
EXPLANATION OF SIGNIFICANT DIFFERENCES No. 1 BASEWIDE REMEDIAL INVESTIGATION SITES 2 AND 12 FORMER FORT ORD, CALIFORNIA

United States Department of the Army

April 28, 2015

INTRODUCTION AND STATEMENT OF PURPOSE

Site Name and Location

The former Fort Ord is located along the Pacific Ocean in northwest Monterey County, approximately 80 miles south of San Francisco, California (Figure 1). The former Fort Ord served as a training and staging facility for infantry troops from 1917 until its closure in 1994. The Sites 2 and 12 (2/12) area is located on the northwest portion of the former Fort Ord (Figure 1). Site 2 is west of State Highway 1 between the 8th and 12th Street overcrossings and Site 12 is east of State Highway 1 between the former 10th Street and Imjin Parkway.

Identification of Lead and Support Agencies

The United States Department of the Army (Army) is the lead agency for investigating, reporting, making cleanup decisions, and implementing cleanup actions at the former Fort Ord. The lead regulatory agency is the U.S. Environmental Protection Agency (USEPA), and the support regulatory agencies are the California Department of Toxic Substances Control (DTSC), and the Central Coast Regional Water Quality Control Board (RWQCB).

This Explanation of Significant Differences (ESD) documents significant changes made to the remedy for Sites 2/12 as described in the Record of Decision, Basewide Remedial Investigation Sites, Fort Ord, California (ROD; Army, 1997) in compliance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) §117(c) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) §§300.435(c)(2)(i) and 300.825(a)(2). The ROD was signed by the Army and the regulatory agencies in January 1997. This ESD describes the nature of the significant changes, summarizes the information that led to making the changes, and affirms that the revised remedy complies with the NCP and the statutory requirements of CERCLA.

Circumstances Requiring an ESD

This ESD highlights key information from the *Remedial Investigation/Feasibility Study Addendum at Sites 2 and 12* (RI/FS Addendum; AES, 2015) that indicates the need for significant differences to the remedy for Sites 2/12. For more information regarding the remedial investigation at Sites 2/12, the RI/FS Addendum report is available for inspection in the Fort Ord Administrative Record under Administrative Record Number (AR#) BW-2721B or online at http://docs.fortordcleanup.com/ar_pdfs/AR-BW-2721B/.

The Army prepared this ESD to address volatile organic compounds (VOCs) in soil gas at Site 12 that are a continuing source of contamination to groundwater, and VOCs in the upper zone of the Upper 180-

Foot Aquifer at Site 12. Per NCP §300.825(a)(2), this ESD will become part of the Administrative Record for the former Fort Ord and will be available to the public at the following locations:

Administrative Record

Fort Ord Administrative Record (www.fortordcleanup.com)

Building 4463 Gigling Road, Room 101

Ord Military Community, California 93944-5008

(831) 393-9693

Hours: Mon-Fri 9:00 am-4:00 pm. Other hours by appointment. Closed daily, 12:00 pm-1:30 pm and federal holidays.

Information Repositories

California State University Monterey Bay (CSUMB) Tanimura and Antle Family Memorial Library

Divarty Street, CSUMB Campus (please park in lot # 508)

Seaside, California

(831) 582-3733

For current library hours, call or visit <http://library.csUMB.edu/>

Seaside Branch Library

550 Harcourt Avenue

Seaside, California 93955

(831) 899-2055

Hours: Mon-Thurs 10:00 am-8:00 pm; Fri/Sat 10:00 am-5:00 pm

SITE HISTORY, CONTAMINATION, AND SELECTED REMEDY

Site History and Contamination

When the former Fort Ord was an active military facility, Site 2 consisted of the primary sewage treatment facility for Fort Ord and Site 12 included numerous industrial activities, such as vehicle maintenance and repair, furniture repair, storage of motor oils, hazardous material storage, vehicle cleaning and degreasing, and disposal of waste and oil. Based on the results of the remedial investigation (RI) conducted at Sites 2/12 between 1992 and 1994, the 1997 ROD defined remedies for contamination in groundwater and soil (see Selected Remedy below). The soil remedy was successfully completed in 1998 and consisted of excavation of approximately 58,400 cubic yards of soil and debris impacted with petroleum hydrocarbons and site restoration (IT, 1999a). The groundwater remedy, consisting of groundwater extraction and treatment, began operations in 1999 (IT, 1999b) and has shrunk the contaminant plume and decreased chemical of concern (COC) concentrations (Ahtna, 2015b). The eight Sites 2/12 groundwater COCs and their respective aquifer cleanup levels (ACLs) are listed in Table 1.

Since the 1997 ROD was signed and the soil and groundwater remedies were implemented, the Army has transferred the property at Sites 2/12 for the benefit of the local community. The deeds for the property include a "Notice of the Presence of Contaminated Groundwater," which includes a restriction on access or use of groundwater underlying the property for any purpose. Site 2 remains undeveloped

and open to the general public as part of Fort Ord Dunes State Park, and Site 12 was redeveloped into a commercial retail center, which includes several big-box stores and a large parking area.

