

FINAL

**EXPLANATION OF SIGNIFICANT DIFFERENCE FOR THE
FINAL RECORD OF DECISION FOR INSTALLATION
RESTORATION SITE 1 SOIL COVER**
*Installation Restoration Site 1
Alameda Point, Alameda, California*

*PERMAC Contract Number N62473-08-D-8816
Contract Task Order 0002*

Document Control Number: AMEC-8816-0002-0182

April 2013

Submitted to:



U.S. Department of the Navy
Base Realignment and Closure
Program Management Office West
1455 Frazee Road, Suite 900
San Diego, California 92108-4310

Submitted by:



AMEC Environment & Infrastructure, Inc.
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Explanation of Significant Difference for the Final Record of Decision for
Installation Restoration Site 1 Soil Cover

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Prepared for:

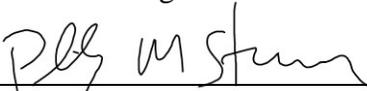
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ACRONYMS AND ABBREVIATIONS

BCT	BRAC Cleanup Team
bgs	below ground surface
BRAC	Base Realignment and Closure
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COC	chemicals of concern
DON	Department of the Navy
DTSC	Department of Toxic Substances Control
ESD	Explanation of Significant Difference
FS	Feasibility Study
HHRA	Human Health Risk Assessment
HI	hazard index
IR	Installation Restoration
NAS	Naval Air Station
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
O&M	Operations and Maintenance
PAH	polynuclear aromatic hydrocarbons
PCB	polychlorinated biphenyls
RAO	remedial action objectives
RI	Remedial Investigation
ROD	Record of Decision
RWQCB	Regional Water Quality Control Board
SVOC	semivolatile organic compounds
TPH	total petroleum hydrocarbons
U.S. EPA	U.S. Environmental Protection Agency
VOC	volatile organic compounds

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1.0 INTRODUCTION

Site Name:	Installation Restoration (IR) Site 1, 1943-1956 Disposal Area
Site Location:	Northwest corner of the former Naval Air Station (NAS), now referred to as Alameda Point, in Alameda, California
CERCLA ID Number:	CA2170023236
Lead Agency:	U.S. Navy Base Realignment and Closure Program Management Office West
Support Agencies:	U.S. Environmental Protection Agency (U.S. EPA), Region 9, California Environmental Protection Agency's Department of Toxic Substances Control (DTSC) and the San Francisco Bay Regional Water Quality Control Board (RWQCB)

The Final Record of Decision (ROD) for IR Site 1 at Alameda Point, Alameda, California, was issued on September 17, 2009, for selected remedial actions for soil and groundwater contamination at IR Site 1. The selected remedy for IR Site 1 included a soil cover over the waste to prevent exposure to contaminants that exceed remediation goals. The IR Site 1 ROD was issued pursuant to the Department of the Navy's (DON) authority as the lead federal agency for the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) for remedy selection at sites at former NAS Alameda, pursuant to Sections 104 and 120 of CERCLA, Executive Order 12580, and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP; 40 Code of Federal Regulations [CFR] part 300). The lead regulatory agency for overseeing site cleanup at former NAS Alameda is the U.S. EPA. In addition to the U.S. EPA, state agencies, including the RWQCB, and the DTSC oversee the site cleanup at former NAS Alameda.

The Navy is issuing this Explanation of Significant Difference (ESD) to document the following post-ROD changes in the IR Site 1 remedial action selected in the ROD:

- Document a reduction in the proposed thickness of the soil cover affecting inland portions of IR Site 1 on Alameda Point; and
- Include a management plan to address burrowing mammals and birds.

This ESD will become part of the IR Site 1 Administrative Record. The IR Site 1 Administrative Record is available to the public at the following location:

Naval Facilities Engineering Command, Southwest
CERCLA Administrative Record
937 North Harbor Drive, Building 1
San Diego, CA 92132
Business hours: 8AM-5PM Monday-Friday

In addition, this ESD will also be available for review at the following website:

www.bracpmo.navy.mil

2.0 SITE HISTORY AND CONTAMINATION

This section describes the IR Site 1 site history and contamination.

2.1 Site Description

Alameda Point is on the northwestern tip of Alameda Island, which is on the eastern side of San Francisco Bay in California. Alameda Point is generally rectangular in shape—approximately 2 miles long (east to west) and 1 mile wide (north to south)—and occupies 1,734 acres of onshore land (Figure 1). IR Site 1 is on the northwestern tip of Alameda Point where the Oakland Inner Harbor joins the San Francisco Bay.

IR Site 1 is divided into six areas: Areas 1a, 1b, 2b, 4, 5a, and 5b (Figure 2). This ESD document applies to Areas 1a, 2b, 4, and the inland portions of 5a and 5b.



