/maintenance log displayed and up to date
   X Equipment properly identified
   ☐ Quantity of groundwater treated annually_____
   ☐ Quantity of surface water treated annually **System offline**
   Remarks **Would only need to change carbon to operate again. System checked monthly despite being offline.**

2. **Electrical Enclosures and Panels** (properly rated and functional)
   ☐ N/A **X Good condition** ☐ Needs Maintenance
   Remarks_____

3. **Tanks, Vaults, Storage Vessels**
   ☐ N/A **X Good condition** **X Proper secondary containment** ☐ Needs Maintenance
   Remarks_____

4. **Discharge Structure and Appurtenances**
   ☐ N/A **X Good condition** ☐ Needs Maintenance
   Remarks_____

5. **Treatment Building(s)**
   X N/A ☐ Good condition (esp. roof and doorways) ☐ Needs repair

☐ Chemicals and equipment properly stored
Remarks_____
_____

D. Monitoring Data

1. Monitoring data suggests:
X Soil gas plume is effectively contained ☐ Contaminant concentrations are declining

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

The Sites 2 and 12 groundwater treatment system extracts groundwater from the unconfined Upper 180-Foot Aquifer and treats it with GAC and air stripping to remediate the groundwater COC plumes. Based on monitoring and evaluation reports the groundwater treatment system is capturing and reducing groundwater contamination. The Sites 2 and 12 soil vapor extraction and treatment system (SVETS) extracts soil gas from the vadose zone and treats it with vapor-phase GAC at the soil vapor treatment unit. SVETS remains offline through 2021 due to PCE and TCE concentrations remaining below SGCLs.

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

Current O&M procedures are adequate and consistent with approved plans.

C. Early Indicators of Potential Remedy Problems

Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future.

None

D. Opportunities for Optimization

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

If results do not continue to indicate remedy completion, it would be worth while to explore further ways to increase extraction rates at existing wells, including at EW-12-08-180U.

E. Additional Questions/Comments

1. What is your current role as it relates to the site? **Derek Lieberman – Senior Program Manager at Ahtna.**

2. Explain the purpose of the system and list what contaminants it is treating for

GWTS: The goal of the groundwater treatment system is to protect human health and comply with federal and state law by returning groundwater to a condition that will allow beneficial uses to occur at Sites 2 and 12 according to the remedial action objectives. The goal is to remediate chemicals of concern (COCs) in the Upper 180-Foot Aquifer to federal or state drinking water Maximum Contaminant Levels or lower for some COCs. The eight Sites 2 and 12 groundwater COCs are 1,1-DCE, 1,2-DCA, total 1,3-DCP, cis-1,2-DCE, chloroform, PCE, TCE, and vinyl chloride.

SVETS: The goal of the soil vapor extraction and treatment system is to extract soil gas from the vadose zone and treat it with GAC at the Sites 2 and 12 soil vapor treatment unit (STVU). The goal of the STVU is to reduce the COC concentrations in soil gas to levels that will not result in concentrations of COCs in groundwater that continue to exceed ACLs.

2-A. What is your overall impression of the system with regards to safety, efficiency, and effectiveness?

System is very safe and overall pretty efficient. The treatment has been slower than anticipated due to low production at well EW-12-08-180U (6 years vs 3 expected with new EWs, due to 45 GPM vs 90 GPM expected.) However, last quarter all COCs were below the ACL in all wells!

2-B. Have any system enhancements been made since the 2017 FYR? If so, explain.

Changed pump in well EW-12-08-180U from 7.5 to 10 HP pump to try to increase flow, but it didn't work, and realized restriction must be in pipeline.

2-C. Are there any improvements you recommend to system operation to improve these areas?

Not at this time, since at the moment all COCs were below ACL. They are still trying to figure out where the restriction in the pipeline is; going to using in-pipe camera scope, but this will only go 500' from each end, so not full distance.

3-A. Is there a continuous on-site O&M presence or is there the ability to monitor the system remotely (If so describe)?

People are not onsite, but staff is at the OU2 GWTP at least 40 hours a week, and able to monitor the system remotely via SCADA, both at the OU2 GWTP and at home. Staff is alarmed anytime 24/7 if the system identifies an issue.

3-B. If there is not continuous onsite presence, how often are personnel on-site during routine operations?

Approximately twice per week.

3-C. Describe routine O&M activities.

The GWTS is operated in accordance with the August 2009 *Final Operations and Maintenance Manual, Volume II, Sites 2 and 12 (Sites 2/12) Groundwater Remedy, Former Fort Ord, California* (Administrative Record Number BW-2479G). The STVU is operated in accordance with the October 2015 *Final Operations and Maintenance Manual Volume III, Sites 2 and 12 Soil Vapor Extraction and Treatment System, Former Fort Ord, California* (Administrative Record Number BW-2763A).

3-D. Have there been any significant changes in O&M requirements, maintenance schedule and activities, or sampling routines since the last five-year review (September 2017)? If so please explain changes and reasons for change.

No.

3-E. Have there been unexpected O&M difficulties or costs changes at the site since the last five year review?

No.

4-A. Please describe what controls in place to prevent or reduce the impact of an unintended release of untreated water in the event of system upset.

There is secondary containment of GWTP equipment and conveyance piping, leak detection systems with auto shutoff by the SCADA system if leaking is detected.

4-B. When was the last time these controls were inspected/tested and documented?

The leak detection system is inspected and tested every 2 years, it was last performed July 27-29, 2020.

.

4-C. Has there been any unintended release of untreated water since the last 5 year review? If so describe nature of release, lessons learned and changes to system and/or SOPs as a result.

No.

5. Are you aware of any community concerns or complaints regarding the site or operation of the remediation treatment systems at the site?

No.

F. System Conditions

1. Extraction, Injection & Monitoring Wells

a) Is there a regular well maintenance program? If so, what is the well maintenance protocol:

These are described in the August 2009 *Final Operations and Maintenance Manual, Volume II, Sites 2 and 12 (Sites 2/12) Groundwater Remedy, Former Fort Ord, California* (Administrative Record Number BW-2479G).

b) Can the prescribed well maintenance be carried out given the layout of the well and the available Personnel and equipment?

Yes.

c) When were the well(s) last developed and when will it (they) be redeveloped?

EW-12-08-180U was redeveloped in 2021 when the pump was replaced.

d) Is there a maintenance schedule for the pump and how is it documented? Has there been excessive pump wear noticed due to sediments?

These are described in the August 2009 *Final Operations and Maintenance Manual, Volume II, Sites 2 and 12 (Sites 2/12) Groundwater Remedy, Former Fort Ord, California* (Administrative Record Number BW-2479G). There has been no indication of wear from sediments.

e) Are all of the flow meters/totalizers in good working order? **Yes.**

f) Is there an inventory of appropriate spare parts for the pumps and related equipment? **Yes.**

g) Is there an up-to-date logbook for recording performance & maintenance for each extraction well? **Yes.**

2. General Treatment System Inspection

a) What is the design basis for the above-ground portion of the water treatment system? (e.g., minimum and maximum influent flow, influent concentrations, operating hours per day, expected downtime)

95% operability, ~140 gpm. 24 hrs/day, 365 days/year

b) What is the average total of treated water annually? **242.6 million gallons since 2006**

c) What are the average total hours of down time annually? **GWTS: 567 hours SVETS: 3306.4 hours**

d) List the amounts of consumable materials used in the treatment processes (e.g., acid, caustic, sequestering agents, coagulants, activated carbon).

Activated carbon is the only consumable, as the potassium permanganate has never needed to be replaced. The activated carbon is recycled, treated by a processor, and reused.

e) What are the quantities of secondary waste products generated (e.g., sludge, spent activated carbon).

The amount of GAC wasted is minimized as much as possible and is a relatively small amount.

f) Are all ancillary equipment (pumps, blowers, valves, etc) are maintained per manufacturers recommendations? **Yes.**

h) Do any pumps, blowers or ancillary equipment produce excessive noise? **No, only expected noise.**

i) Are there any signs of wear or corrosion present on system components (i.e. ion exchange vessels, air stripper towers, vapor phase carbon vessels, pipes and/or ductwork)?

Only the expected amount of wear or corrosion is present, nothing significant. An inspection of the GAC vessel is always done when GAC is replaced. In 2017 there were repairs done to one GAC vessel.

Photographic Documentation

Client: US Dept. of Army
Location: Fort Ord Sites 2/12

Prepared by: USACE, SPK, EDE-E
Photographer: Charity Meakes

Photograph No. 1

Date: August 4, 2021

Site: Site 2/12

Description: GAC vessel (gray tank) on the right. Two white tanks of potassium permanganate on the left for the air stripping system in the Groundwater Treatment Facility.

Photograph No. 2

Date: August 4, 2021

Site: Sites 2/12

Description: Effluent tank in the Groundwater Treatment Facility.

Photograph No. 3

Date: August 4, 2021

Site: Site 2/12

Description: Air stripper on top of stairs in Groundwater Treatment Facility.

Photograph No. 4

Date: August 4, 2021

Site: Sites 2/12

Description: Inside control room at Groundwater Treatment Facility.

Photograph No. 5

Date: August 4, 2021

Site: Site 2/12

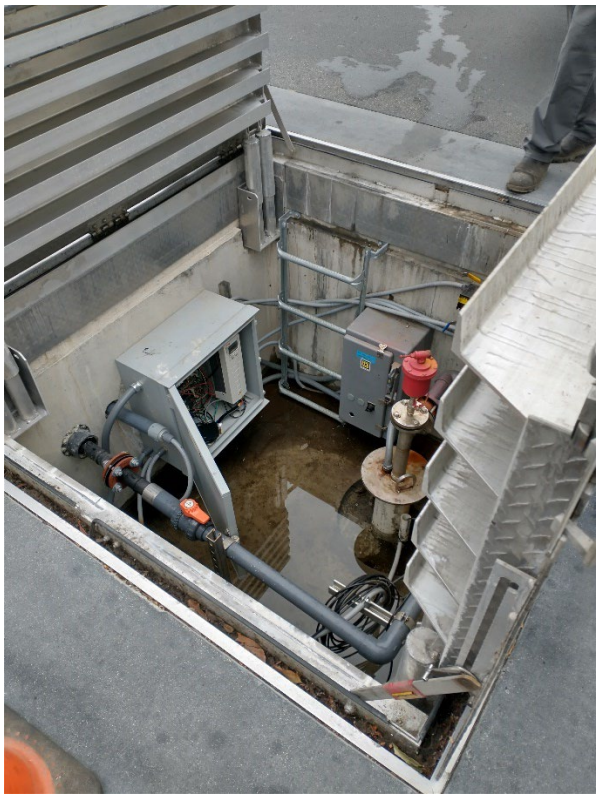
Description: Offline SVE system.

Photograph No. 6

Date: August 4, 2021

Site: Sites 2/12

Description: Inside vault for EW-12-08-180U.



Photograph No. 8

Date: August 4, 2021

Site: Site 2/12

Description: Outside Groundwater Treatment Facility. Fence normally closed and locked.

Photograph No. 9

Date: August 4, 2021

Site: Sites 2/12

Description: Signage on fence of Groundwater Treatment Facility.

Five-Year Review Site Inspection Checklist
Site 3

I. SITE INFORMATION	
Site name: Site 3	**Date of inspection:** August 3rd, 2021
Location and Region: Former Fort Ord	**EPA ID:** CA7210020676
Agency, office, or company leading the five-year review: U.S Department of the Army	**Weather/temperature:** Cloudy, ~60-65°F

Remedy Includes: (Check all that apply)

☐ Landfill cover/containment
X Access controls
☐ Institutional controls
☐ Groundwater pump and treatment
☐ Surface water collection and treatment
☐ Other_____
_____

☐ Monitored natural attenuation
☐ Groundwater containment
☐ Vertical barrier walls

Attachments: ☐ Inspection team roster attached X Site inspection photos attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** Stephen Bachman (Name) Senior Park & Recreation Specialist (Title) August 3,2021 (Date)
Interviewed ☐ at site ☐ at office ☐ by phone X by email email address: Stephen.bachman@parks.ca.gov
Problems, suggestions; ☐ Report attached _____
_____

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1.	**O&M Documents**			
	☐ O&M manual	☐ Readily available	☐ Up to date	X N/A
	☐ As-built drawings	☐ Readily available	☐ Up to date	X N/A
	☐ Maintenance logs	☐ Readily available	☐ Up to date	X N/A
2.	**Site-Specific Health and Safety Plan**	☐ Readily available	☐ Up to date	X N/A
	☐ Contingency plan/emergency response plan	☐ Readily available	☐ Up to date	X N/A
3.	**O&M and OSHA Training Records**	☐ Readily available	☐ Up to date	X N/A
4.	**Permits and Service Agreements**			
	☐ Air discharge permit	☐ Readily available	☐ Up to date	X N/A
	☐ Effluent discharge	☐ Readily available	☐ Up to date	X N/A
	☐ Waste disposal, POTW	☐ Readily available	☐ Up to date	X N/A
	☐ Other permits_____	☐ Readily available	☐ Up to date	X N/A
5.	**Gas Generation Records**	☐ Readily available	☐ Up to date	X N/A
6.	**Settlement Monument Records**	☐ Readily available	☐ Up to date	X N/A
7.	**Groundwater Monitoring Records**	☐ Readily available	☐ Up to date	X N/A

8.	**Leachate Extraction Records**	☐ Readily available	☐ Up to date	X N/A
9.	**Discharge Compliance Records**			
	☐ Air	☐ Readily available	☐ Up to date	X N/A
	☐ Water (effluent)	☐ Readily available	☐ Up to date	X N/A
10.	**Daily Access/Security Logs**	☐ Readily available	☐ Up to date	X N/A

IV. O&M COSTS – None Identified

V. ACCESS AND INSTITUTIONAL CONTROLS X Applicable ☐ N/A

A. Fencing

1. **Fencing damaged** ☐ Location shown on site map X Gates secured ☐ N/A
Remarks: All fencing was in good condition. The State Parks use fencing and gates to manage public access. The Site 3 ROD does not require fencing or gates.

B. Other Access Restrictions

1. **Signs and other security measures** ☐ Location shown on site map ☐ N/A
Remarks: Signs restricting entrance into protected wildlife areas (i.e do not enter) prevalent throughout Site 3.

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	☐ Yes	X No	☐ N/A
Site conditions imply ICs not being fully enforced	☐ Yes	X No	☐ N/A

Type of monitoring (*e.g.*, self-reporting, drive by): Self reporting (Drive by Inspections)
Frequency: Irregular frequency
Responsible party/agency: California State Parks and Recreation Department

Reporting is up-to-date	☐ Yes	☐ No	X N/A
Reports are verified by the lead agency	☐ Yes	☐ No	X N/A
Specific requirements in deed or decision documents have been met	X Yes	☐ No	☐ N/A
Violations have been reported	☐ Yes	☐ No	X N/A

Other problems or suggestions: ☐ Report attached

2. **Adequacy** X ICs are adequate ☐ ICs are inadequate ☐ N/A

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map ☐ No vandalism evident
Remarks: Some new vandalism since the last five year review at a former firing range facility.

2. **Land use changes on site** X N/A

3. **Land use changes off site** X N/A

VI. GENERAL SITE CONDITIONS

A. Roads X Applicable ☐ N/A

1. **Roads damaged** ☐ Location shown on site map X Roads adequate ☐ N/A

B. Other Site Conditions – X N/A

VII. LANDFILL COVERS ☐ Applicable X N/A	
VIII. VERTICAL BARRIER WALLS ☐ Applicable X N/A	
IX. GROUNDWATER/SURFACE WATER REMEDIES ☐ Applicable X N/A	
X. OTHER REMEDIES – X N/A	
XI. OVERALL OBSERVATIONS	
A.	**Implementation of the Remedy**
	Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.). Current remedy (LUCs and ICs) is effective and functioning as intended. All fencing and signage appear to be in good condition and clearly indicate where visitors are allowed to walk. State Park visitors during the site visit all kept to the trail. Vegetation appears to be in good condition.
B.	**Adequacy of O&M – N/A**
C.	**Early Indicators of Potential Remedy Problems – N/A**
D.	**Opportunities for Optimization – N/A**
E.	**Additional Questions/Comments – N/A**
F.	**System Conditions – N/A**

Photographic Documentation

Client: US Dept. of Army
Location: Former Fort Ord Site 3

Prepared by: USACE, SPK, EDE-E
Photographer: Nancy Lam

Photograph No. 1

Date: August 3, 2021

Site: Site 3

Description: Signage and fencing located in the area North of the Fort Ord Dunes State Park Parking lot facing Northwest

Photograph No. 2

Date: August 3, 2021

Site: Site 3

Description: Fencing around the southern edge of former firing training ranges 5 and 6 facing north.

Photograph No. 3

Date: August 3, 2021

Site: Site 3

Description: Fencing around a Former firing ranges facility with new (within the last 4 years) graffiti, facing east

Five-Year Review Site Inspection Checklist
Fort Ord Site – Site 31

I. SITE INFORMATION	
Site name: Site 31	**Date of inspection:** August 4, 2021
Location and Region: Former Fort Ord, California	**EPA ID:** CA7210020676
Agency, office, or company leading the five-year review: U.S. Department of the Army	**Weather/temperature:** Partly Cloudy/50-60°F

Remedy Includes: (Check all that apply)

☐ Landfill cover/containment
☐ Access controls
x Institutional controls
☐ Groundwater pump and treatment
☐ Surface water collection and treatment
☐ Other_____
☐ Monitored natural attenuation
☐ Groundwater containment
☐ Vertical barrier walls

Attachments: ☐ Inspection team roster attached **x Site inspection photos attached**

II. INTERVIEWS – None, visual inspection only

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. **O&M Documents**

☐ O&M manual	☐ Readily available	☐ Up to date	**x N/A**
☐ As-built drawings	☐ Readily available	☐ Up to date	**x N/A**
☐ Maintenance logs	☐ Readily available	☐ Up to date	**x N/A**

Remarks_____

2. **Site-Specific Health and Safety Plan** ☐ Readily available ☐ Up to date **x N/A**
☐ Contingency plan/emergency response plan ☐ Readily available ☐ Up to date **x N/A**
Remarks_____

3. **O&M and OSHA Training Records** ☐ Readily available ☐ Up to date **x N/A**
Remarks_____

4. **Permits and Service Agreements**

☐ Air discharge permit	☐ Readily available	☐ Up to date	**x N/A**
☐ Effluent discharge	☐ Readily available	☐ Up to date	**x N/A**
☐ Waste disposal, POTW	☐ Readily available	☐ Up to date	**x N/A**
☐ Other permits_____	☐ Readily available	☐ Up to date	**x N/A**

Remarks_____

5.	**Gas Generation Records**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
6.	**Settlement Monument Records**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
7.	**Groundwater Monitoring Records**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
8.	**Leachate Extraction Records**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
9.	**Discharge Compliance Records**			
	☐ Air	☐ Readily available	☐ Up to date	**x N/A**
	☐ Water (effluent)	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
10.	**Daily Access/Security Logs**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			

IV. O&M COSTS ☐ Applicable **x N/A**

V. ACCESS AND INSTITUTIONAL CONTROLS **x Applicable** ☐ N/A

A. Fencing

1.	**Fencing damaged**	☐ Location shown on site map	☐ Gates secured	**x N/A**
	Remarks_____			

B. Other Access Restrictions

1.	**Signs and other security measures**	☐ Location shown on site map	**x N/A**
	Remarks_____		

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented ☐ Yes **x No** ☐ N/A
Site conditions imply ICs not being fully enforced ☐ Yes **x No** ☐ N/A

Type of monitoring (*e.g.*, self-reporting, drive by) **None**
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date ☐ Yes ☐ No **x N/A**
Reports are verified by the lead agency ☐ Yes ☐ No **x N/A**

Specific requirements in deed or decision documents have been met **x Yes** ☐ No ☐ N/A
Violations have been reported ☐ Yes ☐ No **x N/A**
Other problems or suggestions: ☐ Report attached

_____
_____
_____
_____

2. **Adequacy** **x ICs are adequate** ☐ ICs are inadequate ☐ N/A
Remarks: **The site is vacant with no evidence of soil disturbance or change in surrounding land use.**

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map ☐ No vandalism evident
Remarks: **Former Bldg. 660 shows evidence of both, however, uncertain of how recent. Nothing noted on excavated slope or remaining footprint of site.**

2. **Land use changes on site** ☐ N/A
Remarks: **None**

3. **Land use changes off site** **x N/A**
Remarks_____
_____

VI. GENERAL SITE CONDITIONS

A. Roads **x Applicable** ☐ N/A

1. **Roads damaged** ☐ Location shown on site map **x Roads adequate** ☐ N/A
Remarks_____
_____

B. Other Site Conditions	
Remarks: **The site has been restored to a condition consistent with the surrounding landscape.**	
VII. LANDFILL COVERS ☐ Applicable **x N/A**	
VIII. VERTICAL BARRIER WALLS ☐ Applicable **x N/A**	
IX. GROUNDWATER/SURFACE WATER REMEDIES ☐ Applicable **x N/A**	
X. OTHER REMEDIES ☐ Applicable **x N/A**	
If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.	
XI. OVERALL OBSERVATIONS	
A.	**Implementation of the Remedy**
Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.). **The remedy included excavation and Institutional Controls. The remedy is functioning as intended as there is no evidence of soil disturbance, erosion, or residential use at the site.**	
B.	**Adequacy of O&M**
Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy. **Not Applicable**	
C.	**Early Indicators of Potential Remedy Problems**
Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future. **None**	
D.	**Opportunities for Optimization**
Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. **None**	
E.	**Additional Questions/Comments**
None	
F.	**System Conditions**
None	

Photographic Documentation

Client: US Dept. of Army
Location: Former Fort Ord Site 31

Prepared by: USACE, SPK
Photographer: Chris Beard

Photograph No. 1

Date: August 4, 2021

Site: 31

Description: Facing northwest looking out at access road from the site.

Photograph No. 2

Date: August 4, 2021

Site: Site 31

Description: Footpath to site, looking southeast. Former Bldg 660 in picture at left.

Photograph No. 3

Date: August 4, 2021

Site: Site 31

Description: Looking southeast. Site 31 excavated slope in foreground, vegetation growth evident. Drainage pipe on slope in background.

Photograph No. 4

Date: August 4, 2021

Site: Site 31

Description: Facing downslope looking at vegetation growth on excavated slope.

Five-Year Review Site Inspection Checklist
Site 33

I. SITE INFORMATION	
Site name: Site 33	**Date of inspection: August 5, 2021**
Location and Region: Former Fort Ord, California	**EPA ID: CA7210020676**
Agency, office, or company leading the five-year review: U.S. Department of the Army	**Weather/temperature: Sunny/high 60's low 70's**

Remedy Includes: (Check all that apply)

- ☐ Landfill cover/containment
- ☐ Access controls
- **x** Institutional controls
- ☐ Groundwater pump and treatment
- ☐ Surface water collection and treatment
- ☐ Monitored natural attenuation
- ☐ Groundwater containment
- ☐ Vertical barrier walls
- **x Other: Site restricted to non-residential use.**

Attachments: ☐ Inspection team roster attached **x Site inspection photos attached**

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** Dick Fitzgerald (Name) Bayonet/Blackhorse Golf Course Managing Director (Title) 11/5/2021 (Date)
   Interviewed ☐ at site ☐ at office X by phone Phone no. 831.392.1900
   Problems, suggestions; ☐ Report attached _____

2. **O&M staff** _____ (Name) _____ (Title) _____ (Date)
   Interviewed ☐ at site ☐ at office ☐ by phone Phone no. _____
   Problems, suggestions; ☐ Report attached

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.
   Agency _____
   Contact _____ (Name) (Title) (Date) (Phone no.)
   Problems; suggestions; ☐ Report attached _____

4. **Other interviews** (optional) ☐ Report attached.

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)				
1.	**O&M Documents**			
	☐ O&M manual	☐ Readily available	☐ Up to date	**x** N/A
	☐ As-built drawings	☐ Readily available	☐ Up to date	**x** N/A
	☐ Maintenance logs	☐ Readily available	☐ Up to date	**x** N/A
	Remarks:			
2.	**Site-Specific Health and Safety Plan**	☐ Readily available	☐Up to date	**x** N/A
	☐ Contingency plan/emergency response plan	☐ Readily available	☐ Up to date	**x** N/A
	Remarks:			
3.	**O&M and OSHA Training Records**	☐ Readily available	☐ Up to date	**x** N/A
	Remarks:			
4.	**Permits and Service Agreements**			
	☐ Air discharge permit	☐ Readily available	☐ Up to date	**x** N/A
	☐ Effluent discharge	☐ Readily available	☐ Up to date	**x** N/A
	☐ Waste disposal, POTW	☐ Readily available	☐ Up to date	**x** N/A
	☐ Other permits: _____	☐ Readily available	☐ Up to date	**x** N/A
	Remarks:			
5.	**Gas Generation Records**	☐ Readily available	☐ Up to date	**x** N/A
	Remarks:			
6.	**Settlement Monument Records**	☐ Readily available	☐ Up to date	**x** N/A
	Remarks:			
7.	**Groundwater Monitoring Records**	☐ Readily available	☐ Up to date	**x** N/A
	Remarks:			
8.	**Leachate Extraction Records**	☐ Readily available	☐ Up to date	**x** N/A
	Remarks_____			
	_____			
9.	**Discharge Compliance Records**			
	☐ Air	☐ Readily available	☐ Up to date	**x** N/A
	☐ Water (effluent)	☐ Readily available	☐ Up to date	**x** N/A
	Remarks:			
10.	**Daily Access/Security Logs**	☐ Readily available	☐ Up to date	**x** N/A
	Remarks:			

IV. O&M COSTS ☐ Applicable **x** N/A
V. ACCESS AND INSTITUTIONAL CONTROLS **x** Applicable ☐ N/A
A. Fencing
1. **Fencing** ☐ Location shown on site map ☐ Gates secured ☐ N/A Remarks: **The site is fenced and gated. Golf course maintenance team was using the site at the time of site visit.**
B. Other Access Restrictions
1. **Signs and other security measures** ☐ Location shown on site map ☐ N/A Remarks: **No signs restricting entry were observed.**

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented ☐ Yes **x** No ☐ N/A
Site conditions imply ICs not being fully enforced ☐ Yes **x** No ☐ N/A

Type of monitoring (*e.g.*, self-reporting, drive by): **None**
Frequency: _____
Responsible party/agency: _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date ☐ Yes ☐ No **x** N/A
Reports are verified by the lead agency ☐ Yes ☐ No **x** N/A

Specific requirements in deed or decision documents have been met **x** Yes ☐ No ☐ N/A
Violations have been reported ☐ Yes ☐ No **x** N/A
Other problems or suggestions: ☐ Report attached

2. **Adequacy** **x ICs are adequate** ☐ ICs are inadequate ☐ N/A
Remarks_____
_____
_____

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map **x No vandalism evident**
Remarks_____
_____

2. **Land use changes on site** ☐ N/A
Remarks: **No**

3. **Land use changes off site** **x** N/A
Remarks_____
_____

VI. GENERAL SITE CONDITIONS

A. Roads ☐ Applicable ☐ N/A

1. **Roads damaged** ☐ Location shown on site map **x** Roads adequate ☐ N/A
Remarks_____
_____

B. Other Site Conditions
Remarks _**The site is used by the Bayonet/Blackhorse Golf Course grounds equipment maintenance facility.**

VII. LANDFILL COVERS		☐ Applicable	**x N/A**
VIII. VERTICAL BARRIER WALLS		☐ Applicable	**x N/A**
IX. GROUNDWATER/SURFACE WATER REMEDIES		☐ Applicable	**x N/A**

X. OTHER REMEDIES			
If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.			
XI. OVERALL OBSERVATIONS			
A.	**Implementation of the Remedy**		
B.	**Adequacy of O&M**	☐ Applicable	**x** N/A
C.	**Early Indicators of Potential Remedy Problems**	☐ Applicable	**x** N/A
D.	**Opportunities for Optimization**	☐ Applicable	**x** N/A
E.	**Additional Questions/Comments**	☐ Applicable	**x** N/A

Photographic Documentation

Client: US Dept. of Army
Location: Former Fort Ord Site 33

Prepared by: USACE, SPK, EDE-E
Photographer: Jocelyn Barber

Photograph No. 1

Date: August 5, 2021

Site: Site 33

Description: Site 33 entrance (gated with a lock).