Starting in 2011, tetrachloroethene (PCE) concentrations in one monitoring well at Site 12 were consistently over the PCE aquifer cleanup level (ACL) identified in the 1997 ROD of 3.0 micrograms per liter ($\mu\text{g/L}$) (Ahtna, 2015b). Based on this, the *Final 3rd Five-Year Review Report for Fort Ord Superfund Site, Monterey, California* (ITSI, 2012) identified the need for a soil vapor intrusion assessment at Sites 2/12.

The U.S. Army Corps of Engineers (USACE) completed an initial vapor intrusion screening in February 2012, which indicated the exposure pathway of soil gas to indoor workers via vapor intrusion at Sites 2/12 was potentially complete based on groundwater conditions. In October 2012 and April 2013, the USACE collected soil gas samples at 37 locations at a depth of 5 feet below ground surface (bgs). PCE was detected in all 37 samples, several of which exceeded the soil gas screening level (SG-SL)¹ of 603 micrograms per cubic meter ($\mu\text{g/m}^3$) (USACE, 2013a and 2013b). Based on these results additional investigation activities were conducted in late 2013 and early 2014. Seventeen groundwater monitoring wells and 167 permanent soil gas probes were installed and sampled. Additionally, indoor air samples and sub-slab samples were collected at twenty-five (25) locations in the retail stores now located at Site 12 (AES, 2015).

Analytical results for groundwater indicate an area of PCE concentrations exceeding the 1997 ROD ACL of 3.0 $\mu\text{g/L}$ (Figure 2). As of the most recently reported groundwater sampling event conducted in December 2014, trichloroethene (TCE) was below its ACL of 5.0 $\mu\text{g/L}$ at all Site 12 sampling locations (Ahtna, 2015c). The remaining six Sites 2/12 chemicals of concern (COCs [chloroform, 1,2-dichloroethane, 1,1-dichloroethene, cis-1,2-dichloroethene, total 1,3-dichloropropene and vinyl chloride]) were either not detected, or detected at concentrations below their respective ACLs. The lateral extent of affected groundwater is now restricted to the Site 12 area (Ahtna, 2015c). The vertical extent of the groundwater PCE plume ranges from the water table (approximately 70 to 80 feet bgs at Site 12) down to the top of the sandy silt layer that divides the 180-Foot Aquifer into upper and lower zones (approximately 150 feet bgs at Site 12).

Analytical results for soil gas define a PCE plume on the north side of Site 12 where concentrations exceed the PCE SG-SL of 603 $\mu\text{g/m}^3$ (Figure 2). The vertical extent of the soil gas PCE plume ranges from near ground surface down to the water table. Analytical results for soil gas also define one TCE plume on the north side of Site 12 and a separate plume on the south side where concentrations exceeded the TCE SG-SL of 888 $\mu\text{g/m}^3$. The vertical extent of the northern soil gas TCE plume ranges from near ground surface down to approximately 40 feet bgs and data indicate this plume is currently not impacting groundwater. The vertical extent of the southern soil gas TCE plume ranged from near ground surface down to the water table (approximately 80 feet bgs in this area); however, operation of a pilot study soil

¹ SG-SLs are conservative risk-based California Human Health Screening Levels (CHHSLs) or site-specific values calculated per the Final Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air (Vapor Intrusion Guidance; DTSC, 2011) that assume chemical concentrations in soil gas less than 5 feet below a building foundation or the ground surface (i.e., there is less risk associated with chemicals in soil gas deeper than 5 feet), and are intended for evaluation of potential vapor intrusion into buildings and subsequent impacts to indoor air.

vapor extraction (SVE) and treatment system on the south side reduced TCE concentrations in soil gas to below its SG-SL (AES, 2015).

Analytical results for indoor air and sub-slab samples were used to evaluate risk to indoor workers and shoppers at the commercial retail center now located at Site 12. Non-cancer and cancer risks were estimated for these receptors and found to be at levels well below regulatory risk targets. Results of the risk assessment suggest that, if VOCs are migrating into indoor air, concentrations are so low as to be negligible and the vapor intrusion pathway to indoor air is incomplete. Based on results of the sub-slab soil gas sampling and the risk assessment, remediation of soil gas and implementation of risk management strategies are not warranted at Sites 2/12 under current conditions in the footprint of the retail stores.

Selected Remedy

The following remedies were selected for Sites 2/12 in the 1997 ROD:

- Groundwater extraction and treatment by granular activated carbon.
- Disposal of treated water by:
 - Reuse aboveground, or
 - Injection or infiltration back into the aquifer.
- Deed restriction on groundwater use.
- Excavation of approximately 16,000 cubic yards 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 Operable Unit 2 (OU2) Landfills.
- Excavation of approximately 3,800 cubic yards of soil containing TPH concentrations above the cleanup goal of 500 mg/kg from the Outfall Area and Cannibalization Yard, and placement at the OU2 Landfills.

