Final

Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area

Alameda Point
Alameda, California

November 2009

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ACRONYMS AND ABBREVIATIONS

§	Section
§§	Sections
+D	Daughter products
µg/L	Microgram per liter
95UCL	95 percent upper confidence limit
ALARA	As low as reasonably achievable
AMSL	Average mean sea level
AOC	Area of concern
ARAR	Applicable or relevant and appropriate requirement
ARIC	Area requiring institutional controls
ARRA	Alameda Reuse and Redevelopment Authority
BAAQMD	Bay Area Air Quality Management District
BCT	BRAC Cleanup Team
BEI	Bechtel Environmental, Inc.
bgs	Below ground surface
BRAC	Base Realignment and Closure
BSU	Bay sediment unit
BTEX	Benzene, toluene, ethylbenzene, xylene
Cal.	California
Cal/EPA	California Environmental Protection Agency
CDPH	California Department of Public Health
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	*Code of Federal Regulation*
ch.	Chapter
Co-60	Cobalt 60
COC	Chemical of concern
COEC	Chemical of ecological concern
COPC	Chemical of potential concern
COPEC	Chemical of potential ecological concern
cpm	Counts per minute
CPT	Cone penetrometer testing
Cs-137	Cesium 137
CTR	California Toxics Rule
CZMA	Coastal Zone Management Act
DCE	Dichloroethene
DDD	4,4’-dichlorodiphenyldichloroethane
DDT	4,4’-dichlorodiphenyltrichloroethane

div.	Division
DNAPL	Dense non-aqueous phase liquid
DTSC	Department of Toxic Substances Control
DU	Depleted uranium
EBS	Environmental baseline survey
EDC	Economic development conveyance
EPA	U.S. Environmental Protection Agency
EPC	Exposure point concentration
ERA	Ecological risk assessment
ERV	Ecological reference value
FESA	Federal Endangered Species Act
FFA	Federal Facility Agreement
Foster Wheeler	Foster Wheeler Environmental Corporation
FS	Feasibility study
FWBZ	First water-bearing zone
HHRA	Human health risk assessment
HI	Hazard index
IC	Institutional control
IR	Installation restoration
ISB	*In-situ* bioremediation
ISCO	*In-situ* chemical oxidation
ITSI	Innovative Technical Solutions, Inc.
Kr-85	Krypton 85
LIFOC	Lease in furtherance of conveyance
LUC RD	Land use control remedial design
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
mg/kg	Milligram per kilogram
mg/L	Milligram per liter
MNA	Monitored natural attenuation
MOA	Memorandum of agreement
MPPEH	Materials potentially presenting an explosive hazard
mrem/yr	Millirem per year
NA	Not applicable
NAS	Naval Air Station
Navy	U.S. Department of the Navy
NCP	National Oil and Hazardous Substances Pollution Contingency Plan

NPL	National Priority List
NRC	Nuclear Regulatory Commission
NTR	National Toxics Rule
O&M	Operations and maintenance
OEHHA	Office of Environmental Health Hazard Assessment
OU	Operable unit
PAH	Polycyclic aromatic hydrocarbon
PCB	Polychlorinated biphenyl
PCE	Tetrachloroethene
pCi/g	Picocurie per gram
PDC	Preliminary Development Plan
POC	Point of compliance
ppm	parts per million
PRG	Preliminary remediation goal
Ra-226	Radium 226
RAB	Restoration Advisory Board
RAGS	Risk Assessment Guidance for Superfund
RAO	Remedial action objective
RCRA	Resource Conservation and Recovery Act
Reg.	Regulation
Res.	Resolution
RESRAD	Residual radiation
RI	Remedial investigation
ROC	Radionuclide of concern
ROD	Record of decision
SARA	Superfund Amendments and Reauthorization Act
Shaw	Shaw Environmental & Infrastructure, Inc.
SLERA	Screening-level ecological risk assessment
Sr-90	Strontium 90
SSPORTS	Supervisor of shipbuilding, conversion and repair, Portsmouth
SVOC	Semivolatile organic compound
SWAT	Solid waste assessment test
SWBZ	Second water-bearing zone
SWMU	Solid waste management unit
SWRCB	State Water Resources Control Board
TAPP	Technical assistance for public participation
TCE	Trichloroethene

TCLP	Toxic characteristic leaching procedure
TCRA	Time-critical removal action
TDS	Total dissolved solid
TEDE	Total effective dose equivalent
Tetra Tech	Tetra Tech EM Inc.
Th-232	Thorium 232
tit.	Title
TPH	Total petroleum hydrocarbon
TRV	Toxicity reference value
TSD	Treatment, storage, and disposal
TtFW	Tetra Tech Foster Wheeler, Inc.
UMTRCA	Uranium Mill Tailings Radiation Control Act
UO_2	Uranium oxide
USC	*United States Code*
UXO	Unexploded ordnance
VOC	Volatile organic compound
Water Board	San Francisco Bay Regional Water Quality Control Board
WMP	Wetlands mitigation plan
ZVI	Zero-valent iron