Five-Year Review Site Inspection Checklist
Fort Ord Site – Site 39

I. SITE INFORMATION

Site name: Site 39	**Date of inspection:** August 4, 2021
Location and Region: Former Fort Ord, California	**EPA ID:** CA7210020676
Agency, office, or company leading the five-year review: U.S. Department of the Army	**Weather/temperature:** Partly Cloudy/50-60°F

Remedy Includes: (Check all that apply)

☐ Landfill cover/containment
☐ Access controls
☐ Institutional controls
☐ Groundwater pump and treatment
☐ Surface water collection and treatment
☐ Monitored natural attenuation
☐ Groundwater containment
☐ Vertical barrier walls
x Other: Excavate soil with unacceptable levels of lead, TNT, HMX, and RDX and restore the site in accordance with habitat restoration requirements.

Attachments: ☐ Inspection team roster attached **x Site inspection photos attached**

II. INTERVIEWS (Check all that apply)

1. **O&M site manager:** **Bill Collins** (Name) **BRAC Environmental Coordinator** (Title) **August 4, 2021** (Date)
   Interviewed ☐ at site **X at office** ☐ by phone Phone no. _____
   Problems, suggestions; ☐ Report attached _____
   _____

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. **O&M Documents**

☐ O&M manual	☐ Readily available	☐ Up to date	**x N/A**
☐ As-built drawings	☐ Readily available	☐ Up to date	**x N/A**
☐ Maintenance logs	☐ Readily available	☐ Up to date	**x N/A**

Remarks_____
_____

2. **Site-Specific Health and Safety Plan** **x Readily available** **x Up to date** ☐ N/A
   ☐ Contingency plan/emergency response plan ☐ Readily available ☐ Up to date ☐ N/A
   Remarks: **Available on fortordcleanup.com**

3. **O&M and OSHA Training Records** **x Readily available** **x Up to date** ☐ N/A
   Remarks: **Available on fortordcleanup.com**

4.	**Permits and Service Agreements**			
	☐ Air discharge permit	☐ Readily available	☐ Up to date	**x N/A**
	☐ Effluent discharge	☐ Readily available	☐ Up to date	**x N/A**
	☐ Waste disposal, POTW	☐ Readily available	☐ Up to date	**x N/A**
	☐ Other permits_____	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
5.	**Gas Generation Records**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
6.	**Settlement Monument Records**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
7.	**Groundwater Monitoring Records**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
8.	**Leachate Extraction Records**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
9.	**Discharge Compliance Records**			
	☐ Air	☐ Readily available	☐ Up to date	**x N/A**
	☐ Water (effluent)	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
10.	**Daily Access/Security Logs**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			

IV. O&M COSTS ☐ Applicable **x N/A**

V. ACCESS AND INSTITUTIONAL CONTROLS **x Applicable** ☐ N/A

A. Fencing

1. **Fencing damaged** ☐ Location shown on site map **x Gates secured** ☐ N/A

Remarks: **The Army maintains a fence and gates with appropriate signage for the Track 3 Impact Area MRA which is within the Site 39 habitat reserve areas.**

B. Other Access Restrictions

1. **Signs and other security measures** ☐ Location shown on site map ☐ N/A

Remarks: **Signage evident on gates and fencing. Inspections of gates and fencing are conducted three times a week by Army personnel.**

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented ☐ Yes **x No** ☐ N/A
Site conditions imply ICs not being fully enforced ☐ Yes **x No** ☐ N/A

Type of monitoring (*e.g.*, self-reporting, drive by) **Self reporting**
Frequency_____
Responsible party/agency: **U.S. Department of the Army**
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date ☐ Yes ☐ No **x N/A**
Reports are verified by the lead agency ☐ Yes ☐ No **x N/A**

Specific requirements in deed or decision documents have been met **x Yes** ☐ No ☐ N/A
Violations have been reported ☐ Yes **x No** ☐ N/A
Other problems or suggestions: ☐ Report attached
_____
_____
_____
_____

2. **Adequacy** **x ICs are adequate** ☐ ICs are inadequate ☐ N/A
Remarks: **Residential Use Restrictions are in place for HA-18D and HA-23D.**

. General

1. **Vandalism/trespassing** ☐ Location shown on site map **x No vandalism evident**
Remarks: **Surveillance cameras are staged at certain locations and daily patrols by POM Police are conducted to thwart vandalism. These measures are part of the munitions response site security program associated with the Track 3 Impact Area MRA which is within the Site 39 habitat reserve areas.**

2. **Land use changes on site** ☐ N/A
Remarks: **None**

3. **Land use changes off site** **x N/A**
Remarks_____
_____

VI. GENERAL SITE CONDITIONS

A. Roads **x Applicable** ☐ N/A

1. **Roads damaged** ☐ Location shown on site map **x Roads adequate** ☐ N/A
Remarks_____
_____

B. Other Site Conditions	
Remarks: **None**	
VII. LANDFILL COVERS ☐ Applicable **x N/A**	
VIII. VERTICAL BARRIER WALLS ☐ Applicable **x N/A**	
IX. GROUNDWATER/SURFACE WATER REMEDIES ☐ Applicable **x N/A**	
X. OTHER REMEDIES ☐ Applicable **x N/A**	
If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.	
XI. OVERALL OBSERVATIONS	
A.	**Implementation of the Remedy**
Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.). **The remedy includes excavation of soil with unacceptable levels of lead, TNT, HMX, and RDX and restoration in accordance with habitat restoration requirements. A drive-by inspection was conducted of HA-34, HA-37, and HA-38 to assess site restoration. Vegetation growth was occurring, BMPs were still in place and in working order, no signs of vandalism or trespassing.**	
B.	**Adequacy of O&M**
Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy. **Not Applicable**	
C.	**Early Indicators of Potential Remedy Problems**
Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future. **Not Applicable**	
D.	**Opportunities for Optimization**
Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. **Not Applicable**	
E.	**Additional Questions/Comments**

1. What is your current role as it relates to the site? **The Interviewee is the Fort Ord BRAC Environmental Coordinator.**

2. Explain the purpose of the system and list what contaminants it is treating for. **Excavate contaminated soil to protect Human Health and restore the site in accordance with habitat restoration requirements.**

2-A. What is your overall impression of the system with regards to safety, efficiency and effectiveness? **Good, no issues or challenges with protectiveness in identified contaminated areas.**

2-B. Have any system enhancements been made since the 2017 FYR? If so, explain. **Residential Use Restrictions were put in place at HA-18D and HA-23D with the understanding that soil will be removed upon stakeholder concurrence.**

2-C. Are there any improvements you recommend to system operation to improve these areas? **In the process of an ESD for HA-18D and HA-23D to address residential use.**

3-A. Is there a continuous on-site O&M presence or is there the ability to monitor the system remotely (If so describe)? **No/Not Applicable**

3-B. If there is not continuous onsite presence, how often are personnel on-site during routine operations? **3 times per week.**

3-C. Describe routine O&M activities. **BLM/Army/POM Police conduct drive by inspections. Assess access roads, site safety, signs of trespassing.**

3-D. Have there been any significant changes in O&M requirements, maintenance schedule and activities, or sampling routines since the last five-year review (September 2017)? If so please explain changes and reasons for change. **No**

3-E. Have there been unexpected O&M difficulties or costs changes at the site since the last five year review? **No**

4-A. Please describe what controls in place to prevent or reduce the impact of an unintended release of untreated water in the event of system upset. **Not Applicable**

4-B. When was the last time these controls were inspected/tested and documented? **Not Applicable**

4-C. Has there been any unintended release of untreated water since the last 5 year review? If so describe nature of release, lessons learned and changes to system and/or SOPs as a result. **Not Applicable**

5. Are you aware of any community concerns or complaints regarding the site or operation of the remediation treatment systems at the site? **No**

Photographic Documentation

Client: US Dept. of Army
Location: Former Fort Ord Site 39
Photograph No. 1

Prepared by: USACE, SPK
Photographer: Chris Beard

Date: August 4, 2021

Site: 39

Description: Broadway East Gate. Signage typical of access points at Site 39.

Photograph No. 2

Date: August 4, 2021

Site: Site 39

Description: Habitat restoration after remedial activities at HA-38.

Photograph No. 3

Date: August 4, 2021

Site: 39

Description: Habitat restoration after remedial activities at HA-37.

Photograph No. 4

Date: August 4, 2021

Site: Site 39

Description: Habitat restoration after remedial activities at HA-37.

Photograph No. 5

Date: August 4, 2021

Site: 39

Description: Facing west looking at overview of Site 39.

Photograph No. 6

Date: August 4, 2021

Site: Site 39

Description: Facing north looking at overview of Site 39.

Photograph No. 7

Date: August 4, 2021

Site: 39

Description: Habitat restoration after remedial activities at HA-34. BMPs (rip rap, wattles) evident.

Photograph No. 8

Date: August 4, 2021

Site: Site 39

Description: Habitat restoration after remedial activities at HA-34. Access road running through HA.

Photograph No. 9

Date: August 4, 2021

Site: 39

Description: Habitat restoration after remedial activities at HA-34. BMPs (rip rap, wattles) evident.

Five-Year Review Site Inspection Checklist
Fort Ord: Track 2 BLM Area B and MRS-16

I. SITE INFORMATION

Site name: Track 2 BLM Area B and MRS-16	**Date of inspection:** July 21 and 22, 2021
Location and Region: Former Fort Ord, California	**EPA ID:** CA7210020676
Agency, office, or company leading the five-year review: U.S. Department of the Army	**Weather/temperature:** Clear/mid-70s (Fahrenheit)

Remedy* Includes: (Check all that apply)

☐ Landfill cover/containment	☐ Monitored natural attenuation
☐ Access controls	☐ Groundwater containment
x Institutional controls	**x Vegetation clearance via prescribed burns**
☐ Groundwater pump and treatment	**x Technology-aided surface MEC removal**
☐ Surface water collection and treatment	**x Subsurface MEC removal in selected areas**
☐ Vertical barrier walls	**x Digital geophysical mapping survey**
☐ Other	**x Land use controls**

*** Remedial action implementation at sub-area B-3: Unit A has not been completed. Completion of remaining remedial action within Unit A is pending a prescribed burn during future burn season.**

Attachments: ☐ Inspection team roster attached **x Site inspection photos attached**

II. INTERVIEWS

1. Eric Morgan (Name) | BLM Area Manager (Title) | 02/07/2022 (Date)

Interviewed: ☐ at site ☐ at office **x by phone** Phone no. (831) 582-2212

Problems, suggestions; **x Report attached** Interview questions and answers included in Section **XI (A-E)**.

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. **O&M Documents**

☐ O&M manual	☐ Readily available	☐ Up to date	**x N/A**
☐ As-built drawings	☐ Readily available	☐ Up to date	**x N/A**
☐ Maintenance logs	☐ Readily available	☐ Up to date	**x N/A**

Remarks_____

_____

2.

Site-Specific Health and Safety Plan	**x Readily available**	**x Up to date**	☐ N/A
☐ Contingency plan/emergency response plan	☐ Readily available	☐ Up to date	☐ N/A

Remarks: Documents maintained in the BRAC and contractor offices

3.	**O&M and OSHA Training Records**	**x Readily available**	**x Up to date**	☐ N/A
	Remarks: Documents maintained in the BRAC and contractor offices			
4.	**Permits and Service Agreements**			
	☐ Air discharge permit	☐ Readily available	☐ Up to date	**x N/A**
	☐ Effluent discharge	☐ Readily available	☐ Up to date	**x N/A**
	☐ Waste disposal, POTW	☐ Readily available	☐ Up to date	**x N/A**
	☐ Other permits_____	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
5.	**Gas Generation Records**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
6.	**Settlement Monument Records**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
7.	**Groundwater Monitoring Records**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
8.	**Leachate Extraction Records**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
9.	**Discharge Compliance Records**			
	☐ Air	☐ Readily available	☐ Up to date	**x N/A**
	☐ Water (effluent)	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
10.	**Daily Access/Security Logs**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			

IV. O&M COSTS

☐ Applicable **x N/A**

None identified for BLM Area B and MRS-16.

V. ACCESS AND INSTITUTIONAL CONTROLS **x Applicable** ☐ N/A

A. Fencing

1.	**Fencing**	☐ Location shown on site map	☐ Gates secured	**x N/A**
	Remarks:			

B. Other Access Restrictions

1.	**Signs and other security measures**	☐ Location shown on site map ☐ N/A
	Remarks: Signs, informational kiosks, and public education materials were observed to be in good order.	

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented ☐ Yes **x No** ☐ N/A
Site conditions imply ICs not being fully enforced ☐ Yes **x No** ☐ N/A

Type of monitoring (*e.g.*, self-reporting, drive by): **Visual inspections of signs, informational kiosks, and public education materials condition conducted from motor vehicle and documented through self-reporting.**
Frequency: **Annually**
Responsible party/agency: **US Department of the Army**
Contact: **Betsy Hibbits (Chenega Tri-Services)**
Name
Munitions Response Site Security Manager **(831)242-7919**
Title Phone no.

Reporting is up-to-date* **x Yes** ☐ No ☐ N/A
Reports are verified by the lead agency ☐ Yes ☐ No **x N/A**

Specific requirements in deed or decision documents have been met **x Yes** ☐ No ☐ N/A
Violations have been reported ☐ Yes ☐ No **x N/A**
Other problems or suggestions: ☐ Report attached
Remarks: *Note that sign, kiosk, and public education material monitoring and maintenance are documented in the annual Land Use Control Monitoring Reports.

2. **Adequacy** **x ICs are adequate** ☐ ICs are inadequate ☐ N/A
Remarks_____

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map **x No vandalism evident***
Remarks: *Note that vandalism/trespassing incidents and security measures are documented in the MRS Security Program Annual Reports.

2. **Land use changes on site** **x N/A**
Remarks_____

3. **Land use changes off site** **x N/A**
Remarks_____

VI. GENERAL SITE CONDITIONS

A. Roads **x Applicable** ☐ N/A

1. **Roads damaged** ☐ Location shown on site map **x Roads adequate** ☐ N/A
Remarks_____

B. Other Site Conditions

Remarks: _____

VII. LANDFILL COVERS ☐ Applicable **x N/A**

VIII. VERTICAL BARRIER WALLS ☐ Applicable **x N/A**

IX. GROUNDWATER/SURFACE WATER REMEDIES ☐ Applicable **x N/A**

X. OTHER REMEDIES ☐ Applicable **x N/A**

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).
Remarks: The remedy is still in progress within BLM Area B. Unit A is still waiting on a prescribed burn specified in the ROD. Having the ability to use online UXO training for trail workers and other BLM personnel has been very helpful. There are so many people doing work on the site that this alleviates stress on the site safety personnel. There is still some confusion with the status of what has been done at certain sites and what the process needs to be for BLM personnel to conduct routine ground-disturbing maintenance. Currently working with the Army to create a ground-disturbing activity form for BLM routine maintenance activities that are minor intrusions or activities. This should make it easier for BLM to coordinate future activities.

B. Adequacy of O&M

Remarks: The signs and maps help clarify who owns what. No signs have been taken down or vandalized.

C. Early Indicators of Potential Remedy Problems

Remarks: BLM considers Eucalyptus Road a fuel break, but the Impact Area fence comes right up to the road. It is a challenge trying to cut and maintain a fuel break when the status of the subsurface clearance of the 15 feet on either side of the fuel break is unclear. BLM has concerns that future activities such as mowing, where dirt is being churned with a mower blade, may require an escort in the future if it is considered a ground-disturbing activity in an area that has not been subsurface cleared.

D. Opportunities for Optimization **x N/A**

E. Additional Questions/Comments **x N/A**

1. What is your current role as it relates to the site?

BLM Area Manager that ensures the remedial action supports future re-use.

2. Explain the purpose of the system and list what contaminants it is treating for.

The areas are receiving surface removal to address explosive hazards and subsurface removal in discrete areas.

2-A. What is your overall impression of the system with regards to safety, efficiency and effectiveness?

Overall, there have been some good developments that have allowed development of trails that theoretically can be maintained in perpetuity without many issues because the trails have been cleared. However, to get the

technology that ensures the trails that have been cleared are the trails that are being worked on in the future, when the area does not look the same, remains a challenge to be solved.

There is some off-trail use that happens outside of the Impact Area and BLM tries to address that as soon as they can, but illegal trail proliferation and impacts to wildlife will always be an issue. The remedy seems to be working outside of the Impact Area. Inside the Impact Area, BLM thinks that the remedy is leading to an acceptable situation, but we won't know until BLM identifies activities that the public should be involved in and there is comfort that the public will remain safe. With regard to illegal activities, there is still uncertainty amongst BLM and DTSC regulators with what to do when there is more open access and illegal activities are likely to still happen. There is also still uncertainty about future fire suppression and whether CalFire will feel they can take on the responsibility of the property.

2-B. Have any system enhancements been made since the 2017 FYR? If so, explain.

N/A

2-C. Are there any improvements you recommend to system operation to improve these areas?

Currently, when there are intrusive activities planned in various areas, the activity is documented on a form and is reviewed by several people. This results in a long and tedious process. It would streamline the process if proposed activities could be pre-approved based on remedial work completed to date rather than filling out the form for review on a case-by-case basis.

3-A. Is there a continuous on-site O&M presence or is there the ability to monitor the system remotely (If so describe)?

Yes. The Army funds BLM to keep the public from trespassing in areas where they are not supposed to be. The Army makes big efforts to retain qualified personnel on site to support that effort.

3-B. If there is not continuous on-site presence, how often are personnel on-site during routine operations?

N/A

3-C. Describe routine O&M activities.

There is frequent patrolling by law enforcement and park rangers. Even though not part of O&M, BLM personnel performing weed abatement and trail maintenance have received appropriate training and also serve as monitors of the area.

3-D. Have there been any significant changes in O&M requirements, maintenance schedule and activities, or sampling routines since the last five-year review (September 2017)? If so, please explain changes and reasons for change.

There has been change in personnel in the last five years that interpret guidance more or less strictly than previous personnel have. For example, there have been different interpretations regarding whether a fence needed to stay up or come down, what type of sign and how many are appropriate, and new procedures for items with unknown filler.

One significant change is that BLM can now call the county bomb squad when munition items are found rather than calling Vandenberg EOD. Previously, there was a significant lag time between discovering a munition item and Vandenberg EOD disposing of it. Having a local resource that can respond in a timely manner is a good thing.

3-E. Have there been unexpected O&M difficulties or costs changes at the site since the last five-year review?

N/A

4-A. Please describe what controls in place to prevent or reduce the impact of an unintended release of untreated water in the event of system upset.

N/A

4-B. When was the last time these controls were inspected/tested and documented?

N/A

4-C. Has there been any unintended release of untreated water since the last five-year review? If so describe nature of release, lessons learned and changes to system and/or SOPs as a result.

N/A

5. Are you aware of any community concerns or complaints regarding the site or operation of the remediation treatment systems at the site?

Yes. The biggest concern/complaints come from the fire agencies. The agencies do appreciate the maps that are provided to them that show where restrictions are in place and where there are no restrictions. However, they do not like the restrictions, particularly where they prohibit heavy equipment such as graders and bulldozers. The fire agencies have concerns regarding the restrictions and those concerns are increasing as development increases closer to the MRS.

F. System Condition **x N/A**

Photographic Documentation

Client: US Dept. of Army
Location: Former Fort Ord
BLM Area B and MRS 16

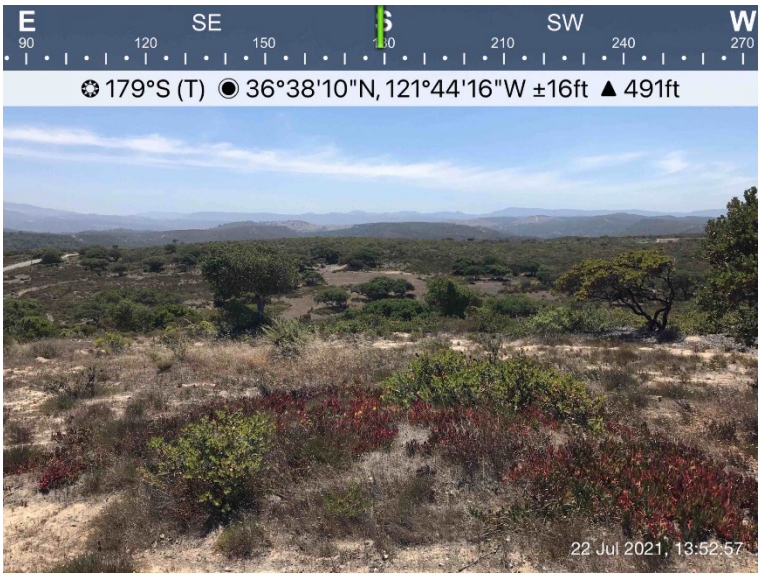
Prepared by: USACE, SPK, EDG-G
Photographer: Kyle Lindsay

Photograph No. 1

Date: July 22, 2021

Site: BLM Area B (Sub-Area B-2A)

Description: View looking south from East Machine Gun Flats Road. Representative site conditions at BLM Area B (Sub-Area B-2A).

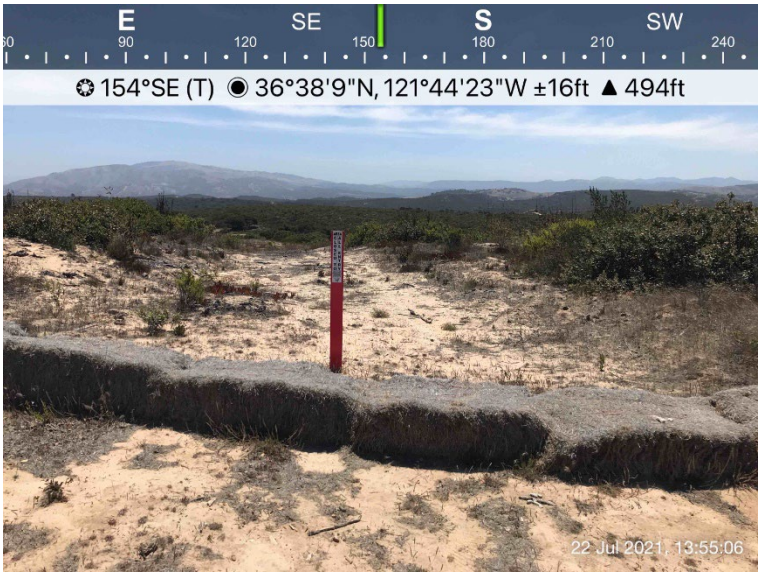


Photograph No. 2

Date: July 22, 2021

Site: BLM Area B (Sub-Area B-2A)

Description: View looking southeast from East Machine Gun Flats Road. Area Closed sign with straw waddles along northern boundary of MRA.

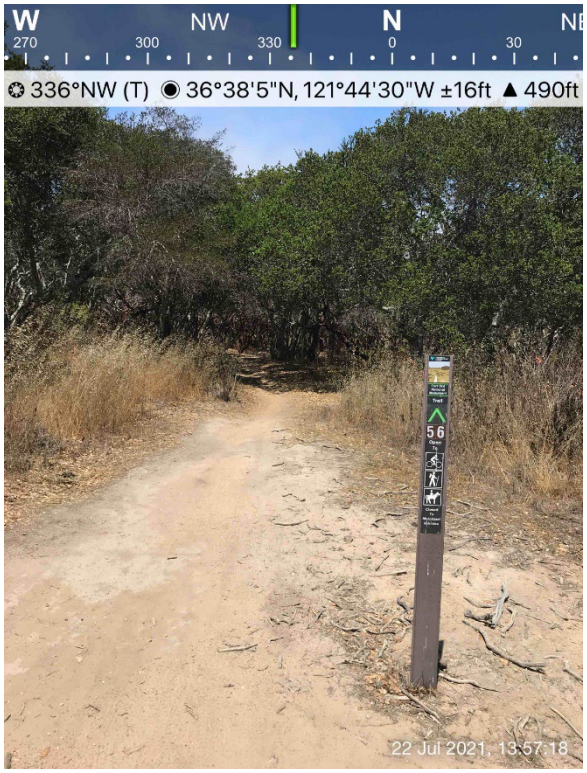


Photograph No. 3

Date: July 22, 2021

Site: BLM Area B (Sub-Area B-3E)

Description: View looking northwest from East Machine Gun Flats Road along Trail 56. Signed Trail for Trail 56.