The groundwater treatment system was constructed in accordance with the remedy selected in the 1997 ROD with disposal of treated water by injection and infiltration back into the aquifer (IT, 1999b). The extent of soil and debris containing TPH concentrations above 500 mg/kg was greater than originally estimated; therefore, a total of 58,400 cubic yards was excavated (IT, 1999a).

BASIS FOR THE ESD

The Army's overall cleanup strategy for Sites 2/12 is to return groundwater to a condition that will allow beneficial uses to occur, including potential future use as a drinking water source without unacceptable risks to users, and remediation of soil gas to reduce concentrations of VOCs to levels that will not result in concentrations of VOCs in groundwater that continue to exceed ACLs and thereby prolong the period of unacceptable human health risk due to contamination in groundwater. Modification and continued operation of the existing groundwater treatment system (GWTS) with SVE and treatment will permanently reduce the toxicity, mobility and volume of VOCs in groundwater. This approach employs reliable treatment technologies and risk controls using one or more additional groundwater extraction wells and SVE to supplement the existing groundwater remedy. These are proven technologies demonstrated as effective during long-term operation of the existing GWTS (Ahtna, 2015b) and in a pilot study at Sites 2/12 (AES, 2015). Additionally, administrative actions, including revision of the ACL for PCE to 5.0 µg/L, the federal and State Maximum Contaminant Level (MCL), will expedite achievement of

remedial action objectives (RAOs) and site closure with no unacceptable risk to human health and the environment.

Summary of Site Risks

Potential human health risks and environmental impacts were evaluated in the Baseline Human Health Risk Assessment (HHRA) and Ecological Risk Assessment, respectively (HLA, 1995c). The Baseline HHRA for Sites 2/12 evaluated potential risks associated with exposure to chemicals of potential concern, including potential adverse non-cancer health risks and potential cancer health risks. Based on the 1995 HHRA, no adverse cancer effects are anticipated from exposures to COCs in groundwater; however, potential non-cancer effects exceeded the USEPA's threshold level of concern, which is a hazard index (HI) greater than 1.

The 2014 risk assessment evaluated current concentrations of VOCs in soil gas and indoor air with respect to vapor intrusion risk in existing occupied commercial buildings in the Site 12 area. Results of the risk assessment show the vapor intrusion pathway to indoor air is incomplete and risks to indoor workers and shoppers at the commercial retail center now located at Site 12 are well below regulatory risk targets; however, while investigation data indicate that remediation of soil gas and implementation of associated risk management strategies are not warranted at Sites 2/12 in the footprint of the retail stores under current conditions, concentrations of VOCs in soil gas represent a risk to groundwater quality if left unabated.

Over the last 5 years, three of the eight Sites 2/12 groundwater COCs have been consistently not detected (1,1-dichloroethene, total 1,3-dichloropropene and vinyl chloride) and three others have mostly been detected at concentrations below their respective ACLs (chloroform, 1,2-dichloroethane and cis-1,2-dichloroethene). Only PCE and TCE have been consistently detected above their ACLs; however, TCE was below its ACL at all Sites 2/12 sampling locations in five of the last six quarterly sampling events (Third Quarter 2013 [AES/AMEC, 2014a], First Quarter 2014 [AES/AMEC, 2014c], Second Quarter 2014 [Ahtna, 2014], Third Quarter 2014 [Ahtna, 2015b], and Fourth Quarter 2014 [Ahtna, 2015c]).

The HHRA (HLA, 1995c) determined no adverse cancer effects were anticipated from exposures to COCs in groundwater, but the HI for potential non-cancer effects was 1.9, of which 1.2 was due to potential exposure to groundwater; however, this was conservatively based on concentrations of COCs detected in groundwater in the early 1990s for a residential use scenario. Accordingly, the 1997 ROD identified the RAO for groundwater at Sites 2/12 as remediating the Upper 180-foot Aquifer to MCLs, and for some constituents more stringent levels. These levels were determined by estimating combined excess cancer risk from exposure to all chemicals at the levels listed in Table 1 of the 1997 ROD based on risk calculations in the *Baseline Risk Assessment, Remedial Investigation/Feasibility Study, Site 2 Landfills, Fort Ord, California* (Dames & Moore, 1993). Since that time, active treatment has successfully reduced concentrations of COCs up to two orders of magnitude or to non-detect levels across the site and the property has been developed for commercial use, not residential. Based on this information, this ESD revises the ACL for PCE to be equivalent to the federal and State MCL for PCE of 5.0 µg/L (Table 1) without unacceptable risk to human health and the environment.