Figure 1. Location map of region; green, shaded area is Alameda Point

2.2 History

IR Site 1 was used as the principal waste disposal area for all waste generated at the former NAS Alameda between the years 1943 to 1956, except for wastewater, which was discharged into Seaplane Lagoon. The Navy identified historical activities performed within IR Site 1 that may have led to contamination at the site, and conducted environmental investigations to identify and assess the nature and extent of chemicals in soil and groundwater. Historical contamination sources at IR Site 1 may have included the following:

- Subsurface disposal area waste
- Burn area waste

- Pistol range and skeet range
- Aircraft parts storage and maintenance area

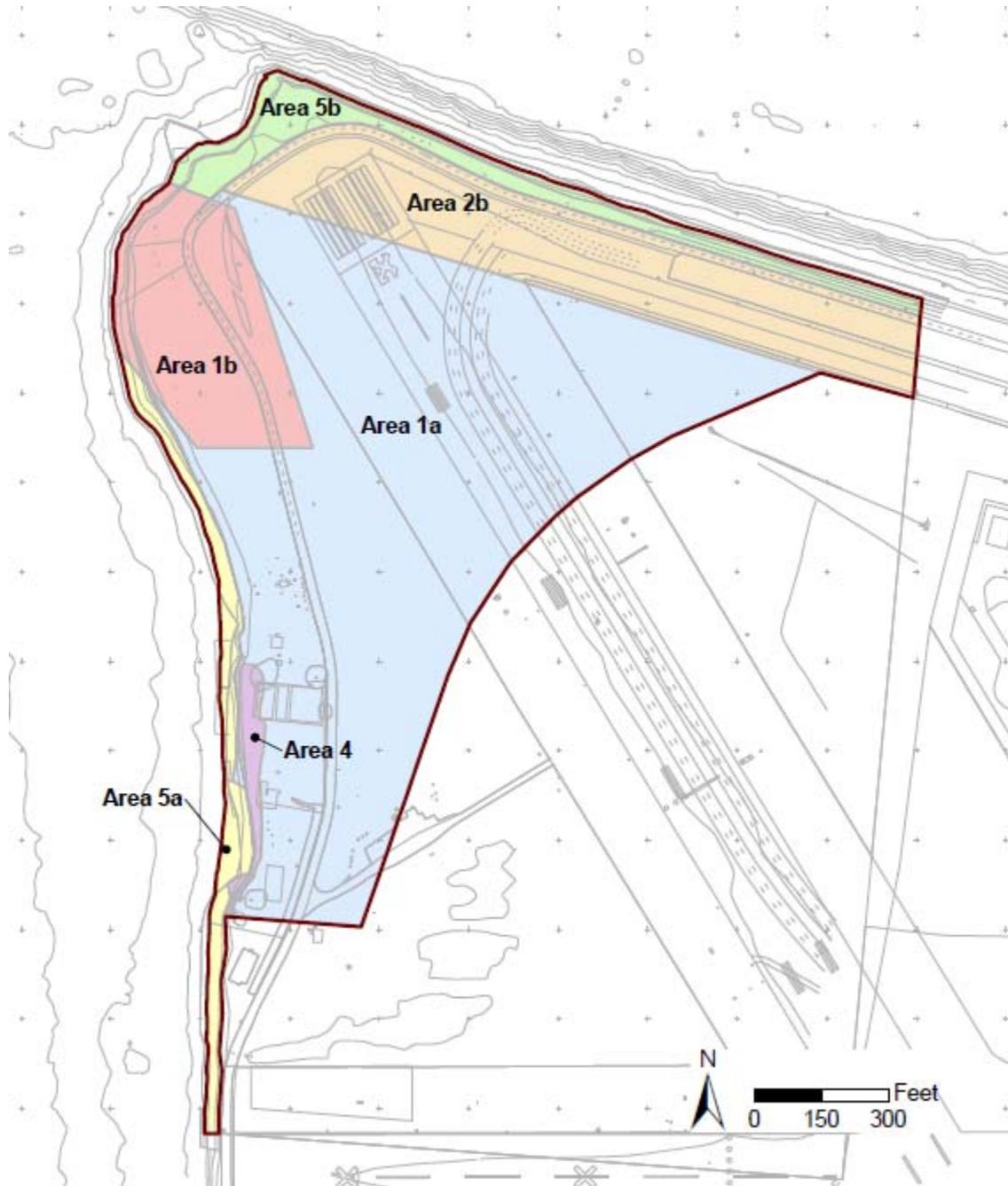


Figure 2. Map of IR Site 1

2.3 Site Contamination

Chemicals found in soil at IR Site 1 include: metals, volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), polynuclear aromatic hydrocarbons (PAHs), pesticides, polychlorinated biphenyls (PCBs), and total petroleum hydrocarbons (TPH), as well as dioxins and furans in the Burn Area (Area 1b). Radionuclides were also detected. Radionuclides of concern are: radium-226, cesium-137, strontium-90, depleted uranium, uranium oxide, thorium-232, and cobalt-60. In general, the highest chemical concentrations throughout the site were detected in the waste disposal area (Area 1a). The highest concentrations of lead were detected in the former firing-range berm area (Area 4). A complete set of soil analytical results for IR Site 1 from previous investigations, including historical studies, can be found in Appendix E of the Final IR Site 1 Feasibility Study (FS) Report.