Photograph No. 4

Date: July 22, 2021

Site: BLM Area B (Sub-Area B-3: Unit A)

Description: View looking northeast from intersection of Little Moab Road and West Machine Gun Flats Road. Warning sign instructing users that use is restricted to signed trails.

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Photograph No. 5

Date: July 22, 2021

Site: BLM Area B (Sub-Area B-3: Unit C)

Description: View looking southwest from Watkins Gate Road. Representative site conditions at BLM Area B (Sub-Area B-3: Unit C).

Photograph No. 6

Date: July 22, 2021

Site: BLM Area B (Sub-Area B-3: Unit C)

Description: View looking southeast from Watkins Gate Spur Road along Trail 70. Signed Trail for Trail 70.

Five-Year Review Site Inspection Checklist
Fort Ord: ESCA Group 1 MRAs

I. SITE INFORMATION	
Site name: ESCA Group 1 – Seaside MRA and Parker Flats MRA Phase II	**Date of inspection:** July 21 and 22, 2021
Location and Region: Former Fort Ord, California	**EPA ID:** CA7210020676
Agency, office, or company leading the five-year review: U.S. Department of the Army	**Weather/temperature:** Clear/mid-70s (Fahrenheit)

Remedy Includes: (Check all that apply)

☐ Landfill cover/containment	☐ Monitored natural attenuation
☐ Access controls	☐ Groundwater containment
☐ Institutional controls	☐ Vegetation clearance via prescribed burns
☐ Groundwater pump and treatment	☐ Technology-aided surface MEC removal
☐ Surface water collection and treatment	☐ Subsurface MEC removal in selected areas
☐ Vertical barrier walls	☐ Digital geophysical mapping survey
☐ Other	**☒ Land use controls**

Attachments: ☐ Inspection team roster attached **☒ Site inspection photos attached**

II. INTERVIEWS (check all that apply)

1. Melissa Broadston (Name) | ESCA Oversight Coordinator (Title) | 02/04/2022 (Date)
   Interviewed: ☐ at site ☐ at office **☒ by email** Phone no. (831) 899-6773
   Problems, suggestions; **☒ Report attached** Interview questions and answers included in Section **XI (A-E)**.

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. **O&M Documents**

☐ O&M manual	☐ Readily available	☐ Up to date	**☒ N/A**
☐ As-built drawings	☐ Readily available	☐ Up to date	**☒ N/A**
☐ Maintenance logs	☐ Readily available	☐ Up to date	**☒ N/A**

   Remarks_____

2. **Site-Specific Health and Safety Plan** ☐ Readily available ☐ Up to date **☒ N/A**
   ☐ Contingency plan/emergency response plan ☐ Readily available ☐ Up to date **☒ N/A**
   Remarks: _____

3. **O&M and OSHA Training Records** ☐ Readily available ☐ Up to date **☒ N/A**
   Remarks: Munitions Recognition and Safety Training records are reported by local jurisdictions in Annual Land Use Covenant Reports.

4.	**Permits and Service Agreements**			
	☐ Air discharge permit	☐ Readily available	☐ Up to date	**x N/A**
	☐ Effluent discharge	☐ Readily available	☐ Up to date	**x N/A**
	☐ Waste disposal, POTW	☐ Readily available	☐ Up to date	**x N/A**
	☐ Other permits_____	☐ Readily available	☐ Up to date	**x N/A**
	Remarks: Local digging and excavation permits are reported by local jurisdictions in Annual Land Use Covenant Reports.			
5.	**Gas Generation Records**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
6.	**Settlement Monument Records**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
7.	**Groundwater Monitoring Records**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
8.	**Leachate Extraction Records**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
9.	**Discharge Compliance Records**			
	☐ Air	☐ Readily available	☐ Up to date	**x N/A**
	☐ Water (effluent)	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
10.	**Daily Access/Security Logs**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			

IV. O&M COSTS

☐ Applicable **x N/A**

None identified for the ESCA Group 1 MRAs.

V. ACCESS AND INSTITUTIONAL CONTROLS **x Applicable** ☐ N/A

A. Fencing

1.	**Fencing**	☐ Location shown on site map	☐ Gates secured	**x N/A**
	Remarks:			

B. Other Access Restrictions

1.	**Signs and other security measures**	☐ Location shown on site map	**x N/A**
	Remarks:		

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented ☐ Yes **x No** ☐ N/A
Site conditions imply ICs not being fully enforced ☐ Yes **x No** ☐ N/A

Type of monitoring (*e.g.*, self-reporting, drive by): **Self-reporting.**
Frequency: **Annually**
Responsible party/agency: **The City of Seaside, Monterey County, and Monterey Peninsula College (MPC)**
Contact: **Sheri Damon** (Name) **ESCA Manager** (Title) **(831)899-6890** (Phone no.)

Reporting is up-to-date* **x Yes** ☐ No ☐ N/A
Reports are verified by the lead agency **x Yes** ☐ No ☐ N/A

Specific requirements in deed or decision documents have been met **x Yes** ☐ No ☐ N/A
Violations have been reported ☐ Yes ☐ No **x N/A**
Other problems or suggestions: ☐ Report attached
Remarks: *Note that Long-Term Obligations LUC management are reported in the Annual Land Use Covenant Reports.

2. **Adequacy** **x ICs are adequate** ☐ ICs are inadequate ☐ N/A
Remarks_____

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map **x No vandalism evident**
Remarks: No signs of vandalism or trespassing were observed.

2. **Land use changes on site** **x N/A**
Remarks_____

3. **Land use changes off site** **x N/A**
Remarks_____

VI. GENERAL SITE CONDITIONS

A. Roads **x Applicable** ☐ N/A

1. **Roads damaged** ☐ Location shown on site map **x Roads adequate** ☐ N/A
Remarks_____

B. Other Site Conditions

Remarks: _____

VII. LANDFILL COVERS ☐ Applicable **x N/A**	
VIII. VERTICAL BARRIER WALLS ☐ Applicable **x N/A**	
IX. GROUNDWATER/SURFACE WATER REMEDIES ☐ Applicable **x N/A**	
X. OTHER REMEDIES ☐ Applicable **x N/A**	
If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.	
XI. OVERALL OBSERVATIONS	
A.	**Implementation of the Remedy**
Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.). **Remarks**: The objectives of the remedy (land use controls) are: (1) to ensure that land users involved in ground-disturbing or intrusive activities are educated about the possibility of encountering MEC, (2) to ensure that land users involved in ground-disturbing or intrusive activities stop the activity when encountering potential MEC and report to the appropriate authority, (3) to ensure projects involving ground-disturbing or intrusive activities are coordinated with UXO-qualified personnel so discoveries of potential MEC items will be handled appropriately, and (4) to ensure that any proposals to allow residential development or modifications to residential restrictions are approved by EPA and Army in coordination with DTSC. The sites are in good condition. Land use controls appear to be effective. There are no inconsistent developments in these areas; there is an ongoing safety training program at www.FortOrdSafety.com; and all proposed ground disturbing activities are compliant with the respective Land Use Control Implementation.	
B.	**Adequacy of O&M** **x N/A**
C.	**Early Indicators of Potential Remedy Problems**
Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future. None identified.	
D.	**Opportunities for Optimization**
Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. None identified.	
E.	**Additional Questions/Comments**

1. What is your current role as it relates to the site?

ESCA oversight manager.

2. Explain the purpose of the remedy and list what contaminants it is treating for

The objectives of the remedy (land use controls) are: (1) to ensure that land users involved in ground-disturbing or intrusive activities are educated about the possibility of encountering MEC, (2) to ensure that land users involved in ground-disturbing or intrusive activities stop the activity when encountering potential MEC and report to the appropriate authority, (3) to ensure projects involving ground-disturbing or intrusive activities are coordinated with UXO-qualified personnel so discoveries of potential MEC items will be handled appropriately, and (4) to ensure that any proposals to allow residential development or modifications to residential restrictions are approved by EPA and Army in coordination with DTSC.

2-A. What is your overall impression of the remedy with regards to safety, efficiency and effectiveness?

The site is in good condition. Land use controls appear to be effective. There are no inconsistent developments in these areas; there is an ongoing safety training program at www.FortOrdSafety.com; and all proposed ground disturbing activities are compliant with the respective Land Use Control Implementation.

2-B. Have any remedy enhancements been made since the 2017 FYR? If so, explain.

No.

2-C. Are there any improvements you recommend to remedy implementation to improve these areas?

No.

3-A. Is there a continuous on-site O&M presence or is there the ability to monitor the remedy remotely (If so describe)

Yes, there is a continuous on-site O&M presence.

3-B. If there is not continuous onsite presence, how often are personnel on-site during routine operations?

3-C. Describe routine O&M activities.

Routine inspection of the property occurs including site walks and drive-bys.

3-D. Have there been any significant changes in O&M requirements, maintenance schedule and activities, or sampling routines since the last five-year review (September 2017)? If so please explain changes and reasons for change.

No significant changes in the O&M requirements.

3-E. Have there been unexpected O&M difficulties or costs changes at the site since the last five year review?

No unexpected O&M difficulties or costs have been incurred since the FY17 Five-Year Review.

4-A. Please describe what controls in place to prevent or reduce the impact of an unintended release of untreated water in the event of system upset.

Not applicable.

4-B. When was the last time these controls were inspected/tested and documented?

4-C. Has there been any unintended release of untreated water since the last 5 year review? If so describe nature of release, lessons learned and changes to system and/or SOPs as a result.

5. Are you aware of any community concerns or complaints regarding the site or operation of the remedy at the site?

There have been no community concerns or complaints regarding the site or operation of the remedy (land use controls) have been submitted.

F. System Condition **x N/A**

Photographic Documentation

Client: US Dept. of Army
Location: Former Fort Ord
ESCA Group 1

Prepared by: USACE, SPK, EDG-G
Photographer: Kyle Lindsay

Photograph No. 1

Date: July 22, 2021

Site: ESCA Group 1 Seaside MRA

Description: Locked gate leading to Seaside MRA along the Blue Line Road from Eucalyptus Road.

Photograph No. 2

Date: July 22, 2021

Site: ESCA Group 1 Seaside MRA

Description: View facing west from Blue Line Road. Construction activities associated with the Pure Water Monterey Groundwater Replenishment project.

Five-Year Review Site Inspection Checklist
Fort Ord: ESCA Group 3 MRAs

I. SITE INFORMATION

Site name: ESCA Group 3 MRAs - Del Rey Oaks/Monterey MRA, Laguna Seca Parking MRA, and Military Operations in Urban Terrain (MOUT) Site MRA	**Date of inspection:** July 21 and 22, 2021
Location and Region: Former Fort Ord, California	**EPA ID:** CA7210020676
Agency, office, or company leading the five-year review: U.S. Department of the Army	**Weather/temperature:** Clear/mid-70s (Fahrenheit)

Remedy Includes: (Check all that apply)

☐ Landfill cover/containment	☐ Monitored natural attenuation
☐ Access controls	☐ Groundwater containment
☐ Institutional controls	☐ Vegetation clearance via prescribed burns
☐ Groundwater pump and treatment	☐ Technology-aided surface MEC removal
☐ Surface water collection and treatment	☐ Subsurface MEC removal in selected areas
☐ Vertical barrier walls	☐ Digital geophysical mapping survey
☐ Other	**☒ Land use controls**

Attachments: ☐ Inspection team roster attached **☒ Site inspection photos attached**

II. INTERVIEWS (check all that apply)

1. Melissa Broadston (Name) — ESCA Oversight Coordinator (Title) — 02/04/2022 (Date)
   Interviewed: ☐ at site ☐ at office **☒ by email** Phone no. (831) 899-6773
   Problems, suggestions; **☒ Report attached** Interview questions and answers included in Section **XI (A-E)**.

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. **O&M Documents**

☐ O&M manual	☐ Readily available	☐ Up to date	**☒ N/A**
☐ As-built drawings	☐ Readily available	☐ Up to date	**☒ N/A**
☐ Maintenance logs	☐ Readily available	☐ Up to date	**☒ N/A**

Remarks_____

2.

Site-Specific Health and Safety Plan	☐ Readily available	☐ Up to date	**☒ N/A**
☐ Contingency plan/emergency response plan	☐ Readily available	☐ Up to date	**☒ N/A**

Remarks: _____

3.	**O&M and OSHA Training Records**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks: Munitions Recognition and Safety Training records are reported by local jurisdictions in Annual Land Use Covenant Reports.			
4.	**Permits and Service Agreements**			
	☐ Air discharge permit	☐ Readily available	☐ Up to date	**x N/A**
	☐ Effluent discharge	☐ Readily available	☐ Up to date	**x N/A**
	☐ Waste disposal, POTW	☐ Readily available	☐ Up to date	**x N/A**
	☐ Other permits_____	☐ Readily available	☐ Up to date	**x N/A**
	Remarks: Local digging and excavation permits are reported by local jurisdictions in Annual Land Use Covenant Reports.			
5.	**Gas Generation Records**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
6.	**Settlement Monument Records**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
7.	**Groundwater Monitoring Records**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
8.	**Leachate Extraction Records**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
9.	**Discharge Compliance Records**			
	☐ Air	☐ Readily available	☐ Up to date	**x N/A**
	☐ Water (effluent)	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
10.	**Daily Access/Security Logs**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			

IV. O&M COSTS

☐ Applicable **x N/A**

None identified for the ESCA Group 3 MRAs.

V. ACCESS AND INSTITUTIONAL CONTROLS **x Applicable** ☐ N/A

A. Fencing

1. **Fencing** ☐ Location shown on site map ☐ Gates secured **x N/A**
Remarks: Access management measures are not a requirement of the Group 3 ROD; however, the following describes the fencing, barricades and gates present at the MRAs: **Laguna Seca Parking MRA** – Fencing, barricades, and gates are intact, including: locked gates and barricades across South Boundary Road restricting access to the MRA from the south; locked gates across Barloy Canyon Road at the intersection with Eucalyptus Road restricting access into the MRA from the north; locked gates across Barloy Canyon Road at Laguna Seca Raceway; and the western side of the MRA, along Barloy Canyon Road, is bounded by barbed-wire fencing. The eastern boundary of the MRA is not restricted by fencing. South Boundary Road and Barloy Canyon Road are not usually open to vehicle traffic; however, the roadways are opened to controlled vehicle traffic during events at the Laguna Seca Raceway. **MOUT Site MRA –** Army owned and maintained Inland Range fencing and locked gate at entry to Impossible Canyon Road from Eucalyptus Road are intact. **DRO/Monterey MRA –** Fencing at the MRA consists of two segments of four-strand barbed wire along northeast boundary, to the southwest of South Boundary Road.

B. Other Access Restrictions

1. **Signs and other security measures** ☐ Location shown on site map **x N/A**
Remarks: Access management measures are not a requirement of the Group 3 ROD; however, the following describes the signs and other security measures present at the MRAs: **Laguna Seca Parking MRA -** Warning and no trespassing signs are posted on the gates, barriers, and fencing at the MRA. **MOUT Site MRA –** Warning and no trespassing signs, barbed wire, and concertina wire on the gate to Impossible Canyon from Eucalyptus Road are in good condition.

C. Institutional Controls (ICs)

1. **Implementation and enforcement**
Site conditions imply ICs not properly implemented ☐ Yes **x No** ☐ N/A
Site conditions imply ICs not being fully enforced ☐ Yes **x No** ☐ N/A

Type of monitoring (*e.g.*, self-reporting, drive by): **Self-reporting.**
Frequency: **Annually**
Responsible party/agency: **Monterey Peninsula College (MPC), Monterey County, City of Del Rey Oaks, and City of Monterey**
Contact: **Sheri Damon** **ESCA Manager** **(831)899-6890**
Name Title Phone no.

Reporting is up-to-date* **x Yes** ☐ No ☐ N/A
Reports are verified by the lead agency **x Yes** ☐ No ☐ N/A

Specific requirements in deed or decision documents have been met **x Yes** ☐ No ☐ N/A
Violations have been reported ☐ Yes ☐ No **x N/A**
Other problems or suggestions: ☐ Report attached
Remarks: *Note that Long-Term Obligations LUC management are reported in the Annual Land Use Covenant Reports.

2. **Adequacy** **x ICs are adequate** ☐ ICs are inadequate ☐ N/A
Remarks_____
_____
_____

D. General

1.	**Vandalism/trespassing** ☐ Location shown on site map **x No vandalism evident** **Remarks**: No signs of vandalism or trespassing were observed.
2.	**Land use changes on site** **x N/A** Remarks_____ _____
3.	**Land use changes off site** **x N/A** Remarks_____ _____
	VI. GENERAL SITE CONDITIONS
A. Roads	**x Applicable** ☐ N/A
1.	**Roads damaged** ☐ Location shown on site map **x Roads adequate** ☐ N/A Remarks_____ _____
B. Other Site Conditions	
	Remarks: _____
	VII. LANDFILL COVERS ☐ Applicable **x N/A**
	VIII. VERTICAL BARRIER WALLS ☐ Applicable **x N/A**
	IX. GROUNDWATER/SURFACE WATER REMEDIES ☐ Applicable **x N/A**
	X. OTHER REMEDIES ☐ Applicable **x N/A**
	If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.
	XI. OVERALL OBSERVATIONS
A.	**Implementation of the Remedy**

	Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.). **Remarks**: The objectives of the remedy (land use controls) are: (1) to ensure that land users involved in ground-disturbing or intrusive activities are educated about the possibility of encountering MEC, (2) to ensure that land users involved in ground-disturbing or intrusive activities stop the activity when encountering potential MEC and report to the appropriate authority, (3) to ensure projects involving ground-disturbing or intrusive activities are coordinated with UXO-qualified personnel so discoveries of potential MEC items will be handled appropriately, and (4) to ensure that any proposals to allow residential development or modifications to residential restrictions are approved by EPA and Army in coordination with DTSC. The sites are in good condition. Land use controls appear to be effective. There are no inconsistent developments in these areas; there is an ongoing safety training program at www.FortOrdSafety.com; and all proposed ground disturbing activities are compliant with the respective Land Use Control Implementation.	
B.	**Adequacy of O&M**	**x N/A**
C.	**Early Indicators of Potential Remedy Problems**	
	Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future. None identified.	
D.	**Opportunities for Optimization**	
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. None identified.	
E.	**Additional Questions/Comments**	

1. What is your current role as it relates to the site?

ESCA oversight manager.

2. Explain the purpose of the remedy and list what contaminants it is treating for

The objectives of the remedy (land use controls) are: (1) to ensure that land users involved in ground-disturbing or intrusive activities are educated about the possibility of encountering MEC, (2) to ensure that land users involved in ground-disturbing or intrusive activities stop the activity when encountering potential MEC and report to the appropriate authority, (3) to ensure projects involving ground-disturbing or intrusive activities are coordinated with UXO-qualified personnel so discoveries of potential MEC items will be handled appropriately, and (4) to ensure that any proposals to allow residential development or modifications to residential restrictions are approved by EPA and Army in coordination with DTSC.

2-A. What is your overall impression of the remedy with regards to safety, efficiency and effectiveness?

The site is in good condition. Land use controls appear to be effective. There are no inconsistent developments in these areas; there is an ongoing safety training program at www.FortOrdSafety.com; and all proposed ground disturbing activities are compliant with the respective Land Use Control Implementation.

2-B. Have any remedy enhancements been made since the 2017 FYR? If so, explain.

No.

2-C. Are there any improvements you recommend to remedy implementation to improve these areas?

No.

3-A. Is there a continuous on-site O&M presence or is there the ability to monitor the remedy remotely (If so describe)

Yes, there is a continuous on-site O&M presence.

3-B. If there is not continuous onsite presence, how often are personnel on-site during routine operations?

3-C. Describe routine O&M activities.

Routine inspection of the property occurs including site walks and drive-bys.

3-D. Have there been any significant changes in O&M requirements, maintenance schedule and activities, or sampling routines since the last five-year review (September 2017)? If so please explain changes and reasons for change.

No significant changes in the O&M requirements.

3-E. Have there been unexpected O&M difficulties or costs changes at the site since the last five year review?

No unexpected O&M difficulties or costs have been incurred since the FY17 Five-Year Review.

4-A. Please describe what controls in place to prevent or reduce the impact of an unintended release of untreated water in the event of system upset.

Not applicable.

4-B. When was the last time these controls were inspected/tested and documented?

4-C. Has there been any unintended release of untreated water since the last 5 year review? If so describe nature of release, lessons learned and changes to system and/or SOPs as a result.

5. Are you aware of any community concerns or complaints regarding the site or operation of the remedy at the site?

There have been no community concerns or complaints regarding the site or operation of the remedy (land use controls) have been submitted.

F. System Condition **x N/A**

Photographic Documentation

Client: US Dept. of Army
Location: Former Fort Ord
ESCA Group 3

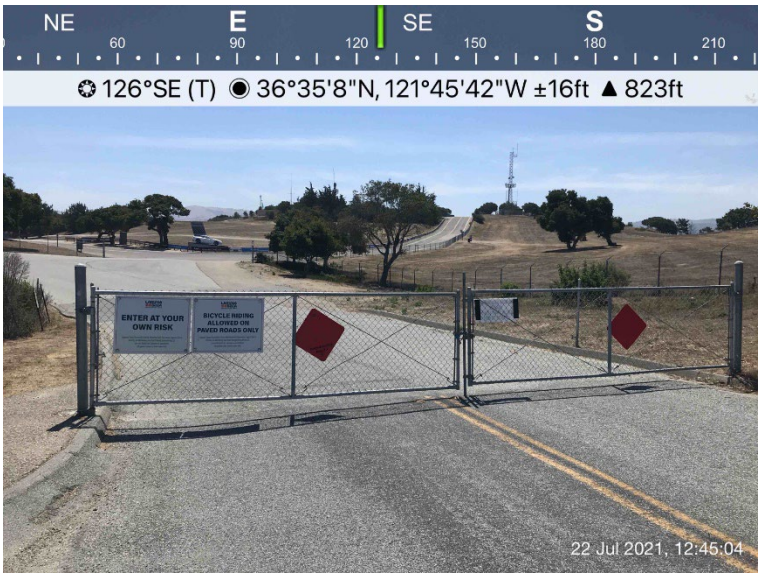
Prepared by: USACE, SPK, EDG-G
Photographer: Kyle Lindsay

Photograph No. 1

Date: July 22, 2021

Site: ESCA Group 3 Laguna Seca Parking MRA

Description: Locked gate at entrance to Laguna Seca from South Boundary Road.

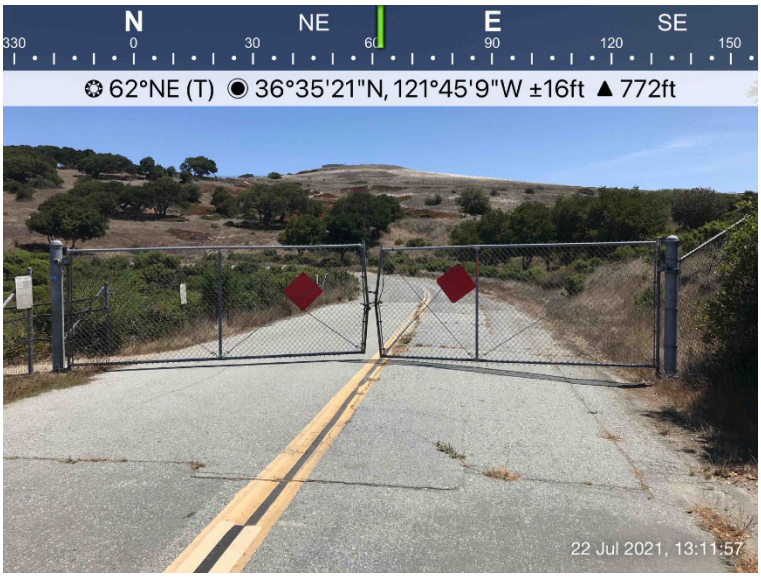


Photograph No. 2

Date: July 22, 2021

Site: ESCA Group 3 Laguna Seca Parking MRA

Description: Locked gate at entrance to Laguna Seca Raceway from Barloy Canyon Road. Four-strand barbed wire fence and warning signange along Impact Area MRA perimeter are located on the far side of the gate.



Photograph No. 3

Date: July 22, 2021

Site: ESCA Group 3 Laguna Seca Parking MRA

Description: View looking northwest over the Laguna Seca overflow parking lot.

Photograph No. 4

Date: July 22, 2021

Site: ESCA Group 3 MOUT Site MRA

Description: Locked gate with concertina wire and warning sign at entrance to Impossible Canyon on northern boundary of Impact MRA. This section of road leads to the MOUT Site MRA.

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Photograph No. 5

Date: July 22, 2021

Site: ESCA Group 3 MOUT Site MRA

Description: View facing southwest at intersection of Barloy Canyon Road with Eucalyptus Road. Locked gate at northern boundary of the roadway portion of the MOUT Site MRA. This portion of roadway leads to the northern boundary of Laguna Seca Parking MRA.

Photograph No. 6

Date: July 22, 2021

Site: ESCA Group 3 MOUT Site MRA

Description: View facing east from access road within the MOUT Site.

Photograph No. 7

Date: July 22, 2021

Site: ESCA Group 3 MOUT Site MRA

Description: View facing east from access road. MOUT Site structures.

Photograph No. 8

Date: July 22, 2021

Site: ESCA Group 3 MOUT Site MRA

Description: View facing southwest from access road. MOUT Site structure.

Five-Year Review Site Inspection Checklist
Fort Ord: ESCA Group 4 MRAs

I. SITE INFORMATION

Site name: ESCA Group 4 MRAs – Future East Garrison MRA	**Date of inspection:** July 21 and 22, 2021
Location and Region: Former Fort Ord, California	**EPA ID:** CA7210020676
Agency, office, or company leading the five-year review: U.S. Department of the Army	**Weather/temperature:** Clear/mid-70s (Fahrenheit)

Remedy Includes: (Check all that apply)

☐ Landfill cover/containment	☐ Monitored natural attenuation
☐ Access controls	☐ Groundwater containment
☐ Institutional controls	☐ Vegetation clearance via prescribed burns
☐ Groundwater pump and treatment	☐ Technology-aided surface MEC removal
☐ Surface water collection and treatment	☐ Subsurface MEC removal in selected areas
☐ Vertical barrier walls	☐ Digital geophysical mapping survey
☐ Other	**☒ Land use controls**

Attachments: ☐ Inspection team roster attached **☒ Site inspection photos attached**

II. INTERVIEWS (check all that apply)

1. Melissa Broadston (Name) — ESCA Oversight Coordinator (Title) — 02/04/2022 (Date)
   Interviewed: ☐ at site ☐ at office **☒ by email** Phone no. (831) 899-6773
   Problems, suggestions; **☒ Report attached** Interview questions and answers included in Section **XI (A-E)**.