DESCRIPTION OF SIGNIFICANT DIFFERENCES

Significant Differences with the Selected Remedy

The existing groundwater remedy for Sites 2/12 conforms to the requirements of the 1997 ROD and includes:

- Groundwater extraction and treatment by granular activated carbon.
- Disposal of treated water by injection and infiltration back into the aquifer.
- Deed restrictions on groundwater use.

This ESD modifies the groundwater remedy to include the following elements:

- Continuation of the current groundwater monitoring program.
- Operation of the existing Sites 2/12 GWTS in accordance with the 1997 ROD.
- Revising the ACL for PCE from 3.0 µg/L to 5.0 µg/L.
- Expansion of the existing Sites 2/12 GWTS with additional groundwater extraction.
- SVE and treatment with granular activated carbon.
- Soil gas cleanup levels (SGCLs) of 1,800 µg/m³ for PCE and 1,000 µg/m³ for TCE.
- Implementation of a soil gas monitoring program.

Soil gas cleanup levels (SGCLs) for Sites 2/12 are based on an assessment of applicable or relevant and appropriate requirements (ARARs) and To Be Considered (TBC) guidance (Table 2). The COCs for soil gas are PCE and TCE, with SGCLs determined by calculating the concentrations of these chemicals in soil gas that will not partition into groundwater at concentrations exceeding the ACLs. With ACLs of 5.0 µg/L for PCE and TCE, the calculated equilibrium concentrations in soil gas would be 2,417 µg/m³ for PCE and 1,432 µg/m³ for TCE (AES, 2015); 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 µg/m³. The SGCLs are then 1,800 µg/m³ for PCE and 1,000 µg/m³ for TCE for protection of groundwater.

The results of the risk assessment indicate 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 under current conditions; however, because the SGCLs for PCE and TCE are proximal to their respective SG-SLs, they will also be protective with respect to future potential vapor intrusion into buildings and subsequent potential impacts to indoor air should site conditions change. These SGCLs are attainable with readily available remedial technologies and, if the PCE and TCE concentrations in the soil gas near the capillary fringe are at or below these levels, then groundwater will not be unacceptably degraded further.

Changes in Expected Outcomes

These modifications to the groundwater remedy are 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. With modification of the groundwater

remedy per this ESD, the areas of media requiring remediation with a PCE ACL of 5.0 µg/L, a PCE SGCL of 1,800 µg/m³, and a TCE SGCL of 1,000 µg/m³ are shown on Figure 3. Without these modifications, it is estimated achievement of RAOs (i.e., restoration of groundwater for beneficial use) would take 13 years with a 60% increase in costs.

Groundwater and soil gas monitoring will provide a framework for evaluating remedy status and making decisions regarding remedy completion or the need for implementation of an alternate remediation scenario if groundwater extraction and treatment, and SVE and treatment do not reduce concentrations of COCs to below ACLs (Table 1) within the expected timeframe. Evaluation of COC concentrations in groundwater will occur on an individual well-by-well basis in accordance with decision rules presented in the most current version of the *Quality Assurance Project Plan, Former Fort Ord, California, Volume I, Appendix A, Groundwater Remedies and Monitoring at Operable Unit 2, Sites 2 and 12, and Operable Unit Carbon Tetrachloride Plume* (Groundwater QAPP). Evaluation of COC concentrations in soil gas will occur on an individual probe-by-probe basis in accordance with decision rules presented in the most current version of the *Quality Assurance Project Plan, Former Fort Ord, California, Volume I, Appendix C, Soil Gas Monitoring at Sites 2 and 12* (Soil Gas QAPP). The results of these evaluations will be used to assess whether aquifer restoration is complete.

Generally, groundwater monitoring wells are sampled quarterly during the remediation monitoring phase². The remediation monitoring phase is complete and the attainment monitoring phase² begins when four consecutive quarters of monitoring data show concentrations of all COCs in a well are less than or equal to their respective ACLs. 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 sampling events and data analysis indicates COC concentrations are stable or declining, whereupon the well may be removed from the sampling program and proposed for decommissioning if not needed for groundwater elevation data. Operation of groundwater extraction wells will progressively cease until operation of the entire Sites 2/12 GWTS is terminated and closure of the Sites 2/12 groundwater remedy will be proposed in a remedial action completion report. Should any conflict arise between this ESD and the most current version of the Groundwater QAPP, the Groundwater QAPP will take precedence.

The modified groundwater remedy will continue to comply with key ARARs as identified in the ROD (Army, 1997), and the soil gas remedy complies with key ARARs and TBC guidance as listed in Table 2.

STATUTORY DETERMINATIONS

The remedy, including the actions described in this ESD, continues to satisfy the requirements of CERCLA §121. In accordance with the 1997 ROD, soil remediation at Sites 2/12 is complete with no further action required, and operation of the groundwater treatment system has successfully contained and reduced the size of groundwater contaminant plume and reduced contaminant concentrations in the groundwater. Implementation of additional measures to remove contaminants from soil gas will enhance the existing groundwater remedy and expedite achievement of RAOs and site closure. The Army, the USEPA, the DTSC and the RWQCB believe the remedy remains protective of human health and the environment and complies with federal and State ARARs.