2.4 Summary of the Current Selected Soil Cover Remedy

The remedial action objectives (RAOs) defined in the ROD are subdivided into three categories; soil, water, and radiologic. The soil and radiological RAOs apply to each of the subdivided areas; Areas 1a, 1b, 2b, 4, 5a, and 5b. The ROD-selected remedy for Area 1a, Area 2b, Area 4, and the inland portions of Areas 5a and 5b included placement of a soil cover as follows:

1. Prior to constructing the soil cover, scan existing site surface for radiological anomalies that meet or exceed two-times the radiological background using sodium-iodide field screening methods;
2. Remove radiological anomalies from existing site surface to a depth of 1 foot and replace with clean, compacted backfill; and
3. Place a 4-foot thick seismically-stable soil cover over the waste in Area 1a, Area 2b (excluding pavement, which will have a 2-foot thick soil cover), Area 4, and inland portions of Areas 5a and 5b.

On January 18, 2011, The Base Realignment and Closure (BRAC) Cleanup Team (BCT) participated in a meeting to discuss the following concerns with the current selected soil cover remedy:

1. Pursuant to RAOs for soil, the soil interval considered for potential exposure for a recreational visitor is 0 to 2 feet below ground surface (bgs); however, for ecological receptors, specifically burrowing mammals, the soil interval of consideration is 0 to 6 feet bgs.

2. Selected remedy does not specify a plan for management of burrowing animals over soil cover outside the requirement for a soil cover operations and management plan.

2.5 Summary of Site Risks

A Human Health Risk Assessment (HHRA) (with amendments) and ecological risk assessments were conducted for IR Site 1 as part of the Remedial Investigation (RI) Report and FS Report using data collected during investigations from 1990 to 2005. The objective of the risk assessments was to estimate the risks to human and ecological receptors from exposure to chemicals in soil and groundwater at the site. The soil intervals considered for potential exposure were from the existing ground surface to 2 feet and 6 feet bgs for human and terrestrial ecological receptors, respectively. The risk assessments provided the basis for taking action and identified the chemicals of concern (COCs) and exposure pathways that need to be addressed by the remedial action.

Results of the HHRA indicated the chemical and radionuclide cancer risks are within EPA's risk management range of 10^{-6} to 10^{-4} . The cancer risk for an occupational worker exposed to soil at IR Site 1 was 2.6×10^{-5} , and the noncancer hazard index (HI) was less than 1. The cancer risk for an occupational worker exposed to radiological contaminants at IR Site 1 was 3.6×10^{-5} . The cancer risk calculated in the baseline HHRA for a recreational user exposed to soil at IR Site 1 was 4.4×10^{-5} , and the noncancer HI was less than 1. The cancer risk for a recreational user exposed to radiological contaminants at IR Site 1 was 2.0×10^{-5} .

Results of the dose assessment for radionuclides indicated that the estimated occupation and recreation doses for radium-226 were below the EPA residential limit of 15 mrem/yr for exposure to surface soil.

Results of the ecological risk assessments indicated that the pathway for exposure to chemical and radiological COCs for terrestrial ecological receptors is eliminated with the use of a properly installed and maintained soil cover.

3.0 BASIS FOR THE ROD CHANGE

The primary purpose for the soil cover is to isolate the underlying wastes from potential receptors. Results of the radiological and chemical-based risk assessments support a 3-foot thick soil cover as providing sufficient isolation from the waste to meet soil and radiological RAOs. Based on the current soil-cover selected remedy and NCP criteria, the Navy recommends the selected remedy for the soil cover be changed as follows:

Place a 3-foot thick, seismically-stable soil cover over the foundation layer, including Areas 1a, 1b, 2b (excluding pavement, which will have a 2-foot thick cover), 4, and inland portions of 5a and 5b. (Figure 3).

1. Provide a Terrestrial Ecological Receptor Exposure Mitigation Plan, which should include as follows:
2. Soil cover inspection methods and reporting;
 - a. Soil cover inspection frequency;
 - b. Burrowing mammal/bird management; and
 - c. Maintenance and repair of soil cover damage caused by burrowing mammals/birds.

The installation of a 3-foot soil cover, following the surface scan and hot spot removal to a depth of 1 foot, will create a 4-foot barrier between potentially radium-impacted waste and the surface of the closed landfill. As described in Appendix A to the Feasibility Study, an evaluation of a hypothetical radium-226 source within the landfill demonstrated that a 2-foot soil cover would yield a risk which was within the CERCLA risk range and that a 4-foot soil cover would reduce that risk by two orders of magnitude. Because the scan to be conducted in connection with the preparation of the foundation layer will identify and remove radiological contamination which exceeds 2 times radiological background in the top foot of the existing, original-site surface, the modified remedy will provide at least 4 feet of soil cover and achieve the objective of the selected remedy.

Item 1 above, the change in soil cover thickness represents a significant change. Item 2 above, the requirement for a Terrestrial Ecological Receptor Exposure Mitigation Plan represents a minor change. Details of these proposed changes are described in Section 4 below.