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. **O&M Documents**

☐ O&M manual	☐ Readily available	☐ Up to date	**☒ N/A**
☐ As-built drawings	☐ Readily available	☐ Up to date	**☒ N/A**
☐ Maintenance logs	☐ Readily available	☐ Up to date	**☒ N/A**

Remarks_____

2. **Site-Specific Health and Safety Plan** ☐ Readily available ☐ Up to date **☒ N/A**
   ☐ Contingency plan/emergency response plan ☐ Readily available ☐ Up to date **☒ N/A**
   Remarks: _____

3. **O&M and OSHA Training Records** ☐ Readily available ☐ Up to date **☒ N/A**
   Remarks: Munitions Recognition and Safety Training records are reported by local jurisdictions in Annual Land Use Covenant Reports.

4.	**Permits and Service Agreements**			
	☐ Air discharge permit	☐ Readily available	☐ Up to date	**x N/A**
	☐ Effluent discharge	☐ Readily available	☐ Up to date	**x N/A**
	☐ Waste disposal, POTW	☐ Readily available	☐ Up to date	**x N/A**
	☐ Other permits_____	☐ Readily available	☐ Up to date	**x N/A**
	Remarks: Local digging and excavation permits are reported by local jurisdictions in Annual Land Use Covenant Reports.			
5.	**Gas Generation Records**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
6.	**Settlement Monument Records**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
7.	**Groundwater Monitoring Records**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
8.	**Leachate Extraction Records**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
9.	**Discharge Compliance Records**			
	☐ Air	☐ Readily available	☐ Up to date	**x N/A**
	☐ Water (effluent)	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
10.	**Daily Access/Security Logs**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			

IV. O&M COSTS

☐ Applicable **x N/A**

None identified for the ESCA Group 4 MRA.

V. ACCESS AND INSTITUTIONAL CONTROLS **x Applicable** ☐ N/A

A. Fencing

1.	**Fencing**	☐ Location shown on site map	☐ Gates secured	☐ N/A
	Remarks: Access management measures are only required for areas designated as habitat reserve; however, fencing with four-strand barbed wire surrounds Parcel E11b.8.			

B. Other Access Restrictions

1.	**Signs and other security measures**	☐ Location shown on site map	☐ N/A	
	Remarks: Informational signs discouraging access by unauthorized personnel in the MRA were observed to be in good condition.			

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented ☐ Yes **x No** ☐ N/A
Site conditions imply ICs not being fully enforced ☐ Yes **x No** ☐ N/A

Type of monitoring (*e.g.*, self-reporting, drive by): **Self-reporting.**
Frequency: **Annually**
Responsible party/agency: **Monterey County**
Contact: **Sheri Damon** **ESCA Manager** **(831)899-6890**
Name Title Phone no.

Reporting is up-to-date* **x Yes** ☐ No ☐ N/A
Reports are verified by the lead agency **x Yes** ☐ No ☐ N/A

Specific requirements in deed or decision documents have been met **x Yes** ☐ No ☐ N/A
Violations have been reported ☐ Yes ☐ No **x N/A**
Other problems or suggestions: ☐ Report attached
Remarks: *Note that Long-Term Obligations LUC management are reported in the Annual Land Use Covenant Reports.

2. **Adequacy** **x ICs are adequate** ☐ ICs are inadequate ☐ N/A
Remarks_____

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map **x No vandalism evident**
Remarks: No signs of vandalism or trespassing were observed.

2. **Land use changes on site** **x N/A**
Remarks_____

3. **Land use changes off site** **x N/A**
Remarks_____

VI. GENERAL SITE CONDITIONS

A. Roads **x Applicable** ☐ N/A

1. **Roads damaged** ☐ Location shown on site map **x Roads adequate** ☐ N/A
Remarks_____

B. Other Site Conditions

Remarks: _____

VII. LANDFILL COVERS ☐ Applicable **x N/A**

VIII. VERTICAL BARRIER WALLS ☐ Applicable **x N/A**

IX. GROUNDWATER/SURFACE WATER REMEDIES ☐ Applicable **x N/A**
X. OTHER REMEDIES ☐ Applicable **x N/A**
If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.
XI. OVERALL OBSERVATIONS
A. Implementation of the Remedy
Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.). **Remarks**: The objectives of the remedy (land use controls) are: (1) to ensure that land users involved in ground-disturbing or intrusive activities are educated about the possibility of encountering MEC, (2) to ensure that land users involved in ground-disturbing or intrusive activities stop the activity when encountering potential MEC and report to the appropriate authority, (3) to ensure projects involving ground-disturbing or intrusive activities are coordinated with UXO-qualified personnel so discoveries of potential MEC items will be handled appropriately, and (4) to ensure that any proposals to allow residential development or modifications to residential restrictions are approved by EPA and Army in coordination with DTSC. The sites are in good condition. Land use controls appear to be effective. There are no inconsistent developments in these areas; there is an ongoing safety training program at www.FortOrdSafety.com; and all proposed ground disturbing activities are compliant with the respective Land Use Control Implementation.
B. Adequacy of O&M **x N/A**
C. Early Indicators of Potential Remedy Problems
Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future. None identified.
D. Opportunities for Optimization
Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. None identified.
E. Additional Questions/Comments

1. What is your current role as it relates to the site?

ESCA oversight manager.

2. Explain the purpose of the remedy and list what contaminants it is treating for

The objectives of the remedy (land use controls) are: (1) to ensure that land users involved in ground-disturbing or intrusive activities are educated about the possibility of encountering MEC, (2) to ensure that land users involved in ground-disturbing or intrusive activities stop the activity when encountering potential MEC and report to the appropriate authority, (3) to ensure projects involving ground-disturbing or intrusive activities are coordinated with UXO-qualified personnel so discoveries of potential MEC items will be handled appropriately, and (4) to ensure that any proposals to allow residential development or modifications to residential restrictions are approved by EPA and Army in coordination with DTSC.

2-A. What is your overall impression of the remedy with regards to safety, efficiency and effectiveness?

The site is in good condition. Land use controls appear to be effective. There are no inconsistent developments in these areas; there is an ongoing safety training program at www.FortOrdSafety.com; and all proposed ground disturbing activities are compliant with the respective Land Use Control Implementation.

2-B. Have any remedy enhancements been made since the 2017 FYR? If so, explain.

No.

2-C. Are there any improvements you recommend to remedy implementation to improve these areas?

No.

3-A. Is there a continuous on-site O&M presence or is there the ability to monitor the remedy remotely (If so describe)

Yes, there is a continuous on-site O&M presence.

3-B. If there is not continuous onsite presence, how often are personnel on-site during routine operations?

3-C. Describe routine O&M activities.

Routine inspection of the property occurs including site walks and drive-bys.

3-D. Have there been any significant changes in O&M requirements, maintenance schedule and activities, or sampling routines since the last five-year review (September 2017)? If so please explain changes and reasons for change.

No significant changes in the O&M requirements.

3-E. Have there been unexpected O&M difficulties or costs changes at the site since the last five year review?

No unexpected O&M difficulties or costs have been incurred since the FY17 Five-Year Review.

4-A. Please describe what controls in place to prevent or reduce the impact of an unintended release of untreated water in the event of system upset.

Not applicable.

4-B. When was the last time these controls were inspected/tested and documented?

4-C. Has there been any unintended release of untreated water since the last 5 year review? If so describe nature of release, lessons learned and changes to system and/or SOPs as a result.

5. Are you aware of any community concerns or complaints regarding the site or operation of the remedy at the site?

There have been no community concerns or complaints regarding the site or operation of the remedy (land use controls) have been submitted.

F. System Condition **x N/A**

Photographic Documentation

Client: US Dept. of Army
Location: Former Fort Ord
ESCA Group 4

Prepared by: USACE, SPK, EDG-G
Photographer: Kyle Lindsay

Photograph No. 1

Date: July 22, 2021

Site: ESCA Group 4 Future East Garrison MRA

Description: View of the Future East Garrison MRA looking northeast from the southern boundary of the MRA along Barloy Canyon Road. “Danger: Explosives Area” sign in Parcel E11b.7.1.1.

Photograph No. 2

Date: July 22, 2021

Site: ESCA Group 4 Future East Garrison MRA

Description: View facing east from Barloy Canyon Road. Future East Garrison MRA structures.

Photograph No. 3

Date: July 22, 2021

Site: ESCA Group 4 Future East Garrison MRA

Description: View facing southeast from Barloy Canyon Road. Future East Garrison MRA structures.

Photograph No. 4

Date: July 22, 2021

Site: ESCA Group 4 Future East Garrison MRA

Description: View facing west from Barloy Canyon Road. "No Trespassing" sign in Parcel E11b.6.1.

Five-Year Review Site Inspection Checklist
Fort Ord: ESCA Interim Action Ranges MRA

I. SITE INFORMATION	
Site name: ESCA Interim Action Ranges MRA	**Date of inspection:** July 21 and 22, 2021
Location and Region: Former Fort Ord, California	**EPA ID:** CA7210020676
Agency, office, or company leading the five-year review: U.S. Department of the Army.	**Weather/temperature:** Clear/mid-70s (Fahrenheit)

Remedy Includes: (Check all that apply)

☐ Landfill cover/containment	☐ Monitored natural attenuation
☐ Access controls	☐ Groundwater containment
x Institutional controls	☐ Vegetation clearance via prescribed burns
☐ Groundwater pump and treatment	☐ Technology-aided surface MEC removal
☐ Surface water collection and treatment	☐ Subsurface MEC removal in selected areas
☐ Vertical barrier walls	☐ Digital geophysical mapping survey
☐ Other	☐ Land use controls

Attachments: ☐ Inspection team roster attached **x Site inspection photos attached**

II. INTERVIEWS – NA – Visual Inspection Only

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. **O&M Documents**

☐ O&M manual	☐ Readily available	☐ Up to date	**x N/A**
☐ As-built drawings	☐ Readily available	☐ Up to date	**x N/A**
☐ Maintenance logs	☐ Readily available	☐ Up to date	**x N/A**

Remarks_____

2. **Site-Specific Health and Safety Plan** ☐ Readily available ☐ Up to date **x N/A**
   ☐ Contingency plan/emergency response plan ☐ Readily available ☐ Up to date **x N/A**
   Remarks: _____

3.	**O&M and OSHA Training Records**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks: Munitions Recognition and Safety Training records are reported by local jurisdictions in Annual Land Use Covenant Reports.			
4.	**Permits and Service Agreements**			
	☐ Air discharge permit	☐ Readily available	☐ Up to date	**x N/A**
	☐ Effluent discharge	☐ Readily available	☐ Up to date	**x N/A**
	☐ Waste disposal, POTW	☐ Readily available	☐ Up to date	**x N/A**
	☐ Other permits_____	☐ Readily available	☐ Up to date	**x N/A**
	Remarks: Local digging and excavation permits are reported by local jurisdictions in Annual Land Use Covenant Reports.			
5.	**Gas Generation Records**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
6.	**Settlement Monument Records**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
7.	**Groundwater Monitoring Records**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
8.	**Leachate Extraction Records**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
9.	**Discharge Compliance Records**			
	☐ Air	☐ Readily available	☐ Up to date	**x N/A**
	☐ Water (effluent)	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
10.	**Daily Access/Security Logs**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			

IV. O&M COSTS

☐ Applicable **x N/A**

None identified for ESCA Interim Action Ranges MRA

V. ACCESS AND INSTITUTIONAL CONTROLS ☐ Applicable **x N/A**

A. Fencing

1. **Fencing** ☐ Location shown on site map ☐ Gates secured **x N/A**
Remarks: Access management measures are not a requirement of the Interim Action Ranges MRA ROD; however, fencing at the MRA consists of four-strand barbed wire and concertina wire along Eucalyptus Road to the north of the MRA.

B. Other Access Restrictions

1. **Signs and other security measures** ☐ Location shown on site map **x N/A**
Remarks:

C. Institutional Controls (ICs)

1. **Implementation and enforcement**
Site conditions imply ICs not properly implemented ☐ Yes **x No** ☐ N/A
Site conditions imply ICs not being fully enforced ☐ Yes **x No** ☐ N/A

Type of monitoring (*e.g.*, self-reporting, drive by): **Self-reporting.**
Frequency: **Annually**
Responsible party/agency: **Monterey Peninsula College (MPC) and the City of Seaside**
Contact: **Sheri Damon** (Name) **ESCA Manager** (Title) **(831)899-6890** (Phone no.)

Reporting is up-to-date* **x Yes** ☐ No ☐ N/A
Reports are verified by the lead agency **x Yes** ☐ No ☐ N/A

Specific requirements in deed or decision documents have been met **x Yes** ☐ No ☐ N/A
Violations have been reported ☐ Yes ☐ No **x N/A**
Other problems or suggestions: ☐ Report attached
Remarks: *Note that Long-Term Obligations LUC management are reported in the Annual Land Use Covenant Reports.

2. **Adequacy** **x ICs are adequate** ☐ ICs are inadequate ☐ N/A
Remarks_____

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map **x No vandalism evident**
Remarks: No signs of vandalism or trespassing were observed. One minor trespass incident was previously reported in 2018 at the Interim Action Ranges MRA.

2. **Land use changes on site** **x N/A**
Remarks_____

3. **Land use changes off site** **x N/A**
Remarks_____

VI. GENERAL SITE CONDITIONS

A. Roads **x Applicable** ☐ N/A

1.	**Roads damaged** ☐ Location shown on site map **x Roads adequate** ☐ N/A Remarks_____ _____
B. Other Site Conditions	
	Remarks: _____
VII. LANDFILL COVERS ☐ Applicable **x N/A**	
VIII. VERTICAL BARRIER WALLS ☐ Applicable **x N/A**	
IX. GROUNDWATER/SURFACE WATER REMEDIES ☐ Applicable **x N/A**	
X. OTHER REMEDIES ☐ Applicable **x N/A**	
	If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.
XI. OVERALL OBSERVATIONS	
A.	**Implementation of the Remedy**
	Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.). **Remarks**: The objectives of the remedy (land use controls) are: (1) to ensure land users involved in ground-disturbing or intrusive activities are educated about the possibility of encountering MEC, (2) to ensure that land users involved in ground-disturbing or intrusive activities stop the activity when encountering potential MEC and report to the appropriate authority, (3) to ensure projects involving ground-disturbing or intrusive activities are coordinated with UXO-qualified personnel so discoveries of potential MEC items will be handled appropriately, (4) to ensure that any proposals to allow residential development or modifications to residential restrictions are approved by the EPA and Army in coordinates with DTSC, and (5) for the habitat reserve, ensure uses that are inconsistent with the Habitat Management Plan would be prohibited. The selected land use controls are functioning as intended and therefore considered effective.
B.	**Adequacy of O&M** **x N/A**
C.	**Early Indicators of Potential Remedy Problems** **x N/A**
D.	**Opportunities for Optimization** **x N/A**
E.	**Additional Questions/Comments** **x N/A**
F.	**System Condition** **x N/A**

Photographic Documentation

Client: US Dept. of Army
Location: Former Fort Ord
Interim Action Ranges MRA

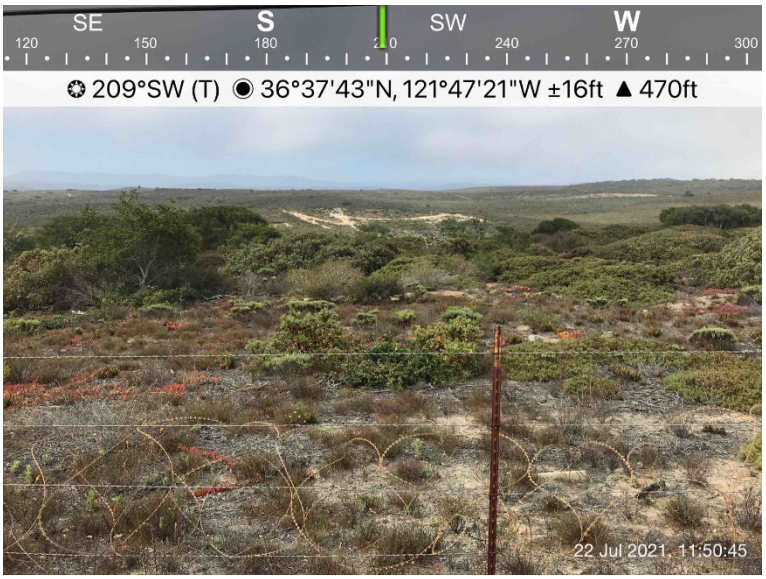
Prepared by: USACE, SPK, EDG-G
Photographer: Kyle Lindsay

Photograph No. 1

Date: July 22, 2021

Site: Interim Action Ranges MRA

Description: Representative open space site conditions at the Interim Action Ranges MRA with typical four-strand barbed and concertina wire fence perimeter.



Photograph No. 2

Date: July 22, 2021

Site: Interim Action Ranges MRA

Description: Representative open space site conditions at the Interim Action Ranges MRA with typical fence along the perimeter boundary with warning sign, four-strand barbed wire, and concertina wire.

Five-Year Review Site Inspection Checklist
Fort Ord: Track 2 Del Rey Oaks MRA

I. SITE INFORMATION	
Site name: Track 2 Del Rey Oaks MRA	**Date of inspection:** July 21 and 22, 2021
Location and Region: Former Fort Ord, California	**EPA ID:** CA7210020676
Agency, office, or company leading the five-year review: U.S. Department of the Army	**Weather/temperature:** Clear/mid-70s (Fahrenheit)

Remedy Includes: (Check all that apply)

☐ Landfill cover/containment	☐ Monitored natural attenuation
☐ Access controls	☐ Groundwater containment
x Institutional controls	☐ Vegetation clearance via prescribed burns
☐ Groundwater pump and treatment	☐ Technology-aided surface MEC removal
☐ Surface water collection and treatment	☐ Subsurface MEC removal in selected areas
☐ Vertical barrier walls	☐ Digital geophysical mapping survey
☐ Other	☐ Land use controls

Attachments: ☐ Inspection team roster attached **x Site inspection photos attached**

II. INTERVIEWS – NA – Visual Inspection Only

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. **O&M Documents**

☐ O&M manual	☐ Readily available	☐ Up to date	**x N/A**
☐ As-built drawings	☐ Readily available	☐ Up to date	**x N/A**
☐ Maintenance logs	☐ Readily available	☐ Up to date	**x N/A**

Remarks_____

2. **Site-Specific Health and Safety Plan** ☐ Readily available ☐ Up to date **x N/A**
   ☐ Contingency plan/emergency response plan ☐ Readily available ☐ Up to date **x N/A**
   Remarks: _____

3. **O&M and OSHA Training Records** ☐ Readily available ☐ Up to date **x N/A**
   Remarks: Munitions Recognition and Safety Training records are reported by local jurisdictions in Annual Land Use Covenant Reports.

4.	**Permits and Service Agreements**			
	☐ Air discharge permit	☐ Readily available	☐ Up to date	**x N/A**
	☐ Effluent discharge	☐ Readily available	☐ Up to date	**x N/A**
	☐ Waste disposal, POTW	☐ Readily available	☐ Up to date	**x N/A**
	☐ Other permits_____	☐ Readily available	☐ Up to date	**x N/A**
	Remarks: Local digging and excavation permits are reported by local jurisdictions in Annual Land Use Covenant Reports.			
5.	**Gas Generation Records**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
6.	**Settlement Monument Records**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
7.	**Groundwater Monitoring Records**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
8.	**Leachate Extraction Records**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
9.	**Discharge Compliance Records**			
	☐ Air	☐ Readily available	☐ Up to date	**x N/A**
	☐ Water (effluent)	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
10.	**Daily Access/Security Logs**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			

IV. O&M COSTS

☐ Applicable **x N/A**

None identified for the Track 2 Del Rey Oaks MRA

V. ACCESS AND INSTITUTIONAL CONTROLS ☐ Applicable **x N/A**

A. Fencing

1.	**Fencing**	☐ Location shown on site map	☐ Gates secured	**x N/A**
	Remarks:			

B. Other Access Restrictions

1.	**Signs and other security measures**	☐ Location shown on site map	**x N/A**
	Remarks:		

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented ☐ Yes **x No** ☐ N/A
Site conditions imply ICs not being fully enforced ☐ Yes **x No** ☐ N/A

Type of monitoring (*e.g.*, self-reporting, drive by): **Self-reporting.**
Frequency: **Annually**
Responsible party/agency: **City of Del Rey Oaks**
Contact: **John Guertin** **City Manager** **(831)394-8511**
Name Title Phone no.

Reporting is up-to-date* **x Yes** ☐ No ☐ N/A
Reports are verified by the lead agency **x Yes** ☐ No ☐ N/A

Specific requirements in deed or decision documents have been met **x Yes** ☐ No ☐ N/A
Violations have been reported ☐ Yes ☐ No **x N/A**
Other problems or suggestions: ☐ Report attached
Remarks: *Note that Long-Term Obligations LUC management are reported in the Annual Land Use Covenant Reports.

2. **Adequacy** **x ICs are adequate** ☐ ICs are inadequate ☐ N/A
Remarks_____

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map **x No vandalism evident**
Remarks_____

2. **Land use changes on site** **x N/A**
Remarks_____

3. **Land use changes off site** **x N/A**
Remarks_____

VI. GENERAL SITE CONDITIONS

A. Roads **x Applicable** ☐ N/A

1. **Roads damaged** ☐ Location shown on site map **x Roads adequate** ☐ N/A
Remarks_____

B. Other Site Conditions

Remarks: _____

VII. LANDFILL COVERS ☐ Applicable **x N/A**

VIII. VERTICAL BARRIER WALLS ☐ Applicable **x N/A**

IX. GROUNDWATER/SURFACE WATER REMEDIES ☐ Applicable **x N/A**		
X. OTHER REMEDIES ☐ Applicable **x N/A**		
If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.		
XI. OVERALL OBSERVATIONS		
A.	**Implementation of the Remedy**	
Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.). **Remarks**: The primary remedial action objectives (RAOs) for the Parker Flats MRA are to achieve the EPA's threshold criteria of "Overall Protection of Human Health and the Environment" and "Compliance with ARARs". The selected land use controls are functioning as intended and therefore considered effective.		
B.	**Adequacy of O&M**	**x N/A**
C.	**Early Indicators of Potential Remedy Problems**	**x N/A**
D.	**Opportunities for Optimization**	**x N/A**
E.	**Additional Questions/Comments**	**x N/A**
F.	**System Condition**	**x N/A**

Photographic Documentation

Client: US Dept. of Army
Location: Former Fort Ord
Track 2 Del Rey Oaks MRA

Prepared by: USACE, SPK, EDG-G
Photographer: Kyle Lindsay

Photograph No. 1

Date: July 22, 2021

Site: Track 2 Del Rey Oaks MRA

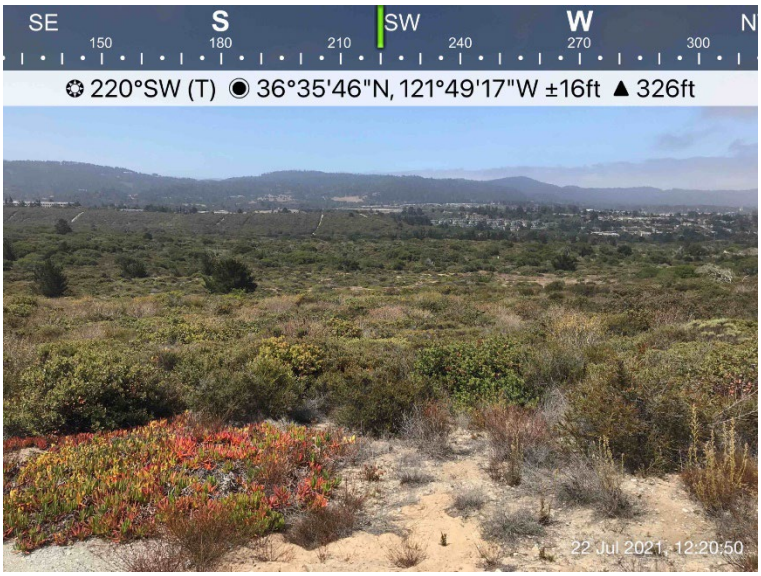
Description: Locked gate leading to Track 2 Del Rey Oaks MRA along the Blue Line Road from Seaside MRA.

Photograph No. 2

Date: July 22, 2021

Site: Track 2 Del Rey Oaks MRA

Description: View facing southwest from Blue Line Road. Representative site conditions at Track 2 Del Rey Oaks MRA.

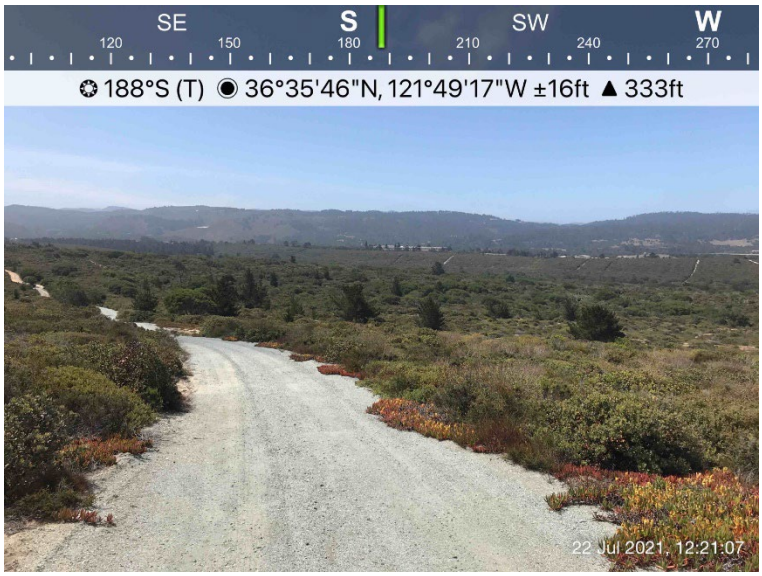


Photograph No. 3

Date: July 22, 2021

Site: Track 2 Del Rey Oaks MRA

Description: View facing south along Blue Line Road. Representative site conditions at Track 2 Del Rey Oaks MRA.