² As defined in USEPA's *Recommended Approach for Evaluating Completion of Groundwater Restoration Remedial Actions at a Groundwater Monitoring Well* (OSWER 9283.1-44, August 2014).

PUBLIC PARTICIPATION COMPLIANCE

A notification to the public concerning this ESD will be made in a local newspaper after signature. The 1997 ROD and this ESD are available to the public at the following locations:

- Seaside Branch Library, 550 Harcourt Avenue, Seaside, California
- CSUMB Tanimura & Antle Family Memorial Library, Divarty Street, Seaside, California
- Former Fort Ord Administrative Record, Building 4463, Gigling Road, Ord Military Community, California
- <http://www.fortordcleanup.com/reference-documents/records-of-decision/>

REFERENCES³

Ahtna Engineering Services (AES), 2015. *Final Remedial Investigation/Feasibility Study Addendum at Sites 2 and 12, Former Fort Ord, California*. February 27. BW-2721B.

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Ahtna, 2015b. *Final Sites 2 and 12 Fourth Quarter 2013 through Third Quarter 2014 Groundwater and Soil Gas Monitoring and Treatment System Report, Former Fort Ord, California*. March 20. RI-050A.

Ahtna, 2015c. *Sites 2 and 12 Fourth Quarter 2014 Groundwater and Soil Gas Monitoring and Treatment System Report, Former Fort Ord, California*. February 20. BW-2734.

Ahtna, 2015d. *Final Quality Assurance Project Plan, Former Fort Ord, California, Volume I, Appendix C, Revision 0, Soil Gas Monitoring at Sites 2 and 12*. March 31. BW-2727B.

California Department of Toxic Substances Control (DTSC), 2011. *Final Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air (Vapor Intrusion Guidance)*. October.

³ At the end of references included in the Fort Ord Administrative Record are the Administrative Record Numbers (e.g. BW-1234). To find the referenced document, this number may be typed into the online search tool at: <http://www.fortordcleanup.com/documents/search/>. Please note the referenced documents were available in the Fort Ord Administrative Record at the time this document was issued; however, some may have been superseded by more current versions and were subsequently withdrawn.

Dames & Moore, 1993. *Baseline Risk Assessment, Remedial Investigation/Feasibility Study, Site 2 Landfills, Fort Ord, California*. June 7. OU2-218.

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HLA, 1995b. *Final Basewide Remedial Investigation/Feasibility Study, Fort Ord, California, Volume II – Remedial Investigation, Sites 2 and 12 – Text Tables, and Plates*. October 19. BW-1283A.

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HLA, 1995d. *Final Basewide Remedial Investigation/Feasibility Study, Fort Ord, California, Volume V – Feasibility Study, Sites 2 and 12, Sites 16 and 17, Site 3*. October 25. BW-1283A.

Innovative Technical Solutions, Inc. (ITSI), 2012. *Final 3rd Five-Year Review Report for Fort Ord Superfund Site, Monterey, California*. September 17. BW-2632.

International Technology Corporation (IT), 1999a. *Draft Final Remedial Action Confirmation Report and Post-Remediation Health Risk Assessment, Site 12 Remedial Action, Basewide Remediation Sites, Fort Ord, California*. June 1. BW-2031D.

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EXPLANATION OF SIGNIFICANT DIFFERENCES No. 1
BASEWIDE REMEDIAL INVESTIGATION SITES 2 AND 12
FORMER FORT ORD, CALIFORNIA

United States Department of the Army



Thomas E. Lederle
Chief
Base Realignment and Closure (BRAC) Division

30 APRIL 2015

Date



William K. Collins
BRAC Environmental Coordinator
Fort Ord BRAC Office

4/28/2015

Date

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EXPLANATION OF SIGNIFICANT DIFFERENCES No. 1
BASEWIDE REMEDIAL INVESTIGATION SITES 2 AND 12
FORMER FORT ORD, CALIFORNIA

United States Environmental Protection Agency



Angeles Herrera
Chief
Federal Facilities & Site Cleanup Branch
U.S. Environmental Protection Agency
Region 9

2/1/2016

Date

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**EXPLANATION OF SIGNIFICANT DIFFERENCES No. 1
BASEWIDE REMEDIAL INVESTIGATION SITES 2 AND 12
FORMER FORT ORD, CALIFORNIA**

**California Environmental Protection Agency
Department of Toxic Substances Control**

The State of California, Department of Toxic Substances Control (DTSC) had an opportunity to review and comment on the ESD and its concerns were addressed.