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4.0 DESCRIPTION OF SIGNIFICANT DIFFERENCES

In accordance with NCP Section 300.435(c)(2) and U.S. EPA guidance on preparing proposed plans, RODs, and other remedy selection decision documents (U.S. EPA 1999), post-ROD changes may be categorized as nonsignificant (or minor) changes, significant changes, or fundamental changes based on the nature of change with respect to scope, performance, and/or cost.

Nonsignificant changes are minor changes that usually arise during design and construction, when modifications are made to the functional specifications of the remedy to optimize performance and minimize cost. This may result in minor changes to the remedy implementation, which could be documented in a Memorandum to the Administrative Record File. If the change involves changes to components of the remedy and does not fundamentally alter the selected remedy, it is regarded as a significant change. If the change in remedy fundamentally alters the ROD in such a manner that the proposed action, with respect to scope, performance, or cost, is no longer reflective of the remedy selected in the ROD, the lead agency is required to issue a notice of availability and brief description of the proposed amendment to the ROD.

The changes to the selected remedies documented in the IR Site 1 ROD set forth in this ESD are significant changes but do not fundamentally alter the selected remedies. In accordance with NCP Section 300.435(c)(2)(i) and CERCLA Section 117(c), significant changes can be documented through an ESD. The changes to the selected remedies documented in the IR Site 1 ROD are addressed in the following sections.

4.1 Soil Cover Thickness Reduction: Significant Change

This ESD documents a change in the thickness of the soil cover of the selected remedy from 4 feet to 3 feet over areas of IR Site 1. The installation of a 3-foot soil cover, following the surface scan and hot spot removal to a depth of 1 foot, will create a 4-foot barrier between potentially radium-impacted waste and the surface of the closed landfill. As described in Appendix A to the Feasibility Study, an evaluation of a hypothetical radium-226 source within the landfill demonstrated that a 2-foot soil cover would yield a risk which was within the CERCLA risk range and that a 4-foot soil cover would reduce that risk by two orders of magnitude. Because the scan to be conducted in connection with the preparation of the foundation layer will identify and remove radiological contamination which exceeds 2 times radiological background in the top foot of the foundation layer, the modified remedy will provide 4 feet of soil cover and achieve the objective of the selected remedy.

This proposed change is significant because it represents a change to a component of the Remedy for Areas 1a, 2b, 4, and inland portions of 5a and 5b; but, it does not fundamentally alter the overall approach to remedial action. Benefits will include; 1) a significant reduction in the carbon footprint to remedy the site as the number of trucks delivering the soil cover will be reduced by 25% and 2) a significant reduction in costs from estimates presented in the ROD. A cost estimate summary for each remedy based on the cost estimate provided in the ROD can be referenced in Table 1 and Table 2.

Table 1. Cost Estimate for Soil Cover as Presented in 2009 ROD

Description	Selected Remedy ^a
	Soil Area 1
Remedial Design	
Remedial design	\$174,000
LUC Remedial Design	\$46,000
Mitigate wetlands	\$927,000
Capital Cost	
Topographic survey before and after	\$53,000
Soil cover	\$1,258,000
Landscape site (seeding and watering only)	\$78,000
Capital Cost Subtotal with Markups	\$2,536,000
Operations and Maintenance	
IC implementation	\$278,000
Five-year reviews	\$445,000
Subtotal with markups^b	\$723,000
Contingency (20%)	\$651,800
Subtotal with markups and contingency	\$3,910,800
Escalation (excluded)	\$0
TOTAL COST (2014 Dollars)	\$3,910,800

Notes:

IC - Institutional Control

- a. Specific costs for the site-wide radiological remedy at Site 1 are included in the costs for Area 1. Inflation of 3% per year is applied to the costs presented in the 2009 ROD and considering a 2014 construction of the soil cover.
- b. Markups include overall project management, overhead, bonds and insurance, taxes, and profit

Table 2. Cost Estimate for Soil Cover with Proposed Revision to Selected Remedy

Description	Proposed ESD Remedy ^a
	Soil Area 1
Remedial Design	
Remedial design	\$174,000
LUC Remedial Design	\$46,000
Mitigate wetlands	\$927,000
Capital Cost	
Topographic survey before and after	\$53,000
Soil cover ^b	\$944,000
Landscape site (seeding and watering only)	\$78,000
Capital Cost Subtotal with Markups	\$2,222,000
Operations and Maintenance	
IC implementation	\$278,000
Five-year reviews	\$445,000
Subtotal with markups^c	\$723,000
Contingency (20%)	\$589,000
Subtotal with markups and contingency	\$3,534,000
Escalation (excluded)	\$0
TOTAL COST	\$3,534,000

Notes:

IC - Institutional Control

- a. Specific costs for the site-wide radiological remedy at Site 1 are included in the costs for Area 1. Inflation of 3% per year is applied to the costs presented in the 2009 ROD and considering a 2014 construction of the soil cover.
- b. The capital cost for the material and installation of the soil cover were estimated as the capital cost for the material and installation of the soil cover presented in Table 1 times 0.75.
- c. Markups include overall project management, overhead, bonds and insurance, taxes, and profit