DECLARATION

SITE NAME AND LOCATION

This Record of Decision (ROD) addresses Installation Restoration (IR) Site 1, the 1943-1956 Disposal Area, at the former Naval Air Station (NAS), now referred to as Alameda Point, in Alameda, California. For management purposes, Site 1 was originally divided into five main geographic areas (Areas 1, 2, 3, 4, 5), site-wide radiologically-impacted soil, and groundwater as presented in the Feasibility Study (FS) and Proposed Plan (Bechtel Environmental, Inc. 2006, U.S. Department of the Navy [Navy] 2006). Subsequent to the release of the Proposed Plan, the Navy revised the boundary of Site 1. Site 1 now includes Areas 1a, 1b, 2b, 4, 5a, 5b, site-wide radiologically-impacted soil, and groundwater. This ROD selects a remedy for these areas. This ROD does not select a remedy for Areas 2a and 3a or 3b that were formerly part of Site 1. The U.S. Environmental Protection Agency (EPA) Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Information System identification number is CA2170023236. NAS Alameda was added to the National Priority List on July 22, 1999.

STATEMENT OF BASIS AND PURPOSE

This ROD presents the selected remedies for remediation of soil and groundwater at Site 1. This document was developed and the remedies were selected in accordance with CERCLA, as amended by Superfund Amendments and Reauthorization Act of 1986 (Title 42 *United States Code* Section [§] 9601, et seq.), and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (Title 40 *Code of Federal Regulations* Part 300). A Federal Facility Agreement (FFA) between the Navy and EPA was signed by the Navy and EPA on July 5, 2001, and by the California Environmental Protection Agency's Department of Toxic Substances Control (DTSC) and the San Francisco Bay Regional Water Quality Control Board (Water Board) in 2005.

The decision presented in this ROD is based on information contained in the administrative record file (see Attachment A), as well as on extensive field investigations, laboratory analyses, interpretation of the data, evaluation of current and reasonably expected future use conditions, and thorough assessment of the potential human health and ecological risks. Based on these findings, further action is required at Site 1.

The Navy, EPA, DTSC, and the Water Board concur on the selected remedies for Site 1.

ASSESSMENT OF THE SITE

The Navy has concluded that remedial actions selected in this ROD are necessary to protect human health and the environment from actual or threatened releases of pollutants, contaminants, or hazardous substances from soil and groundwater at Site 1. The selected remedial actions for Site 1 were based on the following:

- Site histories
- Field investigations
- Laboratory analytical results
- Evaluation of potential human health and ecological risks
- Current and reasonably anticipated future land use

The soil remedial action objectives (RAO) identified for Site 1 were based on the future site use, results of the human health and ecological risk assessments, radiological contamination, and background concentrations.

The RAOs for chemical contamination in soil are to:

1. Protect future recreational visitors from exposure to hexavalent chromium, polycyclic aromatic hydrocarbons (PAH), and polychlorinated biphenyls (PCB) at concentrations above human health remediation goals, and
2. Protect terrestrial ecological receptors from cadmium, lead, zinc, 4,4'-dichlorodiphenyldichloroethane (DDD), and 4,4'-dichlorodiphenyltrichloroethane (DDT) at concentrations above ecological remediation goals.

The RAOs for groundwater are to:

1. Prevent human exposure to VOCs in outdoor air by reducing VOC concentrations in groundwater to risk-based remediation goals;

2. Prevent ingestion of VOCs and SVOCs by people who fish recreationally (ingesting the organism only) by ensuring that groundwater discharges to surface water do not cause concentrations in the surface water above CTR and NTR criteria for surface water; and

3. Prevent ingestion of arsenic by aquatic receptors by ensuring that groundwater discharges to surface water do not cause concentrations in the surface water above the CTR, NTR, and Basin Plan criteria for the aquatic life remediation goal for surface water.

The RAO for radiological contamination in soil is to:

1. Prevent exposure to radionuclides of concern (radium-226 [Ra-226], cesium 137 [Cs-137], strontium 90 [Sr-90], depleted uranium [DU], uranium oxide [UO_2], thorium 232 [Th-232], cobalt 60 [Co-60]) that exceed remediation goals.

The chemicals and radionuclides identified in the RAOs for soil and groundwater, as well as materials potentially presenting an explosive hazard (MPPEH) in soil, will be addressed by the remedies selected in this ROD.