Noel D. Shrum

Noel Shrum
Unit Chief
Brownfields and Environmental Restoration Program
Sacramento Office
Department of Toxic Substances Control

5/26/15

Date

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EXPLANATION OF SIGNIFICANT DIFFERENCES No. 1
BASEWIDE REMEDIAL INVESTIGATION SITES 2 AND 12
FORMER FORT ORD, CALIFORNIA

California Environmental Protection Agency
Regional Water Quality Control Board, Central Coast Region

The State of California, Central Coast Regional Water Quality Control Board (RWQCB) had an opportunity to review and comment on the ESD and its concerns were addressed.

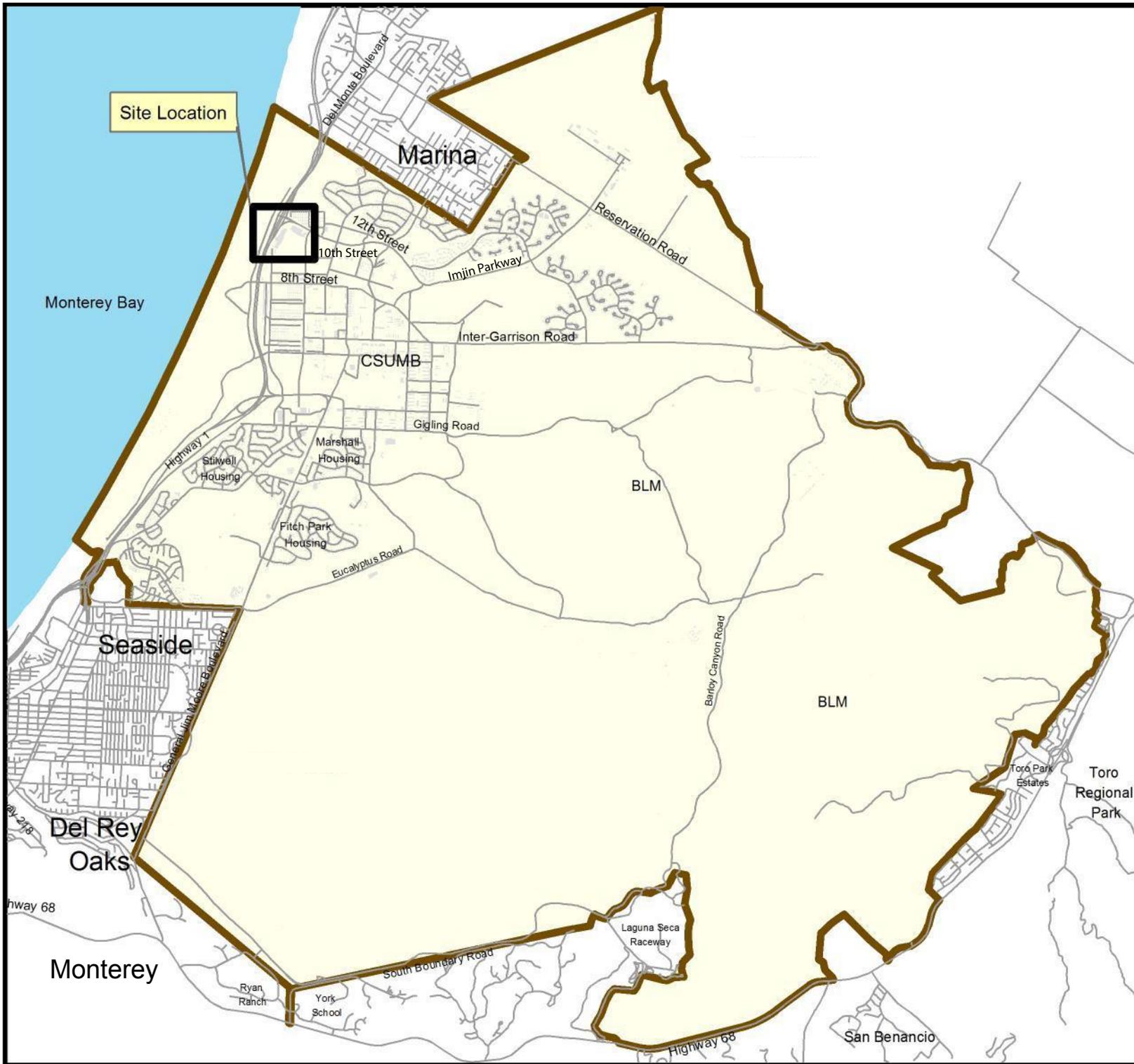


Kenneth A. Harris
Executive Officer



Date

California Environmental Protection Agency
Regional Water Quality Control Board, Central Coast Region