The proposed change in the soil-cover remedy is illustrated in Figures 3a and 3b below:

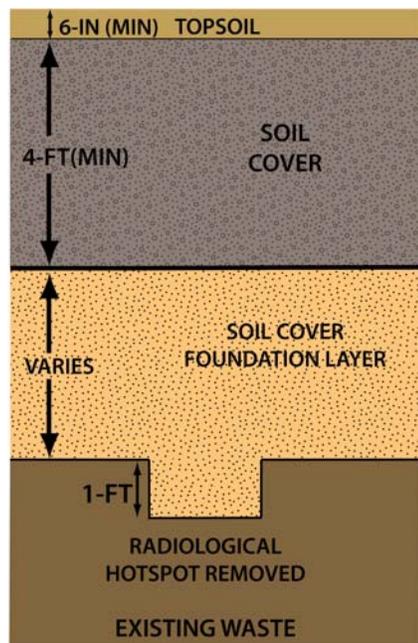


Figure 3a. Selected Remedy

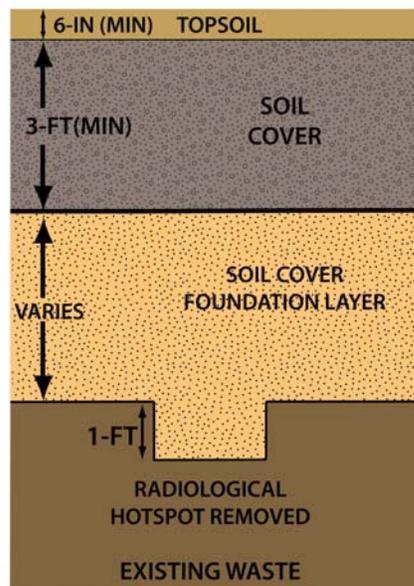


Figure 3b. Proposed Revision to Selected Remedy

Figure 3a shows the current soil cover remedy; Figure 3b illustrates the proposed revision to the soil cover remedy

4.2 Terrestrial Ecological Receptor Exposure Mitigation Plan: Minor Change

This ESD documents a change in the development and implementation of a Terrestrial Ecological Receptor Exposure Mitigation Plan to guard the soil cover from damage caused by burrowing mammals. Based on ecological risk assessments conducted at the site, which consider the soil interval for terrestrial mammals to be up to 6 feet bgs based on burrowing depths, the Navy feels that a standalone Terrestrial Ecological Receptor Exposure Mitigation Plan is prudent to maintaining long-term condition of the soil cover. This plan will provide additional protection for human health and the environment. Pursuant to the ROD, an Operations and Maintenance (O&M) Plan is required for the soil cover; and, mitigation of burrowing mammal activities would be an implicit part of this O&M plan. Therefore, the requirement for this standalone Terrestrial Ecological Receptor Exposure Mitigation Plan is considered a minor change to the ROD.

5.0 SUPPORT AGENCY COMMENTS

Responses to regulatory agency comments are presented in Appendix A.

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6.0 STATUTORY DETERMINATIONS

The remedy, as changed pursuant to this ESD, remains protective of human health and the environment and continues to comply with applicable or relevant and appropriate requirements identified in the IR Site 1 ROD, in accordance with CERCLA Section 121(d)(2), and NCP Section 300.430(f)(1)(ii)(B)(1) and (2).

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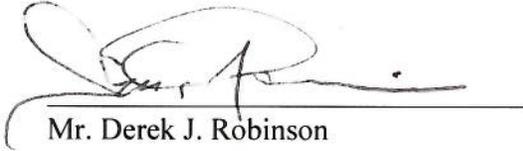
7.0 PUBLIC PARTICIPATION COMPLIANCE

This ESD will become a part of the Administrative Record File for IR Site 1 in accordance with NCP section 300.435(c)(2)(i)(A) and 300.825(a)(2). The address of the Information Repository along with the hours of availability of the Administrative Record File are presented in Section 1.2. The public can also access this ESD by contacting Diane Silva, Naval Facilities Engineering Command, Southwest Division, at (619) 556-1280, or by email at diane.silva@navy.mil.

Following regulatory agency review, a notice of availability and a brief description of the ESD will be published in a major local newspaper of general circulation as required by NCP Section 300.435(c)(2)(i)(B).

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8.0 AUTHORIZING SIGNATURES



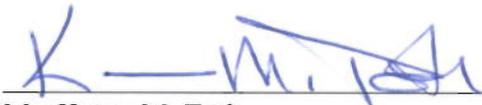
Mr. Derek J. Robinson
Base Realignment and Closure Environmental Coordinator
Base Realignment and Closure Program Management Office West
Department of the Navy

April 29, 2013
Date



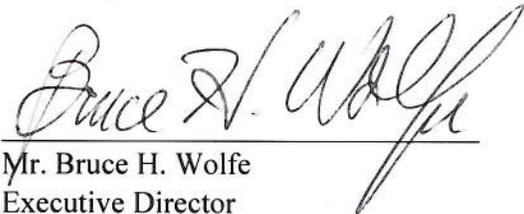
Mr. Michael M. Montgomery
Assistant Director
Federal Facilities and Site Cleanup Branch, Region 9
United States Environmental Protection Agency