Five-Year Review Site Inspection Checklist
Fort Ord: Track 2 Parker Flats MRA

I. SITE INFORMATION	
Site name: Track 2 Parker Flats MRA	**Date of inspection:** July 21 and 22, 2021
Location and Region: Former Fort Ord, California	**EPA ID:** CA7210020676
Agency, office, or company leading the five-year review: U.S. Department of the Army	**Weather/temperature:** Clear/mid-70s (Fahrenheit)

Remedy Includes: (Check all that apply)

☐ Landfill cover/containment	☐ Monitored natural attenuation
☐ Access controls	☐ Groundwater containment
x Institutional controls	☐ Vegetation clearance via prescribed burns
☐ Groundwater pump and treatment	☐ Technology-aided surface MEC removal
☐ Surface water collection and treatment	☐ Subsurface MEC removal in selected areas
☐ Vertical barrier walls	☐ Digital geophysical mapping survey
☐ Other	☐ Land use controls

Attachments: ☐ Inspection team roster attached **x Site inspection photos attached**

II. INTERVIEWS – NA – Visual Inspection Only

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. **O&M Documents**

☐ O&M manual	☐ Readily available	☐ Up to date	**x N/A**
☐ As-built drawings	☐ Readily available	☐ Up to date	**x N/A**
☐ Maintenance logs	☐ Readily available	☐ Up to date	**x N/A**

Remarks_____

2. **Site-Specific Health and Safety Plan** ☐ Readily available ☐ Up to date **x N/A**
   ☐ Contingency plan/emergency response plan ☐ Readily available ☐ Up to date **x N/A**
   Remarks: _____

3. **O&M and OSHA Training Records** ☐ Readily available ☐ Up to date **x N/A**
   Remarks: Munitions Recognition and Safety Training records are reported by local jurisdictions in Annual Land Use Covenant Reports.

4.	**Permits and Service Agreements**			
	☐ Air discharge permit	☐ Readily available	☐ Up to date	**x N/A**
	☐ Effluent discharge	☐ Readily available	☐ Up to date	**x N/A**
	☐ Waste disposal, POTW	☐ Readily available	☐ Up to date	**x N/A**
	☐ Other permits_____	☐ Readily available	☐ Up to date	**x N/A**
	Remarks: Local digging and excavation permits are reported by local jurisdictions in Annual Land Use Covenant Reports.			
5.	**Gas Generation Records**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
6.	**Settlement Monument Records**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
7.	**Groundwater Monitoring Records**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
8.	**Leachate Extraction Records**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
9.	**Discharge Compliance Records**			
	☐ Air	☐ Readily available	☐ Up to date	**x N/A**
	☐ Water (effluent)	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
10.	**Daily Access/Security Logs**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			

IV. O&M COSTS

☐ Applicable **x N/A**

None identified for Track 2 Parker Flats MRA

V. ACCESS AND INSTITUTIONAL CONTROLS ☐ Applicable **x N/A**

A. Fencing

1.	**Fencing**	☐ Location shown on site map	☐ Gates secured	**x N/A**
	Remarks:			

B. Other Access Restrictions

1.	**Signs and other security measures**	☐ Location shown on site map	**x N/A**
	Remarks:		

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented ☐ Yes **x No** ☐ N/A
Site conditions imply ICs not being fully enforced ☐ Yes **x No** ☐ N/A

Type of monitoring (*e.g.*, self-reporting, drive by): **Self-reporting.**
Frequency: **Annually**
Responsible party/agency: **Monterey Peninsula College (MPC), the City of Seaside, and Monterey County (ESCA properties). U.S. Department of Army (non-ESCA properties).**

Contact (ESCA properties): **Sheri Damon** (Name) **ESCA Manager** (Title) **(831)899-6890** (Phone no.)
Contact (non-ESCA properties): **Betsy Hibbits (Chenega Tri-Services)** (Name)
Munitions Response Site Security Manager (Title) **(831)242-7919** (Phone no.)

Reporting is up-to-date* **x Yes** ☐ No ☐ N/A
Reports are verified by the lead agency **x Yes** ☐ No ☐ N/A

Specific requirements in deed or decision documents have been met **x Yes** ☐ No ☐ N/A
Violations have been reported ☐ Yes ☐ No **x N/A**
Other problems or suggestions: ☐ Report attached
Remarks: *Note that Long-Term Obligations LUC management are reported in the Annual Land Use Covenant Reports.

2. **Adequacy** **x ICs are adequate** ☐ ICs are inadequate ☐ N/A
Remarks_____

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map **x No vandalism evident**
Remarks: No signs of vandalism or trespassing were observed.

2. **Land use changes on site** **x N/A**
Remarks_____

3. **Land use changes off site** **x N/A**
Remarks_____

VI. GENERAL SITE CONDITIONS

A. Roads **x Applicable** ☐ N/A

1. **Roads damaged** ☐ Location shown on site map **x Roads adequate** ☐ N/A
Remarks_____

B. Other Site Conditions

Remarks: _____

VII. LANDFILL COVERS ☐ Applicable **x N/A**	
VIII. VERTICAL BARRIER WALLS ☐ Applicable **x N/A**	
IX. GROUNDWATER/SURFACE WATER REMEDIES ☐ Applicable **x N/A**	
X. OTHER REMEDIES ☐ Applicable **x N/A**	
If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.	
XI. OVERALL OBSERVATIONS	
A. Implementation of the Remedy	
Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.). **Remarks**: The primary remedial action objectives (RAOs) for the Parker Flats MRA are to achieve the EPA's threshold criteria of "Overall Protection of Human Health and the Environment" and "Compliance with ARARs". The selected land use controls are functioning as intended and therefore considered effective.	
B. Adequacy of O&M	**x N/A**
C. Early Indicators of Potential Remedy Problems	**x N/A**
D. Opportunities for Optimization	**x N/A**
E. Additional Questions/Comments	**x N/A**
F. System Condition	**x N/A**

Photographic Documentation

Client: US Dept. of Army
Location: Former Fort Ord
Track 2 Parker Flats MRA

Prepared by: USACE, SPK, EDG-G
Photographer: Kyle Lindsay

Photograph No. 1

Date: July 22, 2021

Site: Track 2 Parker Flats MRA

Description: Trail entrance where the CCCVC illegal BMX track was located. Barricades with No Dumping, No Parking, and No Trespassing sign located on northern boundary of the MRA

Five-Year Review Site Inspection Checklist
Fort Ord: Track 3 Impact Area MRA

I. SITE INFORMATION

Site name: Track 3 Impact Area MRA	**Date of inspection:** July 21 and 22, 2021
Location and Region: Former Fort Ord, California	**EPA ID:** CA7210020676
Agency, office, or company leading the five-year review: U.S. Department of the Army	**Weather/temperature:** Clear/mid-70s (Fahrenheit)

Remedy* Includes: (Check all that apply)

☐ Landfill cover/containment	☐ Monitored natural attenuation
☒ Access controls	☐ Groundwater containment
☒ Institutional controls	**☒ Vegetation clearance via prescribed burns**
☐ Groundwater pump and treatment	**☒ Technology-aided surface MEC removal**
☐ Surface water collection and treatment	**☒ Subsurface MEC removal in selected areas**
☐ Vertical barrier walls	**☒ Digital geophysical mapping survey**
☐ Other	**☒ Land use controls**

*** Remedial action implementation is in progress.**

Attachments: ☐ Inspection team roster attached **☒ Site inspection photos attached**

II. INTERVIEWS (Check all that apply)

1. William Collins (Name) — BRAC Environmental Coordinator (Title) — 02/07/2022 (Date)
Interviewed: ☐ at site ☐ at office **☒ by phone** Phone no. (831) 242-7920
Problems, suggestions; **☒ Report attached** Interview questions and answers included in Section **XI (A-E).**

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. **O&M Documents**

☐ O&M manual	☐ Readily available	☐ Up to date	**☒ N/A**
☐ As-built drawings	☐ Readily available	☐ Up to date	**☒ N/A**
☐ Maintenance logs	☐ Readily available	☐ Up to date	**☒ N/A**

Remarks_____

2. **Site-Specific Health and Safety Plan** **☒ Readily available** **☒ Up to date** ☐ N/A
☐ Contingency plan/emergency response plan ☐ Readily available ☐ Up to date ☐ N/A
Remarks: Documents maintained in the BRAC and contractor offices

3. **O&M and OSHA Training Records** **☒ Readily available** **☒ Up to date** ☐ N/A
Remarks: Documents maintained in the BRAC and contractor offices

4.	**Permits and Service Agreements**			
	☐ Air discharge permit	☐ Readily available	☐ Up to date	**x N/A**
	☐ Effluent discharge	☐ Readily available	☐ Up to date	**x N/A**
	☐ Waste disposal, POTW	☐ Readily available	☐ Up to date	**x N/A**
	☐ Other permits_____	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
5.	**Gas Generation Records**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
6.	**Settlement Monument Records**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
7.	**Groundwater Monitoring Records**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
8.	**Leachate Extraction Records**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
9.	**Discharge Compliance Records**			
	☐ Air	☐ Readily available	☐ Up to date	**x N/A**
	☐ Water (effluent)	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			
10.	**Daily Access/Security Logs**	☐ Readily available	☐ Up to date	**x N/A**
	Remarks_____			

IV. O&M COSTS

☐ Applicable **x N/A**

None identified for Impact Area MRA

V. ACCESS AND INSTITUTIONAL CONTROLS x Applicable ☐ N/A

A. Fencing

1. **Fencing** ☐ Location shown on site map **x Gates secured** ☐ N/A

Remarks: Fencing, barbed wire fencing, and concertina wire were observed to be in good condition.

B. Other Access Restrictions

1. **Signs and other security measures** ☐ Location shown on site map ☐ N/A

Remarks: Signs were observed to be in good condition, with warning text and symbols clearly visible.

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented ☐ Yes **x No** ☐ N/A
Site conditions imply ICs not being fully enforced ☐ Yes **x No** ☐ N/A

Type of monitoring (*e.g.*, self-reporting, drive by): **Visual inspections of the fencing and signage condition conducted from motor vehicle and documented through self-reporting.**
Frequency: **Annually. Note that the Army has been conducting weekly perimeter inspection as part of the MRS Security Program.**
Responsible party/agency: **US Department of the Army**
Contact: **Betsy Hibbits (Chenega Tri-Services)**
Name
Munitions Response Site Security Manager **(831)242-7919**
Title Phone no.

Reporting is up-to-date* **x Yes** ☐ No ☐ N/A
Reports are verified by the lead agency ☐ Yes ☐ No **x N/A**

Specific requirements in deed or decision documents have been met **x Yes** ☐ No ☐ N/A
Violations have been reported ☐ Yes ☐ No **x N/A**
Other problems or suggestions: ☐ Report attached
Remarks: *Note that fencing/signage monitoring and maintenance are documented in the MRS Security Program Annual Reports.

2. **Adequacy** **x ICs are adequate** ☐ ICs are inadequate ☐ N/A
Remarks_____
_____
_____

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map **x No vandalism evident***
Remarks: *Note that vandalism/trespassing incidents and security measures are documented in the MRS Security Program Annual Reports.

2. **Land use changes on site** **x N/A**
Remarks_____
_____

3. **Land use changes off site** **x N/A**
Remarks_____
_____

VI. GENERAL SITE CONDITIONS

A. Roads **x Applicable** ☐ N/A

1. **Roads damaged** ☐ Location shown on site map **x Roads adequate** ☐ N/A
Remarks_____
_____

B. Other Site Conditions

Remarks: _____

VII. LANDFILL COVERS ☐ Applicable **x N/A**

VIII. VERTICAL BARRIER WALLS ☐ Applicable **x N/A**

IX. GROUNDWATER/SURFACE WATER REMEDIES ☐ Applicable **x N/A**

X. OTHER REMEDIES ☐ Applicable **x N/A**

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

Remarks: The remedy is still in progress within the Track 3 Impact Area MRA. There are areas that have not yet been subject to the surface and subsurface removal requirements specified in the ROD. Where the remedy has been implemented, it is functioning as designed by making it safer for biological monitoring, erosion control, and by preventing access by unauthorized personnel. Trespass incidents into the Impact Area have increased over the last couple of years as more people are participating in outdoor recreational activities due to COVID. Calendar year 2020 had the highest number of trespass incidents but that number has been declining since then. There have also been homeless encampments found inside the restricted Impact Area. Those encampments were identified as a result of instituting an in-house inspection program that routinely patrols the Impact Area. After the first incident, two other illegal camps were identified and quickly cleaned up as a result of having a contract in place to clean up encampments when detected, and with the support of the federal police. The Army is currently working closely with BLM to improve coordination of ground-disturbing activities in the Impact Area. This is a new program and there is still more work to do but it's getting better every year.

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

Remarks: One big observation is the maintenance of fencing and signage around the Impact Area. The fence is part of the long-term remedy keeping people out of the Impact Area and safe. As the community around the Impact Area grows there are increasing incidents of fence damage. For example, Laguna Seca Raceway recently hosted an event that resulted in a section of fence being damaged. The Army works with adjacent landholders to have repairs done when such damage occurs as a result of reuse activities. Trespassers also cut the fence to get bicycles into the Impact Area. These kinds of incidents will continue to happen, but the on-going site inspection program is in place to identify any breaches or damage to the fence. The Army works closely with the BLM and provides the resources to maintain fencing, conduct erosion repairs, and perform roadwork to keep the site accessible to the cleanup program. The BLM has people to respond quickly to damaged fencing, which is usually repaired within 1-2 days of the damage being detected.

Since the last five-year review, the EPA's Office of Inspector General (OIG) performed a site visit to evaluate whether the EPA's Superfund institutional controls achieved their stated goal of preventing human exposure at Superfund sites. The report from the site visit concluded that "the steps taken by the Army with EPA oversight, combined with planned follow-up actions moving forward, represent a reasonable effort to deter and minimize trespassing and prevent people from being exposed to unexploded munitions and chemical contamination in the soil. As a result, we have no recommendations for this site."

C. Early Indicators of Potential Remedy Problems

Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future.

Remarks: There is nothing to show that the protectiveness of the remedy may be compromised in the future. The Army will continue to work with BLM regarding coordination of intrusive activities to ensure that the appropriate construction support and training are provided for the activities to be conducted safely. Presidio of Monterey Police Department provides law enforcement for the Impact Area MRA. Additionally, the Army is funding BLM law enforcement personnel to conduct surveillance and enforcement to supplement the Army's Impact Area MRA security efforts. The POM Police Department have always been available for site security, but funding for BLM law enforcement personnel is new since the last five-year review.

D. Opportunities for Optimization ☒ **N/A**

E. Additional Questions/Comments

1. What is your current role as it relates to the site?

Base Realignment and Closure Environmental Coordinator (BEC).

2. Explain the purpose of the system and list what contaminants it is treating for.

The Track 3 Impact Area is a Munitions Response Area that is receiving surface removal to address explosive hazards and subsurface removal in discrete areas, including removal of sensitively-fuzed munitions in areas where there is also the existence of high density anomaly areas. The purpose is to prepare the land for its future use as the Fort Ord National Monument by the BLM.

2-A. What is your overall impression of the system with regards to safety, efficiency and effectiveness?

The remedy was selected to be protective of human health and the environment for use as the Fort Ord National Monument. The remedy will result in the ability for the safe use and management of the National Monument. A Land Use Control Implementation Plan has not yet been developed as the remedy is still on-going. Once the clean-up is complete, we will have a better idea regarding the land use controls that will be required prior to transfer to BLM to allow for their safe use and management of the property.

2-B. Have any system enhancements been made since the 2017 FYR? If so, explain.

The Army has provided maps to the fire agencies and local jurisdictions, so they are aware of the site status. For example, the maps show where subsurface removals have occurred and what restrictions would be applicable if there is a wildfire. This is a new step in coordinating with the fire agencies so they are aware of where explosive hazards might be, so they can better decide how to effectively fight fires.

2-C. Are there any improvements you recommend to system operation to improve these areas?

Since there has been a significant amount of vegetation cutting along with the follow-on habitat monitoring that is required by the U.S. Fish and Wildlife Service, the Army is looking at the possibility of using the monitoring data to determine whether the habitat is fully recovered, or on a trajectory to recover like it would if it had been burned. Depending on the results of that evaluation, there may be the ability to curtail the requirement for prescribed burning in chaparral areas. The requirement to perform prescribed burning is difficult to implement due to increasingly scarce availability of fire resources (e.g., personnel, equipment, etc.) during the prescribed

burn season as a result of increased wildfires across California. The lack of resources to implement the prescribed burn requirement extends the cleanup duration and negatively affects the Army's ability to transfer the property to BLM. Using the monitoring data may be a way to expedite cleanup and property transfer while still successfully restoring the habitat.

The remedy anticipates excavation and sifting to address areas where unexploded ordnance with sensitive fuzes have been recovered on the ground surface in the presence of high subsurface anomaly density. Excavation and sifting requires large volumes of soil to be removed that can be damaging to the environment and biological resources. The Army is currently looking at using advanced geophysical classification technologies to reduce the footprint of excavation and sifting while still removing sensitive fuze-type items with a high degree of confidence. This would allow BLM to safely use and manage the land without detrimental impacts to the land.

3-A. Is there a continuous on-site O&M presence or is there the ability to monitor the system remotely (If so describe)?

There is a continuous on-site O&M presence. The BRAC office conducts routine site inspections to monitor the fence for damage and signs of trespassing. The frequency of these site inspections was increased when the last UXO contract ended. Contractors are regularly on-site performing work, and BLM Rangers and law enforcement also perform routine inspections in and around the Impact Area. Additionally, the site security plan ensures that when people enter, we know who they are, where they are going, and when they are leaving.

3-B. If there is not continuous on-site presence, how often are personnel on-site during routine operations?

N/A

3-C. Describe routine O&M activities.

BRAC personnel routinely inspect the perimeter and interior of the Impact Area for damage to fencing, gates, locks, evidence of trespassing and unauthorized activity. Local law enforcement and BLM rangers and law enforcement also routinely patrol the Impact Area.

3-D. Have there been any significant changes in O&M requirements, maintenance schedule and activities, or sampling routines since the last five-year review (September 2017)? If so, please explain changes and reasons for change.

Since the last five-year review, the COVID pandemic has resulted in a significant number of people recreating outdoors which has led to an increase in trespass incidents. The Army is working with BLM to keep that under control with in-house site inspection program as well as providing resources to BLM to provide security patrols and fund law enforcement.

3-E. Have there been unexpected O&M difficulties or costs changes at the site since the last five-year review?

N/A

4-A. Please describe what controls in place to prevent or reduce the impact of an unintended release of untreated water in the event of system upset.

N/A

4-B. When was the last time these controls were inspected/tested and documented?

N/A

4-C. Has there been any unintended release of untreated water since the last five-year review? If so describe nature of release, lessons learned and changes to system and/or SOPs as a result.

N/A

5. Are you aware of any community concerns or complaints regarding the site or operation of the remediation treatment systems at the site?

Prescribed burns conducted at the site are a large, visible component of the remedy where smoke is visible from tens of miles away and temporarily affects air quality for the community that is downwind during the smoldering phase. The smoke and burning are a concern, especially during a heightened awareness of wildfires in California. The prescribed burns are very controlled and only allowed to occur under very specific environmental conditions

that are monitored by trained fire professionals to minimize the impact to the community. There has also been an increased interest in using the Impact Area for recreation. For example, the Army was recently contacted by a large, international bicycle event (Sea Otter Classic) to use the gravel roads in the Impact Area for a bicycle race. There will likely be additional interests in the future from groups requesting access for similar events that are unlikely to be approved because the cleanup is not yet completed.
F. System Condition **x N/A**

Photographic Documentation

Client: US Dept. of Army
Location: Former Fort Ord
Track 3 Impact Area MRA

Prepared by: USACE, SPK, EDG-G
Photographer: Kyle Lindsay

Photograph No. 1

Date: July 22, 2021

Site: Impact Area MRA

Description: Impossible Canyon North gated access point with signage located along the Impact Area MRA perimeter boundary.

Photograph No. 2

Date: July 22, 2021

Site: Impact Area MRA

Description: Typical fence along the Impact Area MRA perimeter boundary with warning sign, barbed wire, and concertina wire.

Photograph No. 3

Date: July 22, 2021

Site: Impact Area MRA

Description: Austin South gated access point with signage located along the Impact Area MRA perimeter boundary.

APPENDIX C

Community Survey Responses

Fort Ord Superfund Site: Five-Year Review Survey

The purpose of the five-year review is to evaluate the implementation and performance of the remedy and to confirm that human health and the environment continue to be protected by the remedial actions that have been performed at the site. This survey is being conducted as a part of the 5th Five-Year Review for the Fort Ord Superfund Site, covering the previous five year period. The 5th Five-Year Review will be completed in September 2022.

Name and Affiliation (Optional): _____

1. **What is your overall impression of the cleanup work conducted at Fort Ord since 2017?**

_____

_____

_____

2. **From your perspective, what effect has continued cleanup operations at the site had on the surrounding community?**

_____

_____

_____

3. **Are you aware of any ongoing community concerns regarding the site or its operation and administration? If so, please give details.**

_____

_____

_____

4. **Are you aware of any events, incidents, or activities that have occurred at the site, such as dumping, vandalism, trespassing, or anything that required emergency response from local authorities? If so, please give details.**

_____

_____

_____

5. **Do you feel well informed about the site's activities and progress?**

_____

_____

_____

6. **Do you have any comments, suggestions, or recommendations regarding the site's management or operation?**

_____

_____

_____

These questions may be pertinent for local officials.

7. **Have there been routine communications or activities (site visits, inspections, reporting activities, etc.) conducted by your office regarding the site? If so, please give purpose and results.**

_____

_____

_____

8. **Have there been any complaints, violations, or other incidents related to the site that required a response by your office? If so, please give details of the events and results of the responses.**

_____

_____

_____

Please return this by September 30, 2021 to:

US Army Fort Ord BRAC Office

Five-Year Review Survey

P.O. Box 5008

Monterey, CA 93944-5008

Please include your phone number so that we may contact you if we have any questions.

Your phone number will not be published in the Five-Year Review.

Phone number: _____(Optional)

Thank you for your time and effort!

Para obtener una copia de esta encuesta en español, vaya a la sección de noticias de FortOrdCleanup.com o llame al 831-393-1284 y deje su dirección.

Five-Year Review Community Survey Responses

Tracking No.*	3	4	5	6
Mode	online	online	online	interview
Date Submitted**	8/6/2021	8/9/2021	8/11/2021	8/13/2021
Name (Optional)		Cammie	Bill A.	Benny P.
Affiliation (Optional):			40 Year Toro Park Homeowner (Home backs up to Fort Ord)	1962 Basic Training at Fort Ord and Marina Resident
1. What is your overall impression of the cleanup work conducted at Fort Ord since 2017?	Professional and thorough.	It is unsightly after they are done with an area due to removing most of the vegetation and the prescribed burns. However, I know the ordinance can not be removed otherwise. I do like that I am kept informed on prescribed burns as I have asthma so smoke from those fires can be a big issue for me.	Excellent cleanup work: very little litter and very clean site. Avid cyclist in and around Fort Ord for 40 years.	All is ok. There are no problems with the cleanup.
2. From your perspective, what effect has continued cleanup operations at the site had on the surrounding community?	Living in Del Rey Oaks we have felt little impact other than a sense that the work of cleaning up the property has proceeded appropriately and the land is safer for use.	It does effect the recreational use of the area and that is frustrating to many. It also effects the wildlife living there, possible runoff issues and air quality.	There is no effect on Toro Park, my neighborhood.	Can't really say.
3. Are you aware of any ongoing community concerns regarding the site or its operation and administration? If so, please give details.	None	The largest concern I hear from others is the possibility of the land not being kept for recreational purposes and preserved for the wildlife. No one wants more cemeteries, housing, horse facilities, or other structures being developed.	No and this is based on the many years I was active in the Toro Park homeowners association.	None.
4. Are you aware of any events, incidents, or activities that have occurred at the site, such as dumping, vandalism, trespassing, or anything that required emergency response from local authorities? If so, please give details.	None	No	No	None.

Five-Year Review Community Survey Responses

Tracking No.*	3	4	5	6
5. Do you feel well informed about the site's activities and progress?	Yes	Yes, but I signed up for emails and alerts. I think they should put our more public notification via the Weekly, radio, etc..so those who are not on the exclusive list know about what is going on.	Yes. I get information from the regular mailings and by attending events.	Yes. I read updates in the newspapers, see it on TV and get the Fort Ord mailings.
6. Do you have any comments, suggestions, or recommendations regarding the site's management or operation?		Keep it wild and free. I see many animals that don't have anywhere else to live. We have paved over and encroached the territories of Mountain Lions, Bobcats, Hawks, and other birds, Rabbits, Snakes, Lizards, Skunks, Coyotes and many things I have not listed. They need that land preserved in order to survive. Many of the native plants need that space to thrive as well.	NO. Everything seems to be under control and running smooth. I have great appreciation of the lands of former Fort Ord as an avid cyclist.	
7. Have there been routine communications or activities (site visits, inspections, reporting activities, etc,.) conducted by your office regarding the site? If so, please give purpose and results.	Routine emails about progress and invitations to view the sites being cleaned up.	Not applicable.		None.
8. Have there been any complaints, violations, or other incidents related to the site that required a response by your office? If so, please give details of the events and results of the responses.	None that I am aware of	No		None.

*Tracking Nos. 1, 2, 23 and 33 are system tests, therefore, not included in the analysis.
**The 5th Five-Year Review survey collection period was 8/3/2021-9/30/2021.