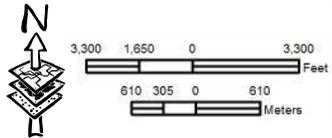


Location Map



Legend

-  Existing Buildings & Facilities
-  Roads
-  Former Fort Ord Base Boundary



Former Fort Ord Vicinity Map

ESD No. 1, BW RI Sites 2/12
Former Fort Ord, California



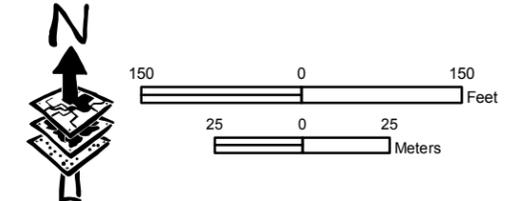
Figure

1



- Legend**
- 2014-Third Quarter Groundwater PCE Plume ($\geq 3 \mu\text{g/L}$, the 1997 Record of Decision [ROD] aquifer cleanup level [ACL])
 - 2013-2014 Remedial Investigation/Feasibility Study (RI/FS Addendum) Modeled Soil Gas PCE Plume ($\geq 603 \mu\text{g/m}^3$, the soil gas screening level [SG-SL*])
 - 2013-2014 Remedial Investigation/Feasibility Study (RI/FS Addendum) Modeled Soil Gas TCE Plume ($\geq 888 \mu\text{g/m}^3$, the soil gas screening level [SG-SL*])

*SG-SL is a conservative risk-based value that assumes chemical concentrations in soil gas less than 5 feet below a building foundation or the ground surface.



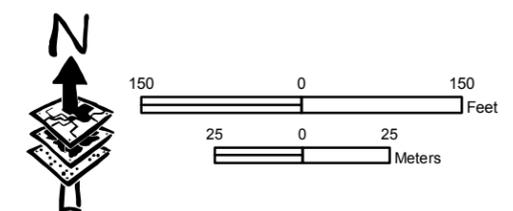
Groundwater PCE ACL and Soil Gas PCE/TCE SG-SL Exceedances 2013-2014
 ESD No. 1, BW RI Sites 2/12
 Former Fort Ord, California



Figure
2



- Legend**
-  2014-Third Quarter Groundwater PCE Plume ($\geq 5 \mu\text{g/L}$, the revised aquifer cleanup level [ACL])
 -  Modeled Soil Gas PCE Plume ($\geq 1,800 \mu\text{g/m}^3$, the soil gas cleanup level [SGCL])
 -  Modeled Soil Gas TCE Plume ($\geq 1,000 \mu\text{g/m}^3$, the soil gas cleanup level [SGCL])



Revised Groundwater PCE ACL and Soil Gas PCE/TCE SGCL Remedial Areas
 ESD No. 1, BW RI Sites 2/12
 Former Fort Ord, California



Figure
3

**Table 1. Chemicals of Concern (COCs) in Groundwater and Aquifer Cleanup Levels (ACLs)
Explanation of Significant Differences No. 1
Basewide Remedial Investigation Sites 2 and 12, Former Fort Ord, California**

Chemicals of Concern	Aquifer Cleanup Levels* (µg/L)†
chloroform	2.0
1,2-dichloroethane (1,2-DCA)	0.5
1,1-dichloroethene (1,1-DCE)	6.0
cis-1,2-dichloroethene (cis-1,2-DCE)	6.0
total 1,3-dichloropropene	0.5
tetrachloroethene (PCE)	5.0
trichloroethene (TCE)	5.0
vinyl chloride	0.1

Notes:

* ACL for PCE as determined by this ESD. All others from the Record of Decision, Basewide Remedial Investigation Sites, Fort Ord, California, January 13, 1997.

† µg/L = micrograms per liter

**Table 2: Documentation of ARARs and TBCs
Explanation of Significant Differences No. 1
Basewide Remedial Investigation Sites 2 and 12, Former Fort Ord, California**