May 8, 2013
Date



Ms. Karen M. Toth
Unit Chief
Brownfields and Environmental Restoration Program
California Environmental Protection Agency
Department of Toxic Substances Control

May 10, 2013
Date



Mr. Bruce H. Wolfe
Executive Director
California Environmental Protection Agency
San Francisco Bay Regional Water Quality Control Board

5/15/13
Date

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9.0 REFERENCES

- Bechtel Environmental, Inc. 2006. Final Feasibility Study Report IR Site 1, 1943-1956 Disposal Area, Alameda Point Alameda, California. February 2006.
- Chadux Tt. 2009. Final Record of Decision for Installation Restoration IR Site 1, 1943-1956 Disposal Area. (ChaduxTt is a joint venture of St. George Chadux Corp. and Tetra Tech EM, Inc.). September 2009.
- Tetra Tech EM Inc. 1999. OU-3 RI Report. Final. Alameda Point, Alameda, California. August 9, 1999.
- Tetra Tech EM Inc. 2001. OU-3 RI Report Addendum Volume I. Final. Alameda Point, Alameda, California. January 27, 2001.
- U.S. EPA. 1999. Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents. EPA 540-R-98-031, OSWER 9200.1-23P, NTIS PB98-963241INX. July 1999.

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APPENDIX A

RESPONSE TO REGULATORY AGENCY COMMENTS

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Draft

Record of Decision Explanation of Significant Difference - Soil Cover

Installation Restoration Site 1

Alameda Point, Alameda, California

DCN: AMEC-8816-0002-0132

Comments by:
Xuan-Mai Tran, Remedial Project Manager, EPA
Federal Facilities and Site Cleanup Branch

Responses by:
AMEC Environment & Infrastructure, Inc.

Comments: June 19, 2012

Responses: February 11, 2013

Specific Comments

1	<p>The cover page and the title page should make some reference to the title of the original ROD. In other words, instead of the title reading “Draft Record of Decision: Explanation of Significant Difference Soil Cover”, it would read better if the title of the ESD is something like: “Explanation of Significant Differences for the Final Record of Decision for Installation Restoration Site 1 Soil Cover”.</p>	<p>Edited as requested; the title now reads “<i>Draft Final Explanation of Significant Difference for the Final Record of Decision for Installation Restoration Site 1 Soil Cover, Installation Restoration Site 1, Alameda Point, Alameda, California.</i>”</p>
2	<p>Section 2.4, Summary of the Current Selected Soil Cover Remedy, and Section 2.5, Summary of Site Risks, state that for ecological receptors (e.g., burrowing mammals) a soil cover of 6 feet below ground surface (bgs) should be considered; however, Section 3.0, Basis for the ROD Changes, recommends reducing the soil cover above the soil cover foundation layer from a minimum of 4 feet to 3 feet and developing and implementing a Terrestrial Ecological Receptor Exposure Mitigation Plan. A discussion of how a 3-foot soil cover and the development and implementation of a Terrestrial Ecological Receptor Exposure Mitigation Plan will sufficiently address the pathway for exposure to chemical and radiological constituents of concern (COCs) for terrestrial ecological receptors is not provided. As such, it is unclear how a 3-foot soil cover rather than a 4-foot or 6-foot soil cover is appropriate. Please revise the Draft ESD to clarify how a 3-foot soil cover and the development and</p>	<p>Upon investigation of the ROD and other decision documents (FS, RI, etc), no rationale for a 4-foot soil cover was found. The rationale for a 3-foot soil cover with 4-foot soil cover over hot spot locations (soil measured at 2x background radiation), is that since the recommendation for human receptors is a 2-foot barrier between use and contamination, a 3-foot would provide 1.5x the amount of protection recommended with an additional 2x the recommend amount of protection between human receptors and hot spot locations. With respect to ecological receptors, an entirely separate document, a Terrestrial Ecological Receptor Exposure Mitigation Plan, in addition to the Operations & Maintenance manual for the Soil Cover, which will specifically address burrowing mammals, is called for in the Addendum. Furthermore, this comment has already been addressed as a response to comment in the original ROD, which was accepted by the Navy and regulators on September 19, 2009.</p>