Five-Year Review Community Survey Responses

Tracking No.*	7	8	9
Mode	online	mail	mail
Date Submitted**	8/18/2021	8/19/2021	8/19/2021
Name (Optional)		John and Andrea E.	Nancy R.
Affiliation (Optional):			
1. What is your overall impression of the cleanup work conducted at Fort Ord since 2017?	The Army is doing a thorough cleanup of the Fort Ord Base.	Cleanup is proceeding slower than anticipated.	Slow
2. From your perspective, what effect has continued cleanup operations at the site had on the surrounding community?	There has been a general improvement to surrounding communities. Areas that were contaminated have been cleaned and developed with CSUMB and housing. Commercial development has also occurred which has contributed to the local tax base.	As a member of the Marina business community, I appreciate the efforts by the Department of the Army.	Cleanup is essential for community economics and safety
3. Are you aware of any ongoing community concerns regarding the site or its operation and administration? If so, please give details.	I am unaware of any community concerns regarding the site operations or administration.	The abandoned barracks visible from Highway 1 and the firing ranges	Yes - "Prescribed Burns" are frightening with increasing wild fires. One prescribed burn did get out of the boundaries/control. With increasing temperatures inland we have more wind. Other clean=up procedures must be used instead of burns.
4. Are you aware of any events, incidents, or activities that have occurred at the site, such as dumping, vandalism, trespassing, or anything that required emergency response from local authorities? If so, please give details.	I do not have any first hand knowledge of unwanted activities at the site, but assume that any vacant land attracts dumping at the very least.	No	No

Five-Year Review Community Survey Responses

Tracking No.*	7	8	9
5. Do you feel well informed about the site's activities and progress?	I am as informed as I want to be. I can access the Fort Ord Cleanup Website and receive mail from The Department of the Army regarding upcoming public programs.	Yes	Yes
6. Do you have any comments, suggestions, or recommendations regarding the site's management or operation?	No.	Please proceed as quickly as possible.	Needs to be finished - more funding, local employment, drones or robots instead of "burns"
7. Have there been routine communications or activities (site visits, inspections, reporting activities, etc,.) conducted by your office regarding the site? If so, please give purpose and results.	N/A	No.	Yes, I continually request to be notified about burns due to health reasons
8. Have there been any complaints, violations, or other incidents related to the site that required a response by your office? If so, please give details of the events and results of the responses.	N/A	No.	Yes, I have to continually request to be notified of burns as I have to evacuate. Burns are dangerous and bad for air quality.

Five-Year Review Community Survey Responses

Tracking No.*	10	11	12	13	14
Mode	mail	mail	mail	online	mail
Date Submitted**	8/19/2021	8/19/2021	8/19/2021	8/19/2021	8/23/2021
Name (Optional)		S. W.	Merlene R.		Jean M. W
Affiliation (Optional):					Seaside Resident and retired octogenarian
1. What is your overall impression of the cleanup work conducted at Fort Ord since 2017?	From what we "normal" citizens can tell, based on your public info, cleanup at Fort Ord seems to be progressing according to plan. Please continue with public info outreach.	Since I went on the tour examining what has been going on for clean-up I've been impressed. I've been able to share with others.	Well done. Lot of work.	I am pleased that work has been done to clean up Fort Ord and make the open spaces more accessible to the public.	Well done.
2. From your perspective, what effect has continued cleanup operations at the site had on the surrounding community?	Again, not professional, but I am really concerned about the water quality issue-so glad to see this is addressed and monitored.	Looks better	I think most people don't know or understand the work going on. Maybe some understand the effect of the work on their water supply.	Living adjacent to the open spaces in East Garrison, I know that residents (and the public) make good use of the trails. I know that bikers enjoy hiking the many trails, and I have hiked on multiple trails.	Nothing negative.
3. Are you aware of any ongoing community concerns regarding the site or its operation and administration? If so, please give details.	NA	No	No		No.
4. Are you aware of any events, incidents, or activities that have occurred at the site, such as dumping, vandalism, trespassing, or anything that required emergency response from local authorities? If so, please give details.	No	No	No		No.

Five-Year Review Community Survey Responses

Tracking No.*	10	11	12	13	14
5. Do you feel well informed about the site's activities and progress?	Mostly based on public outreach - thanks	Not since COVID	Somewhat. The pandemic has put a space about what is going on - or I have not been reading my mail!	Yes...I appreciate receiving periodic reports (ie, mail) regarding the site activities and progress.	Yes. I read all your periodic reports and pass on the information to my family. Some of my children are hikers and enjoy getting information about trails etc.
6. Do you have any comments, suggestions, or recommendations regarding the site's management or operation?	When possible, get community members involved with clean-up and trail maintenance	More tours for the community	I'm no expert on that.		None
7. Have there been routine communications or activities (site visits, inspections, reporting activities, etc,.) conducted by your office regarding the site? If so, please give purpose and results.		N/A			N/A
8. Have there been any complaints, violations, or other incidents related to the site that required a response by your office? If so, please give details of the events and results of the responses.		no			N/A

Five-Year Review Community Survey Responses

Tracking No.*	15	16	17	18
Mode	mail	mail	mail	mail
Date Submitted**	8/23/2021	8/23/2021	8/23/2021	8/23/2021
Name (Optional)	Derek D.	Larry B	Citizen	
Affiliation (Optional):		Seaside	Seaside Resident	
1. What is your overall impression of the cleanup work conducted at Fort Ord since 2017?	Favorable	Being proactive give the general public hope of the environmental, human health contamination in the soil and water is being eradicated.	Efficient and necessary.	To me job is being well done after Fort Ord was active as a base for many tears and trained soldiers for several wars.
2. From your perspective, what effect has continued cleanup operations at the site had on the surrounding community?	This has helped return portions of the former base to public uses for recreational activities and commercial use.	economical growth and development around the base	Removal of deserted, vandalized structures has improved appearances in most areas.	allowing growth
3. Are you aware of any ongoing community concerns regarding the site or its operation and administration? If so, please give details.	No	that the site won't be funded till fruition	no	No
4. Are you aware of any events, incidents, or activities that have occurred at the site, such as dumping, vandalism, trespassing, or anything that required emergency response from local authorities? If so, please give details.	No	N/A	Lots of dumping, which is sad. Nothing to warrant an emergency response, as far as I can tell.	No

Five-Year Review Community Survey Responses

Tracking No.*	15	16	17	18
5. Do you feel well informed about the site's activities and progress?	Yes	Yes! We participate in the open house information program. They are going a great job - keep up the good work!		Yes
6. Do you have any comments, suggestions, or recommendations regarding the site's management or operation?	I feel like you've done an excellent job of keeping me informed on your program. I'm impressed with what you've been able to accomplish! Keep up the great work!	Please be open to public information releases concerning your programs, investigations and remedies for press releases and handouts	Please continue groups such as Return of the Natives and the Monterey Off Road Cycling Association to do their maintenance.	none
7. Have there been routine communications or activities (site visits, inspections, reporting activities, etc,.) conducted by your office regarding the site? If so, please give purpose and results.			N/A	no
8. Have there been any complaints, violations, or other incidents related to the site that required a response by your office? If so, please give details of the events and results of the responses.			N/A	no

Five-Year Review Community Survey Responses

Tracking No.*	19	20	21
Mode	online	online	online
Date Submitted**	8/26/2021	8/26/2021	8/27/2021
Name (Optional)	Anya Spear	Kimberly Cole	
Affiliation (Optional):	CSUMB	City of Monterey	
1. What is your overall impression of the cleanup work conducted at Fort Ord since 2017?	As a CSUMB staff member I feel like the communication for groundwater cleanup has been good. Overall my impression of the cleanup effort is good.	The cleanup has been consistently pursued. It appears to be a successful program.	Clean up appears to be going well.
2. From your perspective, what effect has continued cleanup operations at the site had on the surrounding community?	My understanding is that most of CSUMB's parcels will be removed from the National Priorities List. I also understand that once Fort Ord is off the NPL we might be eligible for Brownfields funding and to use the CEQA categorical exemptions. If these are the case, we would have access to a new funding source and save time and money on CEQA compliance.	The cleanup operations have enabled cities to pursue redevelopment of the property.	I believe it has allowed public access to the lands of the former Ft Ord.
3. Are you aware of any ongoing community concerns regarding the site or its operation and administration? If so, please give details.	No	I am not aware of ongoing community concerns regarding the City of Monterey's former Fort Ord properties.	No
4. Are you aware of any events, incidents, or activities that have occurred at the site, such as dumping, vandalism, trespassing, or anything that required emergency response from local authorities? If so, please give details.	Illegal dumping and trespassing are ongoing issues on CSUMB property. The campus Police Dept responds to calls related to trespassing.	The City of Monterey Police Department tours the City of Monterey former Fort Ord properties monthly. No events, incidents or activities have been identified.	I have noticed small, pick-up truck sized loads of items that should be taken to the landfill in Marina along E. Garrison.

Five-Year Review Community Survey Responses

Tracking No.*	19	20	21
5. Do you feel well informed about the site's activities and progress?	Yes in regard to groundwater well monitoring on campus.	Yes. There are quarterly ESCA meetings.	not well informed.
6. Do you have any comments, suggestions, or recommendations regarding the site's management or operation?	We access Fortordcleanup.com regularly. Thank you for maintaining it.	No	No
7. Have there been routine communications or activities (site visits, inspections, reporting activities, etc,.) conducted by your office regarding the site? If so, please give purpose and results.	Not other than the well monitoring	The City of Monterey Police Department tours the City of Monterey former Fort Ord properties monthly. No events, incidents or activities have been identified.	No
8. Have there been any complaints, violations, or other incidents related to the site that required a response by your office? If so, please give details of the events and results of the responses.	No	No	There is starting to be an increase in fires in the areas that have been opened to the public for hiking and biking. The homeless have also begun to move into that area which is a concern for wildfire.

Five-Year Review Community Survey Responses

Tracking No.*	22	24	25	26
Mode	online	online	online	online
Date Submitted**	8/31/2021	9/9/2021	9/13/2021	9/15/2021
Name (Optional)	Mike LeBarre	Theodore		Layne Long
Affiliation (Optional):	King City	Hightower		City of Marina
1. What is your overall impression of the cleanup work conducted at Fort Ord since 2017?	I feel that it is being done in a professional manner and is benefiting all stakeholders	The work done at this Superfund site is an ongoing task of monumental size and complex details but is showing results.	My impression is that the cleanup is still shrouded somewhere in secrecy when it comes to the details. Also the survey was a little difficult to find on the website using my iPhone	Slow but steady
2. From your perspective, what effect has continued cleanup operations at the site had on the surrounding community?	Positive	Whatever hardships suffered during burns or road blocks at munitions disposal is worth a slight inconvenience.	Slightly positive	While continued cleanup will open up more areas for community use, most of our citizens will not use these areas, so the effect is minimal.
3. Are you aware of any ongoing community concerns regarding the site or its operation and administration? If so, please give details.	No	Water is a precious commodity especially during a drought. Let's keep monitoring wells free of contaminants.	PFAS /PFOS CONCERNS	None
4. Are you aware of any events, incidents, or activities that have occurred at the site, such as dumping, vandalism, trespassing, or anything that required emergency response from local authorities? If so, please give details.	No	There may have been trespassers but the military still patrols the affected area so my fears are allied. ment	Yes. Homeless encampments	No

Five-Year Review Community Survey Responses

Tracking No.*	22	24	25	26
5. Do you feel well informed about the site's activities and progress?	Yes	This report has been very informative and any questions I may have will be followed up with appropriate Agency or Environmental Services.	No	Yes
6. Do you have any comments, suggestions, or recommendations regarding the site's management or operation?		The thought the some residential lots can become of this land is both daunting and exhilarating. The future will tell what is to be.		No
7. Have there been routine communications or activities (site visits, inspections, reporting activities, etc,.) conducted by your office regarding the site? If so, please give purpose and results.	No	I am just a concern citizen that lives on former Fort Ord property who is happy to be so lucky.		None
8. Have there been any complaints, violations, or other incidents related to the site that required a response by your office? If so, please give details of the events and results of the responses.	No	My only concern is with water resources and keeping them intact precious for everybody concerns.		None

Five-Year Review Community Survey Responses

Tracking No.*	27	28	29	30
Mode	mail	mail	mail	online
Date Submitted**	9/15/2021	9/15/2021	9/15/2021	9/15/2021
Name (Optional)	Gail S	Nona J. C.	Tom B.	
Affiliation (Optional):	Resident of Marina	Salinas resident, Commission on Disabilities	East Garrison Homeowner	
1. What is your overall impression of the cleanup work conducted at Fort Ord since 2017?	I think the cleanup work is going pretty well. I help cleanup some, but I haven't been helping in quite a while. My health is poor and I recently had surgery on my back, hip and ankle and left thumb after a car drove into mine on the drivers side causing me to be hurt.	Effective as far as I know and given its limited scope (does not include blight removal)	Drafted in 1952 separated as Sargent in 1954. Duty at Fort Ord. Now living in retirement on land that was Fort Ord's East Garrison (6 years)	Excellent
2. From your perspective, what effect has continued cleanup operations at the site had on the surrounding community?	I'm really not sure , but I believe it to be positive. The cleanup has helped speed up usage on Fort Ord and go into buildings.	Not aware of any	All Positive Resident request = return envelop was not with envelope-Why?	Minimal. Public accessing property
3. Are you aware of any ongoing community concerns regarding the site or its operation and administration? If so, please give details.	No. I'm not.	Reports on social media of break-ins/vandalism affecting vehicles parked near trailheads-not often near on-going cleanup sites	If more area is open to public, those old Army roads won't last	No
4. Are you aware of any events, incidents, or activities that have occurred at the site, such as dumping, vandalism, trespassing, or anything that required emergency response from local authorities? If so, please give details.	One time I went to a munitions site and something went off close to me. Suffering from PTSD from Vietnam. I just ran away fast as I could away from it and I haven't done cleanup since.	As above-probably not in Superfund scope	When I was in the military the speed limits were enforced by MPs - now lack of enforcement is all too common	Yes. Homeless trespassing and hikers.

Five-Year Review Community Survey Responses

Tracking No.*	27	28	29	30
5. Do you feel well informed about the site's activities and progress?	No comment.	No, but I haven't actively pursued learning more about it beyond a few tours and joining the mailing list	Actually, no. I'm 91 years old with NO Internet and the HOA forgets my wife and myself. Postage stamp are just not used enough. No requirement to have internet to buy a home. California laws on getting information to us are NOT enforced	Yes
6. Do you have any comments, suggestions, or recommendations regarding the site's management or operation?	No suggestions.	Not really, want to ensure continuing accountability with end of FORA	Our hope is that it will continue, but it may continue to slowly to get worse-traffic is bad not - run a stop sign and who cares	No
7. Have there been routine communications or activities (site visits, inspections, reporting activities, etc,.) conducted by your office regarding the site? If so, please give purpose and results.			*residents note: lack of seeing police, or enforcement.	Yes
8. Have there been any complaints, violations, or other incidents related to the site that required a response by your office? If so, please give details of the events and results of the responses.			*residents note: dead animals on roadways, left many days after telephone reporting	No

Five-Year Review Community Survey Responses

Tracking No.*	**31**
Mode	email
Date Submitted**	9/20/2021
Name (Optional)	Eric Morgan
Affiliation (Optional):	Bureau of Land Management, Fort Ord National Monument
1. What is your overall impression of the cleanup work conducted at Fort Ord since 2017?	There has been considerable progress in cleanup since 2017. The Army did a superb job getting a sizable portion of national monument land cleaned up within BLM Area B and coordinating with the public and the BLM on cleanup in areas north of the fenced inland ranges. This was a delicate task because it involved temporarily closing portions of open Army and BLM lands to public use for a quick paced munitions cleanup. This cleanup supported new trails and reroutes of existing trails including Trail 65, Trail 70, Trail 56, Trail 15, Trail 91 and others. The Army was open to allowing community partners such as the Monterey Off-Road Cycling Association (MORCA) and others to contribute vision to the recreation trail network on the monument that was supported by a munitions cleanup, and the construction and opening of these trails in a very short period of time. Some of these new trails are some of the most popular trails on the national monument.
2. From your perspective, what effect has continued cleanup operations at the site had on the surrounding community?	While the cleanup led to some short-term disruptions to public recreation while cleanup activity was proceeding in the BLM Area-B region, it has greatly improved the route network open to the public and trail users love the new trails that this cleanup has supported. Overall, recreational visitors have greatly benefitted from the cleanup and the trails that the cleanup effort has supported.
3. Are you aware of any ongoing community concerns regarding the site or its operation and administration? If so, please give details.	Public visitors tell the BLM that they are unclear about the cleanup status of some of the ESCA areas that are still posted as closed with "NO TRESPASSING" signs, but there appears to be no cleanup activity, or desire by local jurisdictions such as Monterey County and Seaside to enforce the trespassing signs. This is especially true along Parker Flats Road near Fitch Park on City of Seaside lands, and along 8th Avenue Extension near Gigling Road on Monterey County land.
4. Are you aware of any events, incidents, or activities that have occurred at the site, such as dumping, vandalism, trespassing, or anything that required emergency response from local authorities? If so, please give details.	The BLM works with the Army on the Site-Security Team and provides real time reporting to the Army BRAC regarding trespass activities.

Tracking No.*	31
5. Do you feel well informed about the site's activities and progress?	Yes, the BLM is intertwined with the Army BRAC office on the cleanup and kept fully aware of the status of the ongoing cleanup efforts.
6. Do you have any comments, suggestions, or recommendations regarding the site's management or operation?	The intrusive activity work request process is a little slow, clunky and difficult to track. We have suggested to the Army that they consider preparing maps that might provide front-loaded decisions on the type of construction support needed in certain areas based upon surface/subsurface MEC data in surface cleanup units. There might be some regions that can be identified on maps that have only had a surface cleanup that do not require onsite construction support and/or additional cleanup for intrusive activities and can be delineated on maps to avoid processing the slow intrusive activity request form for each activity as it is proposed.
7. Have there been routine communications or activities (site visits, inspections, reporting activities, etc,.) conducted by your office regarding the site? If so, please give purpose and results.	There is routine coordination between the BLM and Army BRAC on site conditions and cleanup activities.
8. Have there been any complaints, violations, or other incidents related to the site that required a response by your office? If so, please give details of the events and results of the responses.	We are not aware of any complaints or violations regarding the cleanup program on the national monument.

Five-Year Review Community Survey Responses

Tracking No.*	**32**	**34**	**35**
Mode	interview	mail	mail
Date Submitted**	9/21/2021	9/30/2021	9/30/2021
Name (Optional)	Joyce R.	Kirk B	Debbie V
Affiliation (Optional):	Salinas/Highway 68 resident		
1. What is your overall impression of the cleanup work conducted at Fort Ord since 2017?	Good job on the cleanup; however objects to burning. The smoke from prescribed burns is very difficult on people with existing respiratory conditions.	Slow but good	I went on a tour and think the cleanup efforts are excellent. The speakers on our bus were extremely knowledgeable and I'm so glad there are educated people out there trying to make a difference.
2. From your perspective, what effect has continued cleanup operations at the site had on the surrounding community?	Burns must be stopped or, if that can't be considered, make smaller burns over several days. Please consider alternatives to burning. There is already too much smoke from the seasonal wildfires. Burn alternatives for vegetation clearance include the use of goats and mechanical means. Please consider the impact of burns and smoke on children who have asthma. They do not have a voice in the decision process.	Little	It will be safer hopefully for the groundwater or aquifers. It will be nice to have access to the trails and hopefully the land won't be taken over by developers.
3. Are you aware of any ongoing community concerns regarding the site or its operation and administration? If so, please give details.	Many people complain about burns and the resulting smoke each year. They are concerned with the impacts on their health.		No
4. Are you aware of any events, incidents, or activities that have occurred at the site, such as dumping, vandalism, trespassing, or anything that required emergency response from local authorities? If so, please give details.	I am aware of the assistance of local fire departments aiding Fort Ord when the fires have gotten out of control. Many fires have gotten out of control.		No

Five-Year Review Community Survey Responses

Tracking No.*	32	34	35
5. Do you feel well informed about the site's activities and progress?	I would rate my information about the cleanup as medium. There is a need for more advanced notice of prescribed burns and additional information that would also include the size (acreage) of each burn. PLEASE STOP THE BURNS. Those suffering with respiratory ailments are suffering from the smoke impacts. I am handicapped and very old. It is difficult to near impossible for me to relocate / evacuate during burns yet I can't stay in my home. There are many people in similar, tough circumstances. In addition, burns and smoke are harmful to outdoor workers: farm workers, PG&E representatives, gardeners, and others who must be outside to earn their living.	Yes	Yes
6. Do you have any comments, suggestions, or recommendations regarding the site's management or operation?	Please find an alternative to burning: goats, mechanical removal etc. I have asthma and heart failure and am old. I just can't take another burn at Fort Ord. These are very serious issues to me. I am already at the maximum dosage of my various medications. Evacuation is difficult and I just can't take much more---please find alternatives!		I think you are doing a great job.
7. Have there been routine communications or activities (site visits, inspections, reporting activities, etc,.) conducted by your office regarding the site? If so, please give purpose and results.			No
8. Have there been any complaints, violations, or other incidents related to the site that required a response by your office? If so, please give details of the events and results of the responses.			No

Five-Year Review Community Survey Responses

Tracking No.*	36	37
Mode	mail	online
Date Submitted**	9/30/2021	9/30/2021
Name (Optional)	The Muegge Family	Karen Riley-Olms
Affiliation (Optional):		Monterey County
1. What is your overall impression of the cleanup work conducted at Fort Ord since 2017?	Very little ammunition cleanup (due to fire danger? money?). Nice cleanup of barracks at Imjin Parkway which is not on Fort Ord.	It seems to be well organized and conducted and the website is very informative. We feel we are provided with adequate information via the website and outreach.
2. From your perspective, what effect has continued cleanup operations at the site had on the surrounding community?	I propose that the area keeps the interest alive. Prevent trespassing and homeless encampments.	It has allowed progress toward using the land that would otherwise be unsuitable for habitation, recreation, or other uses.
3. Are you aware of any ongoing community concerns regarding the site or its operation and administration? If so, please give details.	Years ago there was concern about a racetrack (at the location of lost city). I just learned that this property/area belongs to MPC. It should be used for educational purposes.	None that we are aware of.
4. Are you aware of any events, incidents, or activities that have occurred at the site, such as dumping, vandalism, trespassing, or anything that required emergency response from local authorities? If so, please give details.	When we hike we see dumped mattresses etc. but I don't see anything in the news.	The Housing and Community Development Department (HCD was notified by the State Department of Toxic Substances Control (DTSC) of a recent incident on the former Fort Ord. The incident involved a trespasser utilizing a metal detection device, posing a potential public safety concern due to potential remaining unexploded ordnance and explosives (UXO). In 2020, after this incident, the DTSC and the United States Environmental Protection Agency (USEPA) recommended local code changes to jurisdictions that own parcels within the former Fort Ord to include the prohibition of unauthorized metal detection activities to protect the public from UXO. Staff and County Counsel have consulted with DTSC on the proposed ordinance. On April 20, 2021, the Monterey County Board of Supervisors adopted the ordinance. Also, in 2020 there were two 911 calls received for gunshots in the Fort Ord area. This information was included in our annual Fort Ord Land Use Covenants (LUC) reports regarding events that required emergency response from local authorities.

Tracking No.*	36	37
5. Do you feel well informed about the site's activities and progress?	No! I would love to learn more, have tours (more than the ones you do already) and also, there should be volunteer opportunities!	We feel we are provided with adequate information via the website and outreach.
6. Do you have any comments, suggestions, or recommendations regarding the site's management or operation?	Book a session with the Weekly to talk about issues and CSUMB students involved in that beautiful area.	None currently.
7. Have there been routine communications or activities (site visits, inspections, reporting activities, etc,.) conducted by your office regarding the site? If so, please give purpose and results.		The County has ongoing habitat management activities on the former Fort Ord, which consists of site visits, inspections and reporting to state agencies. Currently, the County is contracted with a consultant to monitor California Tiger Salamander on a portion of the area. This includes annual reporting to be completed and submitted to the California Department of Fish and Wildlife (CDFW). The County competed its Fifth Annual Monitoring Report and submitted the information to CDFW earlier this year. Further, the County is in the process of completing several plans that are over specific areas of the former Fort Ord. These plans include Oak Woodland Conservation Plan, Fort Ord Recreational Habitat Area Trail Master Plan and the habitat Resource Management Plan. Each of these plans will obtain feedback from the public, stakeholders, and hearing authorities prior to approval. Additionally, all parcels within Monterey County's Jurisdiction are inspected annually in accordance with the Fort Ord LUC Report. Specific to this year, parcels with holes in fences, and missing/vandalized signage have been noted in the Fort Ord LUC Report.
8. Have there been any complaints, violations, or other incidents related to the site that required a response by your office? If so, please give details of the events and results of the responses.		As stated in Response No. 4, the County amended Chapter 16.10 to include the prohibition of unauthorized metal detection activities to protect the public from UXO.