Source or Authority	Requirement, Standard, or Criterion	Applicable or Relevant and Appropriate, or To Be Considered	Description	Remarks
Chemical-Specific Requirements				
Identification and Listing of Hazardous Waste	Title 22 CCR, Division 4.5, Chapter 11	Relevant and Appropriate	Establishes/defines procedures and criteria for identification and listing of Resource Conservation Recovery Act (RCRA) and non-RCRA hazardous wastes. Chemicals regulated as hazardous waste, and the levels at which they are hazardous, are identified in these regulations.	If drill cuttings, decontamination water, or soil gas treatment residues subsequently characterized as hazardous are generated, any such wastes will be managed according to the substantive requirements of these regulations.
Monterey Bay Unified Air Pollution Control District (MBUAPCD)	Regulation II (New Sources) and Regulation X, Rule 207 (Toxic Air Contaminants)	Relevant and Appropriate	Regulates new sources and toxic air contaminants, and restricts specific discharges of organic compounds to the atmosphere through remedial actions. May limit emissions of total and individual organic compounds on a site-specific basis and/or may require emission controls using Best Available Control Technology (BACT). MBUAPCD regulates releases of certain identified or potential air toxics at levels determined to be "appropriate for review." In some cases, a risk assessment may be required.	If soil gas is extracted for aboveground treatment and the treatment system is vented to the atmosphere, then the offgas effluent will be managed in compliance with the substantive requirements of these regulations to remove concentrations of any contaminants above MBUAPCD standards.
California Environmental Protection Agency (Cal/EPA)	<i>Use of California Human Health Screening Levels in Evaluation of Contaminated Properties</i>	To Be Considered	CHHSLs are concentrations of 54 chemicals in soil or soil gas that Cal/EPA considers to be below thresholds of concern for risks to human health (excess lifetime cancer risk of one-in-a-million (10 ⁻⁶) and a hazard quotient of 1.0 for noncancer health effects). CHHSLs were developed using standard exposure assumptions and chemical toxicity values published by USEPA and Cal/EPA.	Under most circumstances the presence of a chemical in soil, soil gas or indoor air at concentrations below the corresponding CHHSLs can be assumed to not pose a significant health risk to people, and the presence of a chemical at concentrations in excess of a CHHSL does not indicate that adverse impacts to human health are occurring or will occur.
Location-Specific Requirements				
Standards for the Management of Wastes Discharged to Land	Title 23 CCR, Division 3, Chapter 15, Article 2 (Waste Classification and Management), §2511(d) Title 27 CCR, Division 2, §20090(d)	Relevant and Appropriate	Establishes standards for the management of waste discharged to land and provides exemptions to these requirements for cleanups taken at the direction of public agencies, as long as requirements of Article 2 are met for waste that is removed from the point of release under any remedial alternatives and disposed untreated.	If drill cuttings, decontamination water, or soil gas treatment residues subsequently characterized as hazardous are generated, any such wastes will be managed according to the substantive requirements of these regulations.
Action-Specific Requirements				
Hazardous Materials & Transportation Act	49 CFR Part 172.101	Relevant and Appropriate	These regulations impose procedures and controls on the transportation of hazardous materials.	If drill cuttings, decontamination water, or soil gas treatment residues subsequently characterized as hazardous are generated, any such wastes will be managed according to the substantive requirements of these regulations.
California Health and Safety Code	Title 22 CCR Division 4.5	Relevant and Appropriate	The statute and regulations provide for identification of hazardous waste in §§66261. If a material is a hazardous waste, Division 4.5 provisions further regulate hazardous waste generators, transporters, and treatment, storage, and disposal facilities.	If drill cuttings, decontamination water, or soil gas treatment residues subsequently characterized as hazardous are generated, any such wastes will be managed according to the substantive requirements of these regulations.
California Health and Safety Code	Title 22 CCR §66264.601-603	Relevant and Appropriate	These regulations apply to hazardous waste treatment conducted in a device that does not meet the definition of a "container" in 22 CCR 66260.10 and is characterized as a "Miscellaneous Unit" subject to the provisions of 22 CCR 66264.601-603. For activities where remedial actions are not conducted using a device that meets the 22 CCR 66260.10 definition of a container, the requirements for "temporary units," as set forth in 22 CCR 66264.553 would apply.	If drill cuttings, decontamination water, or soil gas treatment residues subsequently characterized as hazardous are generated, any such wastes will be managed according to the substantive requirements of these regulations.

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Explanation of Significant Differences No. 1
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Source or Authority	Requirement, Standard, or Criterion	Applicable or Relevant and Appropriate, or To Be Considered	Description	Remarks
Land Disposal Restrictions	Title 22 CCR, Chapter 18	Relevant and Appropriate	Prohibits land disposal of specified untreated hazardous wastes and provides special requirements for handling such wastes. Requires laboratory analysis of wastes intended for landfill disposal to establish the waste is not restricted from landfill disposal.	If drill cuttings, decontamination water, or soil gas treatment residues subsequently characterized as hazardous are generated, any such wastes will be managed according to the substantive requirements of these regulations.
MBUAPCD	Regulation II (New Sources) and Regulation X, Rule 207 (Toxic Air Contaminants)	Relevant and Appropriate	Establishes requirements for new stationary sources of air pollution, and the appropriate level of abatement control technology for toxic air contaminants.	The remedial design would need to meet the substantive requirements of these MBUAPCD regulations if soil gas treatment activities generate toxic air emissions. Levels of these emissions are anticipated to be minimal.
DTSC	Advisory - Active Soil Gas Investigations	To Be Considered	Provides technically defensible and consistent approaches for collecting and analyzing soil gas samples.	To be referenced for developing sampling methodologies and quality control/quality assurance requirements.

Notes:

ARARs = Applicable or Relevant and Appropriate Requirements
 Cal/EPA = California Environmental Protection Agency
 CCR = California Code of Regulations
 CHHSL = California Human Health Screening Level
 DTSC = Department of Toxic Substances Control
 MBUAPCD = Monterey Bay Unified Air Pollution Control District
 RCRA = Resource Conservation and Recovery Act
 TBC = To Be Considered guidance
 USEPA = United States Environmental Protection Agency