	<p>implementation of a Terrestrial Ecological Receptor Exposure Mitigation Plan will sufficiently address the pathway for exposure to chemical and radiological COCs for terrestrial ecological receptors.</p>	<p>Alameda Site 1, Final ROD, Attachment C, Responsiveness Summary, Responses to Comments from the RAB (from Peter Strauss, TAPP Consultant), Major Comments in Cover Letter, Comment 16. “Comment: The cap design should include a bio-barrier to prevent burrowing animals. Response: The minimum thickness (2 feet plus pavement thickness at Area 2b and 4 feet at Area 1a) of the soil cover is sufficient to prevent any burrowing animals from penetrating the soil cover and coming into contact with waste or subsurface contamination. The riprap cover at Area 5 will also prevent burrowing animals from contacting any subsurface contamination. The cover will be inspected to ensure that the integrity of the cover remains intact, which will include looking for evidence of burrowing animals.”</p> <p>Please see responses to Comments 4 and 5 for additional text.</p>
3	<p>Section 2.4, Summary of the Current Selected Cover Remedy, page 2-5, item 3 references the placement of a seismically-stable soil cover over the waste. For clarity, the 4-foot thickness should be mentioned here since that was the thickness originally required in the ROD and that is now being changed through this ESD.</p>	<p>Edited as requested; item 3 of Section 2.4 now reads <i>“Place a 4-foot thick seismically-stable soil cover over the waste in Area 1a, Area 2b (excluding pavement, which will have a 2-foot thick cover), Area 4, and inland portions of Areas 5a and 5b.”</i></p>
4	<p>Section 2.5 has a discussion of Site Risks. However, it makes no mention of the 3-foot thickness. Then Section 3.0, Basis for the ROD Change, says “results of the radiological and chemical-based risk assessments support a 3-foot thick soil cover...” Section 2.5 should have some discussion of that issue and why the 3-foot thickness will be satisfactory from both a human health risk and an eco-risk standpoint.</p>	<p>Section 2.5, Summary of Site Risks, is not an appropriate location for the discussion of cover thickness. However, the following text has been added to Section 3.0, Basis for the ROD Change.</p> <p><i>The installation of a 3-foot soil cover, following the surface scan and hot spot removal to a depth of 1 foot, will create a 4-foot barrier between potentially radium-impacted waste and the surface of the closed landfill. As described in Appendix A to the Feasibility Study, an evaluation of a hypothetical radium-226 source within the landfill demonstrated that a 2-foot soil cover would yield a risk which was within the CERCLA risk range and that a 4-foot soil cover would reduce that risk by two orders of magnitude.</i></p>

		<p><i>Because the scan to be conducted in connection with the preparation of the foundation layer will identify and remove radiological contamination which exceeds 2 times radiological background in the top foot of the foundation layer, the modified remedy will provide 4 feet of soil cover and achieve the objective of the selected remedy.</i></p>
5	<p>Section 3.0, Basis for the ROD Change: The level of detail provided is insufficient. Section 7.3.2, Documenting Fundamental Post-ROD Changes: Explanation of Significant Differences, of A Guide to Preparing Superfund Proposed Plans, Records of Decision, and other Remedy Selection Decision Documents, EPA 540-R-98-031 (ROD Guidance) states, “An ESD [Explanation of Significant Differences] must describe to the public the nature of the significant changes, summarize the information that led to making the changes, and affirm that the revised remedy complies with the NCP [National Contingency Plan] and the statutory requirement of CERCLA [Comprehensive Environmental Response Compensation and Liability Act].” However, the information that led to making the changes to the ROD-selected remedy is not discussed in Section 3.0. The text does not promote a thorough understanding of why the proposed post-ROD changes are required. For example, the ESD indicates that areas where greater than two times radiological background are detected will be excavated to a depth of approximately 1 foot bgs; the excavated materials will be replaced with clean fill dirt to the former grade and then these areas will be covered with a 3-foot soil cover. These steps would still result in four feet of clean soil over contaminated areas which previously exceeded two times radiological background (i.e., a hot spot). Please revise the Draft ESD to include the information that led to making the changes to the ROD-selected remedy.</p>	<p>The following text has been added to Section 3.0, Basis for the ROD Change.</p> <p><i>The installation of a 3-foot soil cover, following the surface scan and hot spot removal to a depth of 1 foot, will create a 4-foot barrier between potentially radium-impacted waste and the surface of the closed landfill. As described in Appendix A to the Feasibility Study, an evaluation of a hypothetical radium-226 source within the landfill demonstrated that a 2-foot soil cover would yield a risk which was within the CERCLA risk range and that a 4-foot soil cover would reduce that risk by two orders of magnitude. Because the scan to be conducted in connection with the preparation of the foundation layer will identify and remove radiological contamination which exceeds 2 times radiological background in the top foot of the foundation layer, the modified remedy will provide 4 feet of soil cover and achieve the objective of the selected remedy.</i></p>