Five-Year Review Community Survey Responses

Tracking No.*	38	39	40
Mode	online	online	mail
Date Submitted**	9/30/2021	9/30/2021	8/11/2021
Name (Optional)	Mike Weaver, Co-Chair		Donelle S
Affiliation (Optional):	Fort Ord Community Advisory Group (FOCAG)		
1. What is your overall impression of the cleanup work conducted at Fort Ord since 2017?	The FOCAG is again submitting our Resolution as it is still pertinent to the "clean upwork" at Fort Ord since 2017. Go to attached link; http://1hope.org/hopeblog/fort-ords-toxic-cleanup-tragedy/	Exceptional work. Slow but steady.	Positive.
2. From your perspective, what effect has continued cleanup operations at the site had on the surrounding community?	The FOCAG is again submitting our Resolution as it is still pertinent to the surrounding community at Fort Ord.Go to attached link; http://1hope.org/hopeblog/fort-ords-toxic-cleanup-tragedy/	It has helped to remove the risk and allow for careful redevelopment of the area.	Made living healthier.
3. Are you aware of any ongoing community concerns regarding the site or its operation and administration? If so, please give details.	A lot of the old-timers, and some not so old, have died off. Although some also moved away because of concerns regarding living near former Fort Ord. Many of the people moving in, from out of the area,to the new housing subdivisions located on the former Army Base, are unaware, and not being told,of the dangers involved, thses include the poisoned groundwater and toxic vapors emanating up from below ground. The FOCAG is again submitting our Resolution as it is still pertinent to the "clean up" at Fort Ord since 2017.Go to attached link; http://1hope.org/hopeblog/fort-ords-toxic-cleanup-tragedy/	No	You have kept us advised.
4. Are you aware of any events, incidents, or activities that have occurred at the site, such as dumping, vandalism, trespassing, or anything that required emergency response from local authorities? If so, please give details.	The inadequate staffing of BLM, coupled with the inadequate County Plan, leaves hiking and biking visitors at risk. A pamphlet at a kiosk, if available, warning to stay on the Trails is wishful thinking. In particular, the old Site #3, the Beach Ranges, now a State Park, have sands infused with decades of lead particles and dust.Parents and chlldren are not being warned of the dangers of lead, and the lead in and on the Beach ranges. The signage is inadequate. It doesn't even warn of lead. The government is exempt from California's Proposition 65.The FOCAG is again submitting our Resolution as it is still pertinent to the "clean up" at Fort Ord since 2017.Go to attached link; http://1hope.org/hopeblog/fort-ords-toxic-cleanup-tragedy/	No	No

Five-Year Review Community Survey Responses

Tracking No.*	38	39	40
5. Do you feel well informed about the site's activities and progress?	The FOCAG feels better informed than most. However, the bulk of documents regarding the historic uses, including CDECuses (Combat Development Experimental Command), were shipped off site early on when Fort Ord closed. The Army's extensive use of pesticides, herbicides, and dangerous chemicals, has been marginalized. A lot of the recordshave been destroyed. There were a lot of these used at the huge training ranging ranges atop the Seaside Groundwater Basin.The FOCAG is again submitting our Resolution as it is still pertinent to the "clean up" at Fort Ord since 2017.Go to attached link; http://1hope.org/hopeblog/fort-ords-toxic-cleanup-tragedy/	Yes	Yes
6. Do you have any comments, suggestions, or recommendations regarding the site's management or operation?	U.S. EPA, State DTSC, and County Health Department Regulators get switched around too often, eliminating muchhistoric memory and knowledge. Couple this with political pressure to declare a shoddy clean up "a success", or morerecently, a partial success. The partial success lifted the EPA Superfund status of approximately one-half of former Fort Ord and opened the gates to uses and activities on lands that are still dangerous. There are toxic chemicals remaining in the soils and groundwater. There is still unexploded ordnance buried underground.The FOCAG is again submitting our Resolution as it is still pertinent to the ";clean up" at Fort Ord since 2017. Go to attached link; http://1hope.org/hopeblog/fort-ords-toxic-cleanup-tragedy/	No	Well done.
7. Have there been routine communications or activities (site visits, inspections, reporting activities, etc,.) conducted by your office regarding the site? If so, please give purpose and results.	A few of us grew up next to former Fort Ord when it was an active Army Infantry Training Base. For example Mike Weaver visited itas a Cub Scout. His Father trained there prior to deployment in WWII. Mike Weaver remembers, as a child, the simulated warfare exercises because he could watch some of them from his bedroom window. Following the closure of Fort Ord there was a half-hearted effort to include the surrounding public in clean up decision efforts.The Army eliminated this. Then, there were Community Workshops hosted by the the Regulatory Agencies and the Army. The formatselected by those hosting them was pretty much ineffective. These were discontinued bu the Regulatory Agencies and the Army. The public was generally not invited to the Technical Advisory Workshopswhere clean up decisions were discussed. The FOCAG is again submitting our Resolution as it is still pertinent to the "clean up" at Fort Ord since 2017.Go to attached link; http://1hope.org/hopeblog/fort-ords-toxic-cleanup-tragedy/		
8. Have there been any complaints, violations, or other incidents related to the site that required a response by your office? If so, please give details of the events and results of the responses.	Some of the complaints, violations, or other incidents get "buried"; by BLM and or Fort Ord officials. Other complaints and concerns are located in the Fort Ord Administrative Record. It can be burdensome wading through these documents, however, Public Comments are included in many of the Draft or Draft Final documents. Bureaucratic responses to real concerns often minimize the risks. The FOCAG is again submitting our Resolution as it is still pertinent to the "clean up" at Fort Ord since 2017.Go to attached link; http://1hope.org/hopeblog/fort-ords-toxic-cleanup-tragedy/		

APPENDIX D

Glossary of Military Munitions Response Program Terms

Appendix D. Glossary of Military Munitions Response Program Terms

Advanced Geophysical Classification (AGC): The use of data from an advanced geophysical sensor system to estimate the intrinsic properties of a buried metal object; specifically, for munitions response and UXO removal, to determine whether the object is a target of interest (TOI) that must be removed or other non-explosive debris (non-TOI) that can be left in the ground. Intrinsic properties include size, symmetry, aspect ratio, material composition, and wall thickness. Advanced geophysical classification requires three components: 1) a geophysical sensor system capable of measuring EM signals from multiple aspects, 2) a model to estimate intrinsic properties of the buried item based on its polarizability decay curve or "EMI fingerprint", and 3) classification algorithms to assign likelihood that a buried item is a target of interest. Source (8).

Construction Support: Assistance provided by DoD explosive ordnance disposal (EOD) or UXO-qualified personnel and/or by personnel trained and qualified for operations involving chemical agent (CA), regardless of configuration, during intrusive construction activities on property known or suspected to contain UXO, other munitions that may have experienced abnormal environments (e.g., DMM), or munitions constituents in high enough concentrations to pose an explosive hazard, or CA, regardless of configuration, to ensure the safety of personnel or resources from any potential explosive or CA hazards. Source: (7).

Discarded Military Munitions (DMM): Military munitions that have been abandoned without proper disposal or removed from storage in a military magazine or other storage area for the purpose of disposal. The term does not include unexploded ordnance, military munitions that are being held for future use or planned disposal, or military munitions that have been properly disposed of consistent with applicable environmental laws and regulations. (10 U.S.C. 2710 (e)(2)). For the purposes of the Military Munitions Response Program being conducted at the former Fort Ord, DMM does not include small arms ammunition .50 caliber and below.

Electromagnetic Induction (EMI) Sensor: Geophysical sensors that operate by emitting magnetic fields and detecting the response from electric currents generated when these fields interact with metallic objects. They are often referred to as "all-metals locators". Source (8).

Engineering Control (EC): The management of facility operations using engineering principles (e.g., facility design, operation sequencing, equipment selection, or process limitations). Source: (7).

Explosive Ordnance Disposal (EOD) Personnel: Military personnel who have graduated from the Naval School, Explosive Ordnance Disposal; are assigned to a military unit with a Service-defined EOD mission; and meet Service and assigned unit requirements to perform EOD duties. EOD personnel have received specialized training to address explosive and certain CA hazards during both peacetime and wartime. EOD personnel are trained and equipped to perform render safe procedures (RSP) on nuclear, biological, chemical, and conventional munitions, and on improvised explosive devices. Source: (7).

Expended: The state of munitions debris in which the main charge has been expended leaving the inert carrier. Source: (1).

Impact Area: The impact area consists of approximately 8,000 acres in the southwestern portion of former Fort Ord, bordered by Eucalyptus Road to the north, Barloy Canyon Road to the east, South Boundary Road to the south, and North-South Road to the west. Source: (1).

Industry Standard Object (ISO): An object, constructed from steel pipe manufactures to ASTM specifications, used as a munitions surrogate for the purpose of quality assurance or quality control. [Note: DoD uses the following three types of ISO: 1-inch diameter x 4-inch long Schedule 80 pipe nipple (a surrogate for 37mm projectiles), 2-inch diameter x 8-inch long Schedule 40 pipe nipple (a surrogate for 60-mm mortars), and a 4-inch x 12-inch long Schedule 40 pipe nipple (a surrogate for 105mm projectiles)]. Source (8).

Institutional Control (IC): (a) Non-engineered instruments such as administrative and/or legal

controls that minimize the potential for human exposure to contamination by limiting land or resource use; (b) are generally to be used in conjunction with, rather than in lieu of, engineering measures such as waste treatment or containment; (c) can be used during all stages of the cleanup process to accomplish various cleanup-related objectives; and (d) should be "layered" (i.e., use multiple ICs) or implemented in a series to provide overlapping assurances of protection from contamination. Source: (6).

Land Use Controls (LUCs): Physical, legal, or administrative mechanisms that restrict the use of, or limit access to, real property, to manage risks to human health and the environment. Physical mechanisms encompass a variety of engineered remedies to contain or reduce contamination, or physical barriers to limit access to real property, such as fences or signs. Source: (7).

Magnetometer: An instrument used to detect ferromagnetic (iron-containing) objects. Total field magnetometers measuring the strength of the earth's natural magnetic field at the magnetic sensor location. Gradient magnetometers, sensitive to smaller near-surface metal objects, use two sensors tomeasure the difference in magnetic field strength between the two sensor locations. Vertical or horizontalgradients can be measured. Source: (4).

Material Documented as Safe (MDAS): MPPEH that has been assessed and documented as not presenting an explosive hazard and for which the chain of custody has been established and maintained. This material is no longer considered to be MPPEH. Source: (9).

Material Documented as an Explosive Hazard (MDEH): MPPEH that cannot be documented as MDAS, that has been assessed and documented as to the maximum explosive hazards the material is known or suspected to present, and for which the chain of custody has been established and maintained. This material is no longer considered to be MPPEH. Source: (9).

Material Potentially Presenting an Explosives Hazard (MPPEH): Material owned or controlled by the DoD that, before determination of its explosives safety status, potentially contains explosives or munitions (e.g., munitions containers and packaging material; munitions debris remaining after munitions use, demilitarization, or disposal; and range-related debris) or potentially contains a high enough concentration of explosives that the material presents an explosive hazard (e.g., equipment, drainage systems, holding tanks, piping, or ventilation ducts that were associated with munitions production, demilitarization, or disposal operations). Excluded from MPPEH are:

Military munitions and military munitions-related materials, including wholly inert components (e.g., fins, launch tubes, containers, packaging material), that are to be used or reused for their intended purpose and are within a DoD Component-established munitions management system.

Non-munitions-related material (e.g., horseshoes, rebar, other solid objects) and munitions debris that are solid metal fragments that do not realistically present an explosive hazard

Other items (e.g., gasoline cans, compressed gas cylinders) that are not munitions or munitions-related material but may present an explosion hazard. Source: (9).

Military Munitions: Military munitions means all ammunition products and components produced for or used by the armed forces for national defense and security, including ammunition products or components under the control of the DoD, the Coast Guard, the Department of Energy, and the National Guard. The term includes confined gaseous, liquid, and solid propellants, explosives, pyrotechnics, chemical and riot control agents, smokes, and incendiaries, including bulk explosives and chemical warfare agents, chemical munitions, rockets, guided and ballistic missiles, bombs, warheads, mortar rounds, artillery ammunition, small arms ammunition, grenades, mines, torpedoes, depth charges, cluster munitions and dispensers, demolition charges, and devices and components thereof. The term does not include wholly inert items, improvised explosive devices, or nuclear weapons, nuclear devices, and nuclear components, other than non-nuclear components of nuclear devices that are managed under the

nuclear weapons program of the Department of Energy after all required sanitization operations under the Atomic Energy Act of 1954 (42 U.S.C. 2011 et seq.) have been completed. (10 U.S.C. 101(e)(4)).

Military Munitions Response Program (MMRP): The MMRP is a program under which munitions responses are conducted. Source: (1)

Mortar: Mortars typically range from approximately 1 inch to 11 inches in diameter or larger, and can be filled with explosives, toxic chemicals, white phosphorus or illumination flares. Mortars generally have thinner metal casing than projectiles but use the same types of fuzing and stabilization. Source: (2).

Munitions Constituents (MC): Any materials originating from UXO, DMM, or other military munitions, including explosive and nonexplosive materials, and emission, degradation, or breakdown elements of such ordnance or munitions (10 U.S.C. 2710(e)(3)).

Munitions Debris: Remnants of munitions (e.g., fragments, penetrators, projectiles, shell casings, links, fins) remaining after munitions use, demilitarization, or disposal. Source: (7).

Munitions and Explosives of Concern (MEC): A term distinguishing specific categories of military munitions that may pose unique explosives safety risks: UXO, as defined in 10 U.S.C. 101(e) (5); DMM, as defined in 10 U.S.C. 2710(e)(2)); or munitions constituents (e.g., TNT cyclotrimethylenetrinitramine [RDX]), as defined in 10 U.S.C. 2710(e)(3)), present in high enough concentrations to pose an explosive hazard. Source: (7). For the purposes of the Military Munitions Response Program being conducted for the former Fort Ord, MEC does not include small arms ammunition .50 caliber and below.

Munitions Response: Response actions, including investigation, removalactions, and remedial actions, to address the explosives safety, human health, or environmental risks presented by UXO, discarded military munitions (DMM), or munitions constituents (MC), or to support adetermination that no removal or remedial action is required. Source: (7).

Munitions Response Area (MRA): Any area on a defense site that is known or suspected to contain UXO, DMM, or MC. Examples include former ranges and munitions burial areas. An MRA is comprised of one or more munitions response sites. Source: (7).

Munitions Response Site (MRS): A discrete location within an MRA that is known to require a munitions response. Source: (7).

MEC Sampling: Performing MEC searches within a site to determine the presence of MEC. Source: (1).

Operating Grids: Typically, 100-foot by 100-foot parcels of land as determined by survey and recorded by GPS, marked at each corner with wooden stakes. Sites are divided into operating grids prior to the commencement of work by brush removal or MEC sweep teams. A single grid may be occupied by only one team at any time, and the grid system facilitates the maintenance of safe distances between teams. They are identified sequentially using an alphanumeric system (e.g., E-5). Source: (1).

Projectile: An object projected by an applied force and continuing in motion by its own inertia, such as a bullet, bomb, shell, or grenade. Also applied to rockets and to guided missiles. Source: (2).

Quality Control (QC) Seed: Industry standard object (ISO) or inert munition buried at a recorded location and depth, used as a processes quality control check for munitions responses tasks, including detection surveys, cued surveys, and anomaly recovery operations. The identity, location, and depth of seed item are blind (not known) to all members of the field team. Source (8).

Range-Related Debris: Debris, other than munitions debris, collected from operational ranges or

from former ranges (e.g., target debris, military munitions packaging and crating material). Source: (7).

Removal Depth: The depth below ground surface to which all ordnance and other detected items are removed. Source: (1).

SiteStats/GridStats (SS/GS): Programs developed by QuantiTech for the Huntsville USACE to predict the density of ordnance on sites with spatially random dispersal of ordnance. Source: (5).

Surface Removal: Removal of MEC from the ground surface by UXO teams using visual identification sometimes aided by magnetometers. Source: (1).

Target of Interest (TOI): Any item that must be removed from a munitions response site and subsequently examined to determine whether it is hazardous or inert. Common TOI include unexploded ordnance (UXO), other inert munitions that must be excavated to be identified as inert, quality control (QC) and validation seeds, and substantial components of munitions that the site manager selects for removal. Source (8).

Technology-Aided Surface Removal: A removal of UXO, DMM, or CWM on the surface (i.e., the top of the soil layer) only, in which the detection process is primarily performed visually, but is augmented by technology aids (e.g., hand-held magnetometers or metal detectors) because vegetation, the weathering of UXO, DMM, or CWM, or other factors make visual detection difficult. Source: (7).

Track 0 Areas: Areas of the former Fort Ord that contain no evidence of MEC and have never been suspected of having been used for military munitions-related activities of any kind. This definition has been clarified in the Explanation of Significant Differences, Final Record of Decision, No Action Regarding Ordnance-related Investigations (Track 0 ROD), former Fort Ord, California (March 2005) to include areas not suspected as having been used for military munitions-related activities of any kind, but where incidental military munitions have been discovered. Source: (1).

Track 1 Sites: Sites at the former Fort Ord where military munitions were suspected to have been used, but based on the results of the Munitions Response Remedial Investigation/Feasibility Study (MR RI/FS) each site falls into one of the following three categories: Category 1: There is no evidence to indicate military munitions were used at the site (i.e., suspected training did not occur); or Category 2: The site was used for training, but the military munitions items used do not pose an explosive hazard (i.e., training did not involve explosive items); or Category 3: The site was used for training with military munitions, but military munitions items that potentially remain as a result of that training do not pose an unacceptable risk based on site-specific evaluations conducted in the Track 1 OE RI/FS. Field investigations identified evidence of past training involving military munitions, but training at these sites involved only the use of practice and/or pyrotechnic items that are not designed to cause injury. In the unlikely event that a live item of the type previously observed at the site is found, it is not expected that the item would function by casual contact (i.e., inadvertent and unintentional contact). Source: (1).

Track 2 Sites: Sites at the former Fort Ord where MEC items were present, and a MEC removal has been conducted. These areas are evaluated in area-specific RI/FSs to assess whether they are in a protective state based on their reasonably anticipated future land uses. Possible outcomes of a Track 2 RI/FS and ROD could include no further action, land use controls, and/or additional MEC removal. Source: (1).

Track 3 Sites: Track 3 Sites are those areas where MEC is suspected or known to exist, but investigations are not yet complete or need to be initiated, or any area identified in the future. Source: (1).

Unexploded Ordnance (UXO): Military munitions that: (A) Have been primed, fuzed, armed, or otherwise prepared for action; (B) Have been fired, dropped, launched, projected, or placed in such a manner as to constitute a hazard to operations, installations, personnel, or materials; and (C) Remain unexploded, whether by malfunction, design, or any other cause. (10 U.S.C. 101 (e) (5)). For the

purpose of the Military Munitions Response Program being conducted for the former Fort Ord, UXO does not include small arms ammunition .50 caliber and below.

UXO-Qualified Personnel: Personnel who have performed successfully in military EOD positions, or are qualified to perform in the following Department of Labor, Service Contract Act, Directory of Occupations, contractor positions: UXO Technician II, UXO Technician III, UXO Safety Officer, UXO Quality Control Specialist, or Senior UXO Supervisor. Source: (7).

UXO Technician: Personnel who are qualified for and filling Department of Labor, Service Contract Act, Directory of Occupations, contractor positions of UXO Technician I, UXO Technician II, and UXO Technician III. Source: (7).

Validation Seed: Industry standard object or inert munition buried at a recorded location and depth by, or on behalf of, the government, which is used to evaluate overall contractor performance on advanced geophysical classification. The identity, location, and depth of the seed item are blind to the contractor. Source (8)

Sources of the Above Definitions:

(1) Non-standard definition developed to describe Fort Ord-specific items, conditions, procedures, principles, etc. as they apply to issues related to the MEC cleanup.

(2) "Unexploded Ordnance (UXO): An Overview", October 1996. DENIX.

(3) Not used.

(4) Survey of Munitions Response Technologies, June 2006. ITRC (Interstate Technology and Regulatory Council) with ESTCP (Environmental Security and Technology Certification Program) and SERDP (Strategic Environmental Research and Development Program).

(5) Evaluation of Statistical Methodologies used in U.S. Army Ordnance and Explosive Work. September 1999. Ostrouchov, George, Zimmerman, Gregory P., Beauchamp, John J., Federov, Valerii V., and Downing, Darryl J. Prepared by Oak Ridge National Laboratory for the U.S Army Engineering and Support Center.

(6) Institutional Controls: A Site Managers' Guide to Identifying, Evaluating, and Selecting Institutional Controls at Superfund and RCRA Corrective Action Cleanups. US EPA Office of Solid Waste and Emergency Response (OSWER) 9355.0-74FS-P, EPA 540-F-00-005. September 2000.

(7) Defense Explosives Safety Regulation (DESR) 6055.09, Edition 1. January 13, 2019

(8) Uniform Federal Policy for Quality Assurance Project Plans; Advanced Geophysical Classification for Munitions Response (AGC-QAPP). Version 1.0, March 2016. (IDQTF) Intergovernmental Data Quality Task Force.

(9) DoD Instruction 4140.62, "Material Potentially Presenting an Explosive Hazard (MPPEH)," August 20, 2015, Change 3 Effective September 9, 2019.

APPENDIX E

ESCA Figures

N

Monterey Bay

CSUMB Off-Campus

County North

Parker Flats

Future East Garrison

Interim Action Ranges

Seaside

MOUT Site

Laguna Seca Parking

Del Rey Oaks / Monterey

Legend

Former Ft. Ord Boundary

Group 1 MRAs

Seaside MRA
Parker Flats MRA

Group 2 MRAs

CSUMB Off-Campus MRA

County North MRA

Group 3 MRAs

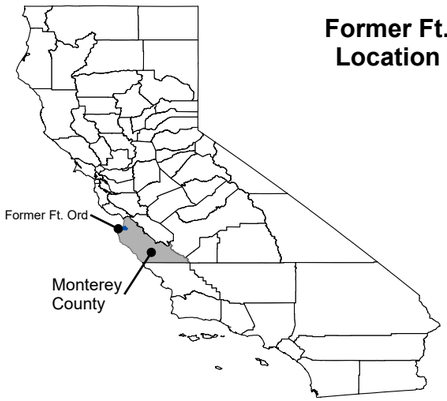
MOUT Site MRA
Laguna Seca Parking MRA
Del Rey Oaks / Monetery MRA

Interim Action Ranges MRA

Group 4 MRA

Future East Garrison MRA

Former Ft. Ord Location Map



US DEPARTMENT OF THE ARMY

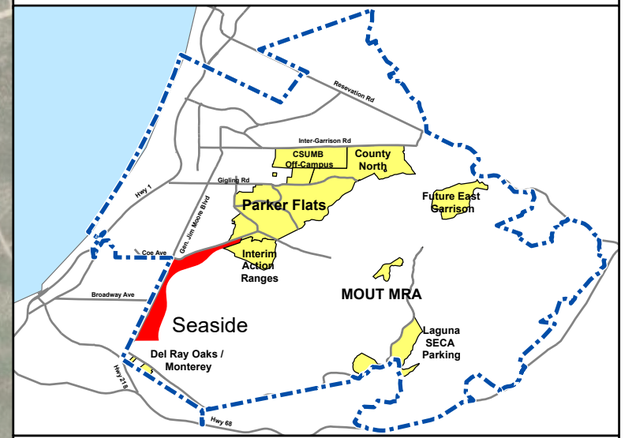
FORMER FORT ORD

FIGURE 1	ESCA MUNITIONS RESPONSE AREAS 5TH FIVE YEAR REVIEW REPORT	
DATE	PROJECT NUMBER	FILE NAME
2/1/2022		

Legend

- Seaside MRA Boundary
- Major Roads
- Former Ft. Ord Boundary
- Parcel Number

0 1,000 2,000 4,000 Feet



US DEPARTMENT OF THE ARMY

FORMER FORT ORD

FIGURE	USACE LAND TRANSFER PARCELS SEASIDE MRA 5TH FIVE YEAR REVIEW REPORT
2	

DATE	PROJECT NUMBER	FILE NAME
2/1/2022		

N

Gigling Rd

Gigling Rd

L32.1

E18.4

Parker Flats Cut-Off Rd

E18.1.3

E19a.1

8th Ave

E19a.3

E19a.2

E19a.4

E18.1.1

Parker Flats Rd

E18.1.2

E19a.5

E20c.2

L23.2

L20.18

E21b.3

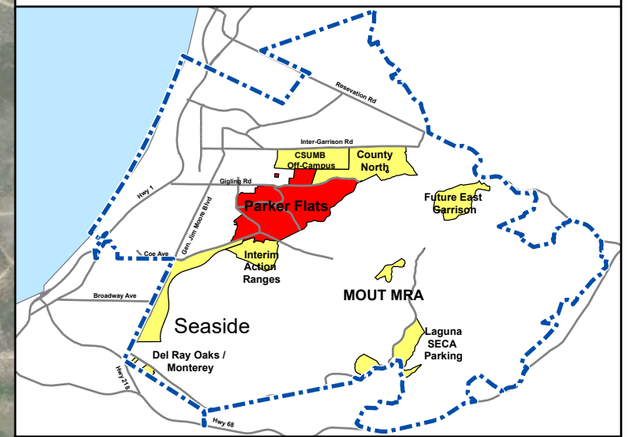
Eucalyptus Rd

Eucalyptus Rd

Legend

- Parker Flats MRA Boundary
- Parker Flats MRA Phase I
- Major Roads
- Parcel Number
- Former Ft. Ord Boundary

0 500 1,000 2,000 3,000 Feet



US DEPARTMENT OF THE ARMY

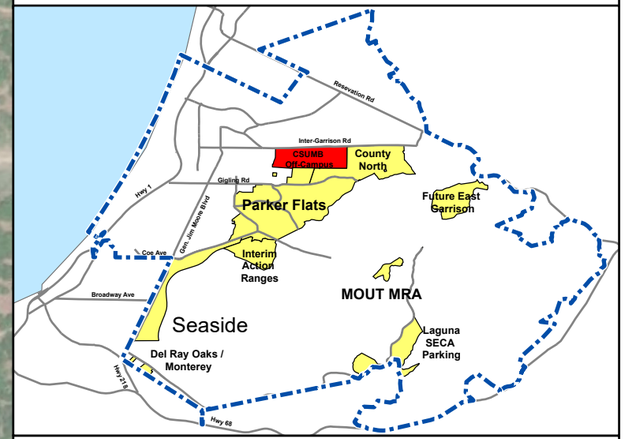
FORMER FORT ORD

FIGURE	USACE LAND TRANSFER PARCELS PARKER FLATS MRA 5TH FIVE YEAR REVIEW REPORT	
3		
DATE	PROJECT NUMBER	FILE NAME
2/1/2022		

Legend

- CSUMB Off Campus MRA Boundary
- Major Roads
- Parcel Number
- Former Ft. Ord Boundary