<p>6</p>	<p>Section 4.0, page 4-1, please revise the last two sentences of the second paragraph as follows: “If the change involves changes to components of the remedy and does not fundamentally alter the selected remedy, it is regarded as a significant change and the change can be documented in an ESD. If the change in remedy fundamentally alters the ROD in such a manner that the proposed action, with respect to scope, performance, or cost, is no longer reflective of the remedy selected in the ROD, the change must be documented through a ROD Amendment.”</p>	<p>Edited as requested; the last two sentences of the second paragraph of Section 4.0 now reads, “<i>If the change involves changes to components of the remedy and does not fundamentally alter the selected remedy, it is regarded as a significant change and the change can be documented in an ESD. If the change in remedy fundamentally alters the ROD in such a manner that the proposed action, with respect to scope, performance, or cost, is no longer reflective of the remedy selected in the ROD, the change must be documented through a ROD Amendment.</i>”</p> <p>Additionally, for continuity of language from previous sections, the following text of the first paragraph of Section 4.1, Soil Cover Thickness Reduction: Significant Change, has been edited from:</p> <p><i>This ESD documents a change in the thickness of the soil cover of the selected remedy from 4 feet to 3 feet over areas of IR Site 1 that recorded less than 2 times radiological background by gamma scan. Areas detected to be greater than 2 times radiological background will be excavated to a depth of approximately 1 foot bgs and the excavated materials will be replaced with clean fill dirt to the former grade. These areas will then be covered with the 3-foot soil cover. This revision to the selected remedy for the soil cover will still achieve protection of human health and the environment.</i></p> <p>to:</p> <p><i>This ESD documents a change in the thickness of the soil cover of the selected remedy from 4 feet to 3 feet over areas of IR Site 1. The installation of a 3-foot soil cover, following the surface scan and hot spot removal to a depth of one foot, will create a 4-foot barrier between potentially radium-impacted waste and the surface of the closed landfill. As described in Appendix A to the Feasibility Study, an evaluation of a hypothetical</i></p>
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7	<p>Section 4.1, Soil Cover Thickness Reduction: Significant Change, indicates that the proposed changes to the ROD will reduce the carbon footprint and costs associated with the project; however, information and/or calculations to support either of these assumptions are not provided. The ESD should provide the original and revised costs. Further, it is unclear how the costs and truck traffic will be reduced when the proposed changes to the ROD include the excavation and disposal of radiologically contaminated soil in areas detected to be greater than two times radiological background by gamma scan. Please revise the Draft ESD to provide information and/or calculations to substantiate that the proposed changes to the ROD will reduce the carbon footprint and costs associated with the remedy, in accordance with the Methodology for Understanding and Reducing a Project’s Environmental Footprint, EPA 542-R-12-002, dated February 2012. Also, please provide the original and revised costs for the selected remedy.</p>	<p>Section 4.1, Soil Cover Thickness Reduction: Significant Change, now references 2 tables that show the budget breakdowns for the different remedies. A sentence referencing the cost estimates has been added to the end of the second paragraph in Section 4.1 as follows: “A <i>cost estimate summary for each remedy can be referenced in Tables 1 and 2.</i>”</p> <p>As stated in item 1 of the last sentence of the second paragraph of Section 4.1, “Benefits will include 1) a significant reduction in the carbon footprint to remedy the site as the number of trucks delivering the soil cover will be reduced by 25% and 2) a significant reduction in costs from estimates in the ROD.” Because there is a 25% reduction in volume of the soil cover, the soil cover will require 25% less material to be hauled in, thus reducing the carbon footprint. The carbon footprint from the excavation and removal of radiologically contaminated soil will remain the same as in the previous remedy. The reduction in carbon footprint will come from the reduced amount of trucks needed to haul 25% less cover material (4 feet thick vs. 3 feet thick).</p>

8	<p>The selected remedy illustrated in Figure 3a, Selected Remedy, does not reflect the soil cover remedy proposed in the ROD. The selected remedy in the ROD includes the removal of radiological hot spot material to a depth of one foot if the material exhibits gamma radiation readings approximately two times background similar to the proposed revision to the selected remedy, as presented in Figure 3b, Proposed Revision to Selected Remedy. This would have resulted in a four-foot thickness of clean soil over most areas and a five-foot thickness in areas with radiological hot spots that have been removed. The revision to the selected remedy is thus directly related to the soil cover thickness. Please revise Figures 3a and 3b to more accurately reflect the selected remedy in the ROD and the proposed revision to the selected remedy presented in the Draft ESD.</p>	<p>Figure 3a was edited to reflect the removal of hot spots in the remedy selected in the ROD, showing a 5-foot thick cover of portions of the cover where a hot spot was removed, as the reviewer requested.</p>
9	<p>A list of references is not provided in the Draft ESD. As a result, the reference point for the Final IR Site 1 Feasibility Study Report, mentioned in Section 2.3, Site Contamination, is unclear. Please revise the Draft ESD to include a reference list.</p>	<p>The following text was added as a new section, Section 9.0, References:</p> <p><i>9.0 REFERENCES</i></p> <p><i>Bechtel Environmental, Inc. 2006. Final Feasibility Study Report IR Site 1, 1943-1956 Disposal Area, Alameda Point Alameda, California. February 2006.</i></p> <p><i>Chadux Tt. 2009. Final Record of Decision for Installation Restoration IR Site 1, 1943-1956 Disposal Area. (ChaduxTt is a joint venture of St. George Chadux Corp. and Tetra Tech EM, Inc.). September 2009.</i></p> <p><i>Tetra Tech EM Inc. 1999. OU-3 RI Report. Final. Alameda Point, Alameda, California. August 9, 1999.</i></p> <p><i>Tetra Tech EM Inc. 2001. OU-3 RI Report Addendum Volume I. Final. Alameda Point, Alameda, California. January 27, 2001.</i></p> <p><i>U.S. EPA. 1999. Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents. EPA 540-R-98-031, OSWER 9200.1-23P, NTIS PB98-963241INX. July 1999.</i></p>