0 250 500 1,000 1,500 Feet

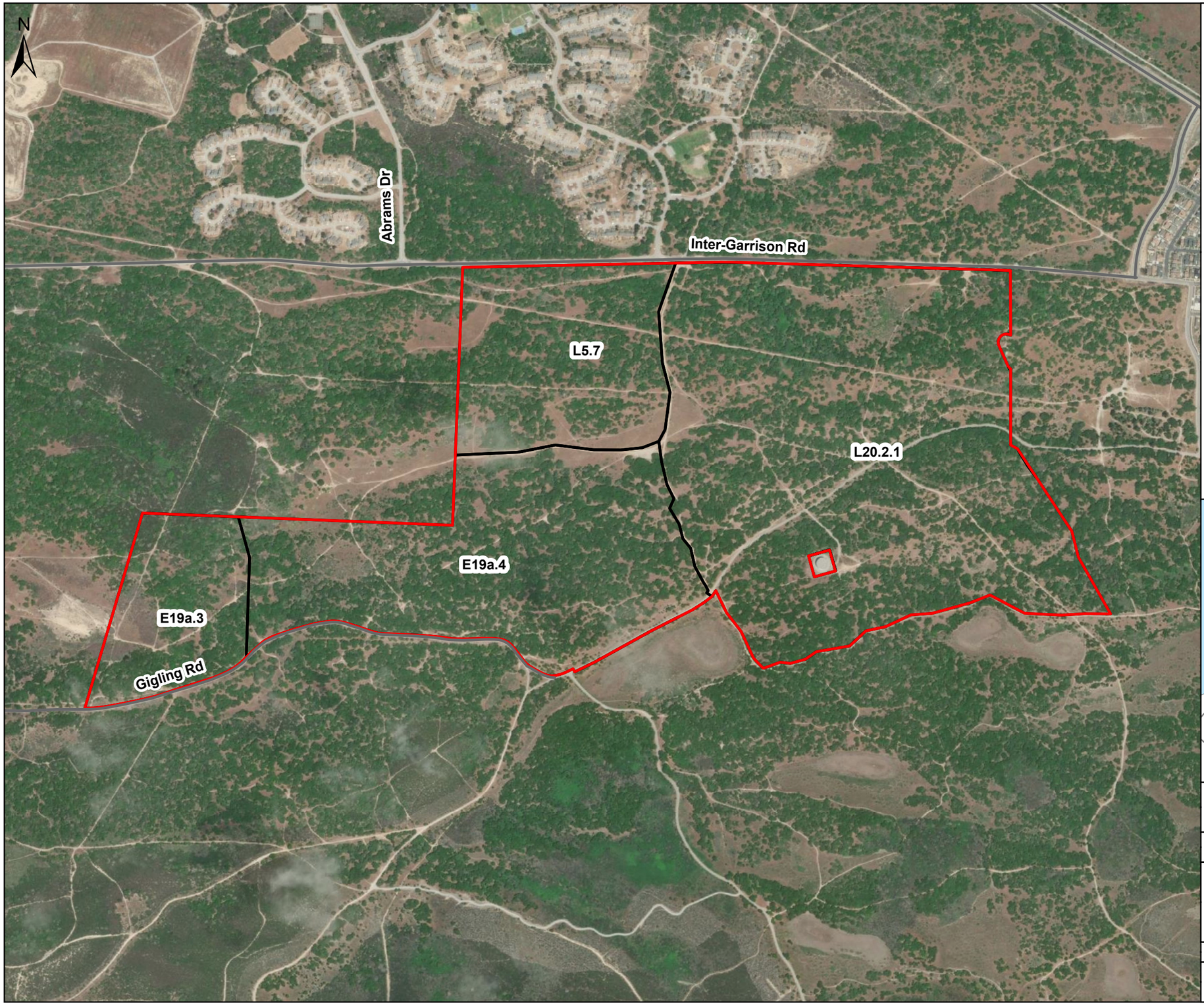


US DEPARTMENT OF THE ARMY

FORMER FORT ORD

FIGURE	USACE LAND TRANSFER PARCELS CSUMB OFF-CAMPUS MRA 5TH FIVE YEAR REVIEW REPORT
4	

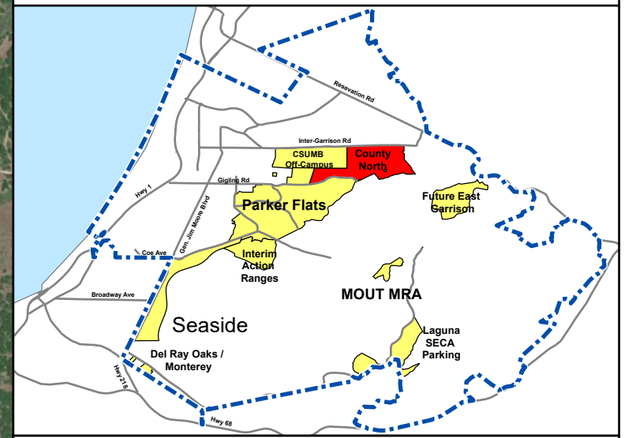
DATE	PROJECT NUMBER	FILE NAME
2/1/2022		



Legend

- Major Roads
- County North MRA Boundary
- Parcel Number
- Former Ft. Ord Boundary

0 500 1,000 2,000 3,000 Feet



US DEPARTMENT OF THE ARMY

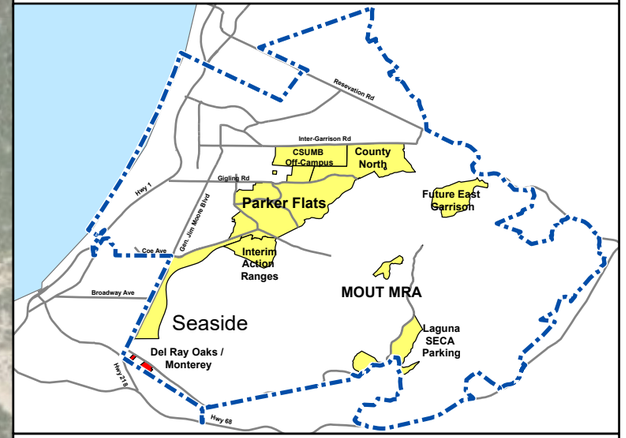
FORMER FORT ORD

FIGURE 5	USACE LAND TRANSFER PARCELS COUNTY NORTH MRA 5TH FIVE YEAR REVIEW REPORT	
DATE	PROJECT NUMBER	FILE NAME
2/1/2022		

Legend

- Major Roads
- Del Rey Oaks / Monterey MRA Boundary
- Parcel Number
- Former Ft. Ord Boundary

0 125 250 500 750 Feet



US DEPARTMENT OF THE ARMY

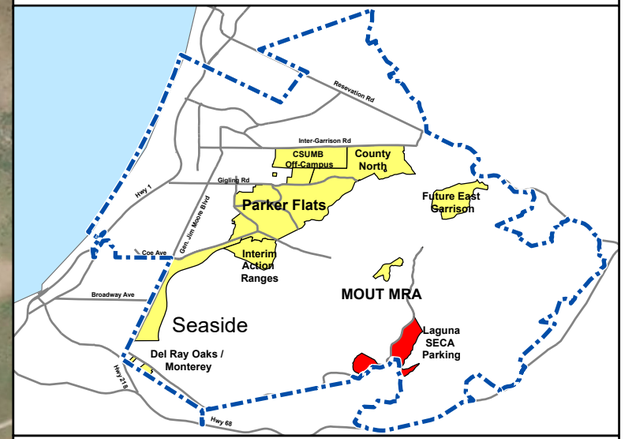
FORMER FORT ORD

FIGURE 6	USACE LAND TRANSFER PARCELS DEL REY OAKS / MONTEREY MRA 5TH FIVE YEAR REVIEW REPORT	
DATE	PROJECT NUMBER	FILE NAME
2/1/2022		

Legend

- Former Ft. Ord Boundary
- Major Roads
- Laguna Seca Parking MRA Boundary
- Parcel Number

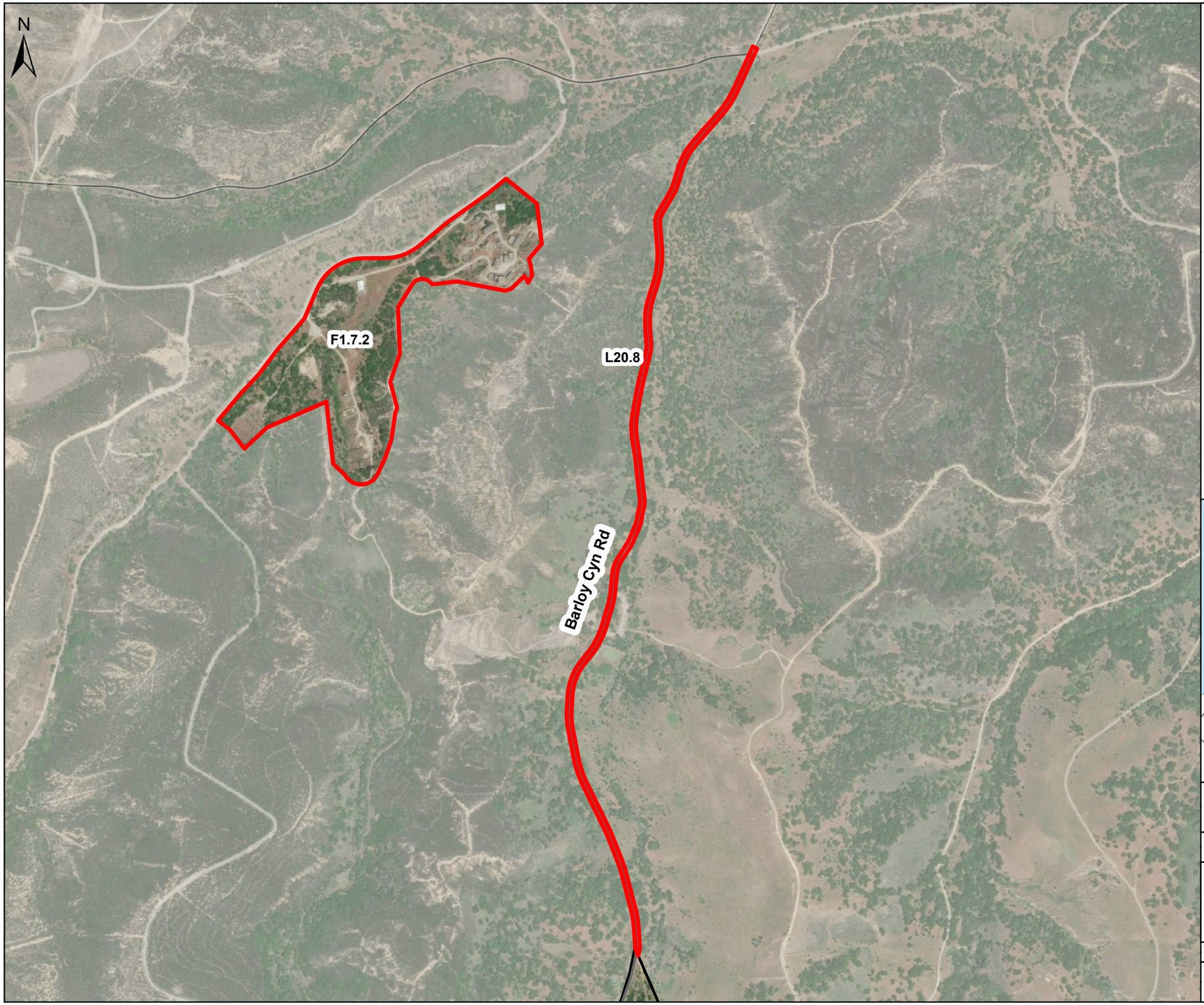
0 250 500 1,000 1,500 Feet



US DEPARTMENT OF THE ARMY

FORMER FORT ORD

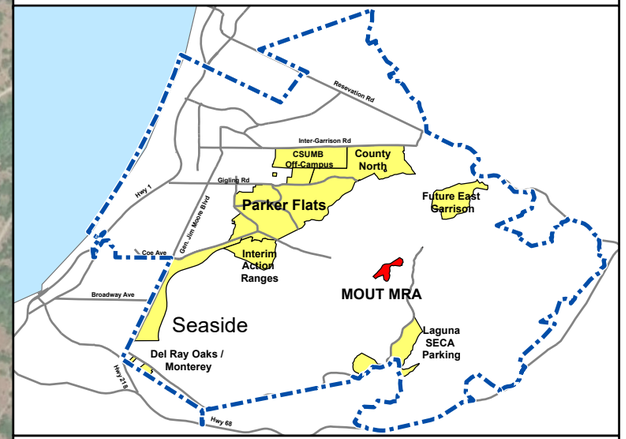
FIGURE 7	USACE LAND TRANSFER PARCELS LAGUNA SEC PARKING MRA 5TH FIVE YEAR REVIEW REPORT	
DATE	PROJECT NUMBER	FILE NAME
2/1/2022		



Legend

- MOUT Site MRA Boundary
- Former Ft. Ord Boundary
- Major Roads
- Parcel Number

0 500 1,000 2,000 3,000 Feet

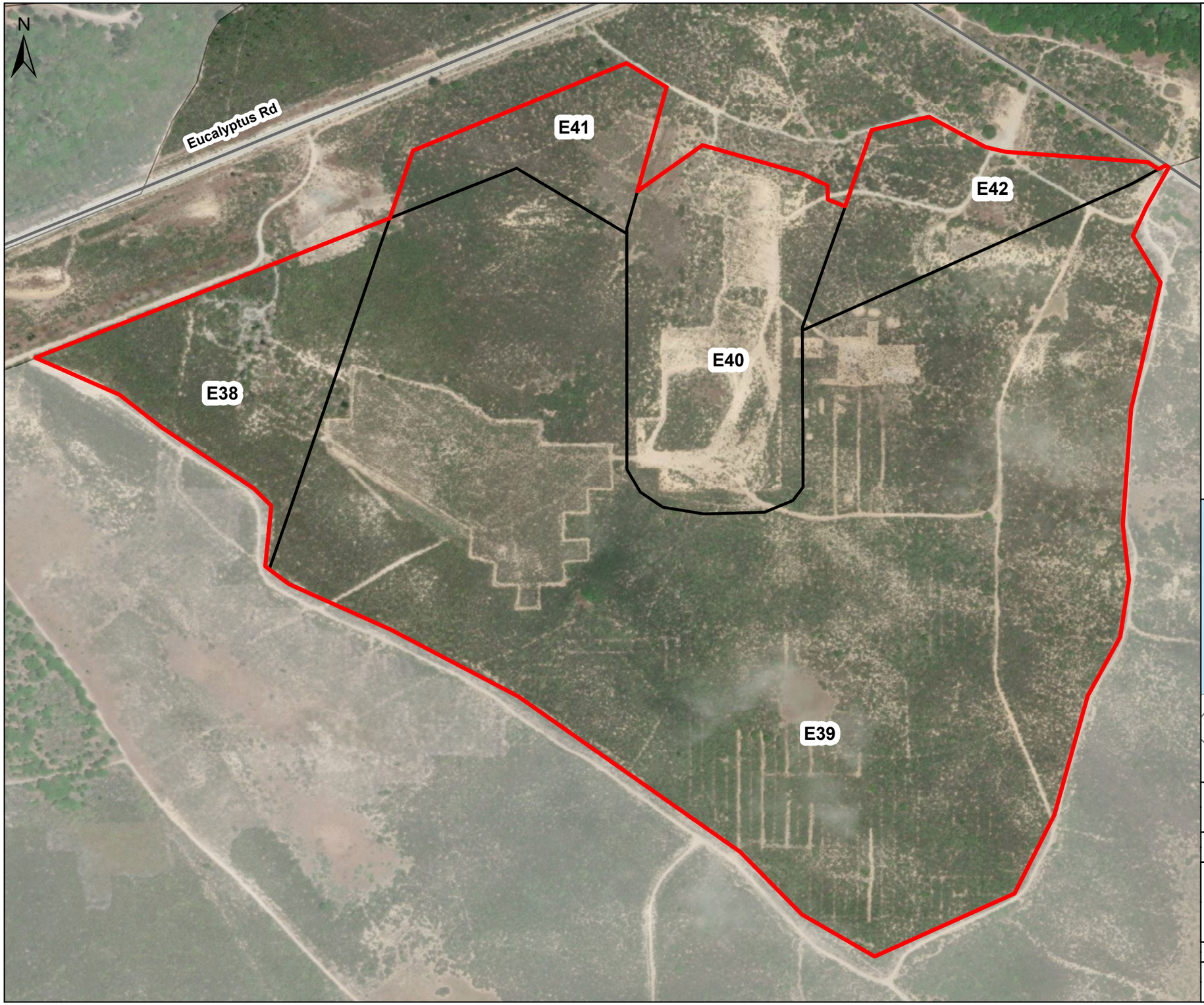


US DEPARTMENT OF THE ARMY

FORMER FORT ORD

FIGURE	USACE LAND TRANSFER PARCELS MOUT SITE MRA 5TH FIVE YEAR REVIEW REPORT
8	

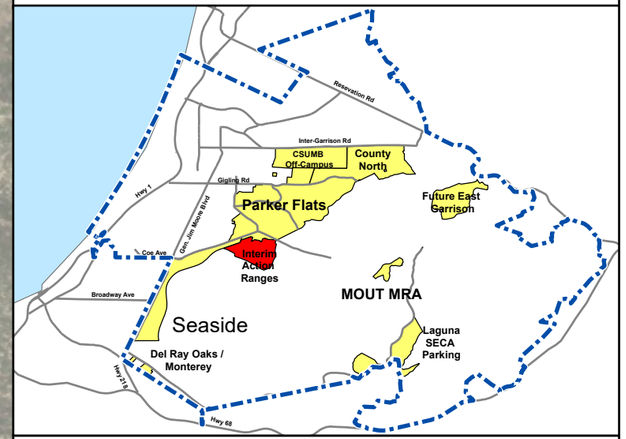
DATE	PROJECT NUMBER	FILE NAME
2/1/2022		



Legend

- Interim Action Ranges MRA Boundary
- Parcel Number
- Former Ft. Ord Boundary
- Major Roads

0 250 500 1,000 1,500 Feet

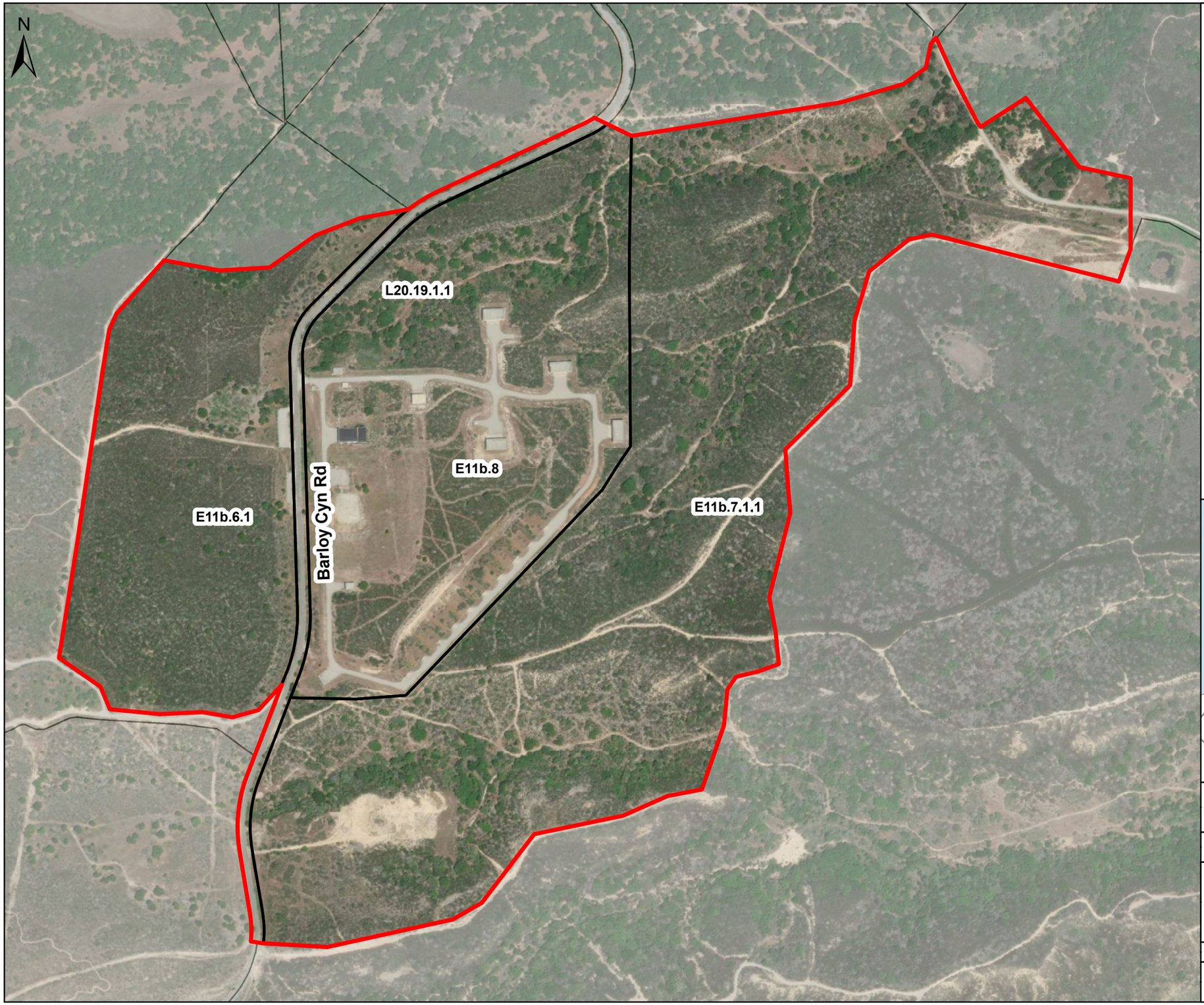


US DEPARTMENT OF THE ARMY

FORMER FORT ORD

FIGURE	USACE LAND TRANSFER PARCELS INTERIM ACTION RANGES MRA 5TH FIVE YEAR REVIEW REPORT
9	

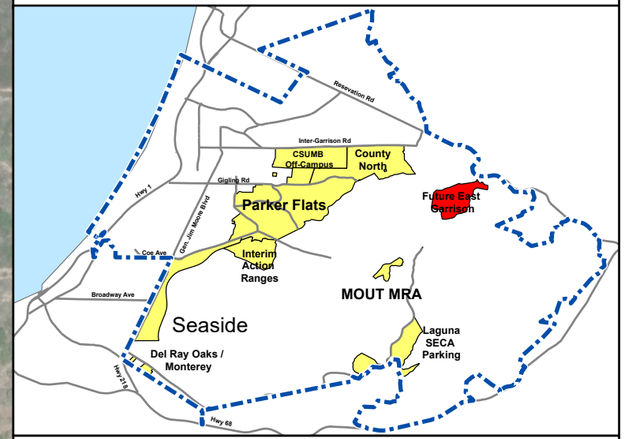
DATE	PROJECT NUMBER	FILE NAME
2/1/2022		



Legend

- Future East Garrison MRA Boundary
- Parcel Number
- Former Ft. Ord Boundary
- Major Roads

0 280 560 1,120 1,680 Feet



US DEPARTMENT OF THE ARMY

FORMER FORT ORD

FIGURE	USACE LAND TRANSFER PARCELS INTERIM ACTION RANGES MRA 5TH FIVE YEAR REVIEW REPORT	
10		
DATE	PROJECT NUMBER	FILE NAME
2/1/2022		

APPENDIX F

OU2 and OUCTP Vapor Intrusion Assessment Documentation

OU2 Vapor Intrusion Carcinogenic Screening Risk Estimates

COC	Henry's Law Constant (unitless)	Target Carcinogenic Indoor Air Concentration (µg/m^3)	Carcinogenic Groundwater VISL (µg/L)	ACL (µg/L)	ACL ILCR	3Q21 Maximum Concentration (µg/L)		Maximum Concentration ILCR
Benzene	0.227	0.36	1.59	1	6 E-7	0.3	J	2 E-7
Carbon Tetrachloride	1.13	0.468	0.414	0.5	1 E-6	ND		--
Chloroform	0.15	0.122	0.813	2	2 E-6	4.4	J-	5 E-6
1,1- Dichloroethane (1,1-DCA)	0.23	1.75	7.61	5	7 E-7	20.5		3 E-6
1,2-Dichloroethane (1,2-DCA)	0.0482	0.108	2.24	0.5	2 E-7	3.2		1 E-6
cis-1,2-Dichloroethene (cis-1,2-DCE)	0.167	NE[a]	NE	6	--	8.8		--
1,2-Dichloropropane (1,2-DCP)	0.115	0.759	6.6	1	2 E-7	0.76		1 E-7
Methylene Chloride	0.133	101	759	5	7 E-9	ND		--
Tetrachloroethylene (PCE)	0.724	10.8	14.9	3	2 E-7	9.8	J-	7 E-7
Trichloroethylene (TCE)	0.403	0.478	1.19	5	4 E-6	19.4		2 E-5
Vinyl Chloride (VC)	1.14	0.168	0.147	0.1	7 E-7	6.2		4 E-5
Notes:				Total ILCR:	1 E-5	Total ILCR:		7 E-5

[a]A VISL has not been established due to no inhalation toxicity information.

ACL = aquifer cleanup level.

COC = chemical of concern

ILCR = incremental lifetime cancer risk

VISL = vapor intrusion screening level

OUCTP Vapor Intrusion Carcinogenic Screening Risk Estimates

COC	Henry's Law Constant (unitless)	Target Carcinogenic Indoor Air Concentration ($\mu g/m^3$)	Carcinogenic Groundwater VISL ($\mu g/L$)	ACL ($\mu g/L$)	ACL ILCR
Carbon Tetrachloride	1.13	0.468	0.414	0.5	1 E-6
Chloroform	0.15	0.122	0.813	2	2 E-6
1,1-Dichloroethylene (1,1-DCE)	1.07	209	195	6	--[b]
cis-1,2-Dichloroethene (cis-1,2-DCE)	0.167	NE[a]	NE	6	--
Methylene Chloride	0.133	101	759	5	7 E-9
Tetrachloroethylene (PCE)	0.724	10.8	14.9	5	3 E-7
Trichloroethylene (TCE)	0.403	0.478	1.19	5	4 E-6
Vinyl Chloride (VC)	1.14	0.168	0.147	0.1	7 E-7
Notes:				Total ILCR:	9 E-6

[a]A VISL has not been established due to no inhalation toxicity information.

[b]VISL is based on a non-carcinogenic endpoint; no inhalation carcinogenic toxicity information is available.

ACL = aquifer cleanup level.

COC = chemical of concern

ILCR = incremental lifetime cancer risk

VISL = vapor intrusion screening level

Vapor Intrusion analysis for OUCTP only done to ensure protectiveness of ACLs, given past indoor air monitoring and studies performed for the OUCTP site, described in Section 10.4.2.2 of report