DESCRIPTION OF THE SELECTED REMEDY FOR SOIL

Site 1 consists of Areas 1a, 1b, 2b, 4, 5a, 5b, and site-wide radiologically-impacted soil (see Figure D-1). Multiple remedial alternatives for each of these areas and site-wide radiologically-impacted soil were developed and analyzed to address potential risk to human health and terrestrial ecological receptors. The remedial alternatives and their components that have been selected as the preferred alternatives for each area and for site-wide radiologically-impacted soil are as follows:

Area 1, Soil Alternative S1-4a. Area 1 is the former waste disposal area, which is subdivided into Areas 1a (main disposal area) and 1b (former burn area).

The Navy will install a 4-foot-thick soil cover over the waste in Area 1a to prevent exposure to contaminants that exceed remediation goals. To prepare the surface for the soil cover, as part of Alternative S6-4, the Navy will scan the surface and remove radiological hot spot material to a depth of one foot to prevent the spread of potential contamination during grading to ensure worker health and safety. For the purpose of this remedial action, the Navy will identify radiological hot spots as material exhibiting gamma radiation readings approximately 2 times background. The soil cover may extend into other areas of Site 1, as necessary, to accommodate design requirements, seismic considerations, appropriate set back distances, and ARARs. The Navy will implement institutional controls (IC) to prohibit residential land use and land disturbing activities, including construction of buildings (unless conducted pursuant to a soil management plan), that may reduce the effectiveness of the cover. The Navy will take soil gas samples which will address any potential risk from landfill gas.

The Navy excavated the disposal trench, which is a portion of Area 1b, to remove radiologically-impacted soil and waste in a time critical removal action (TCRA). The results of the TCRA are described in the Final Post-Construction Report (Tetra Tech EC, Inc 2009). As part of the remedy selected in this ROD, the Navy will excavate Area 1b to remove the burn layer. The Navy will excavate Area 1b laterally to remove the visible burn layer. In areas where visible burn waste is removed, excavations will continue vertically to meet remediation goals, even if the contamination extends below the water table. If the lateral extent of the visible burn layer is less than the approximate 3.7 acre boundary defined by historical photos, confirmation samples will be taken throughout the remaining 3.7 acre area of Area 1b to evaluate whether chemicals or radionuclides that exceed remediation goals are present in the soil above the water table. If sampling results indicate that concentrations in soil above the water table are above remediation goals, the Area 1b excavation will continue but will not extend below the water table. However, if the radiological disposal trench is encountered, excavation will continue vertically beneath it to meet remediation goals, even if contamination extends below the water table. No excavations will extend past the 3.7 acre boundary depicted in Figure 12-3. Excavated waste and soil that exceeds chemical or radiological remediation goals or contains materials potentially presenting an explosive hazard (MPPEH) will be disposed of off-site. Excavated soil that is free of MPPEH and is below chemical or radiological remediation goals may be placed back into the excavation if it meets design considerations for the cover or it may be used as foundation material for the soil cover. The surface of Area 1b will be graded to match the surrounding Area 1a cover.

In the performance of these components, the Navy will fill in wetlands that are in Area 1. The Navy will mitigate this loss of these wetlands.

Area 2b, Soil Alternative S2-3. Area 2b is the paved area outside of the former disposal area.

The selected remedy includes placement of at least 2 feet of soil over the paved area that comprises Area 2b. ICs will prohibit residential use and land disturbing activities that may reduce the effectiveness of the remedy.

Area 4, Soil Alternative S4-4. Area 4 is the former firing-range berm located near the western shoreline of Site 1.

Alternative S4-4 included the screening, removal, off-site disposal of soil, and MPPEH sweep which was completed in a TCRA in 2008. The results of the TCRA are described in the Final Post-Construction Report (Tetra Tech EC, Inc 2009). As part of the remedy in this ROD, the Navy will implement ICs. The ICs will prohibit residential use and land disturbing activities that may reduce the effectiveness of the cover that will be placed over Area 4 as part of Alternative S6-4.

Area 5, Soil Alternative S5-4. Areas 5a and 5b are shoreline areas of Site 1.

The Navy will collect and analyze soil samples along the exposed beach portions of Area 5 not covered with riprap to further characterize the area. In the exposed beach areas where concentrations of metals, PAHs, pesticides, PCBs, or radionuclides of concern (ROC) exceed remediation goals, the Navy will excavate the top 2 feet of soil. Based on the recreational reuse scenario for Site 1 and the ICs implemented as part of the remedy for this area, no complete exposure pathway to contamination deeper than 2 feet is expected. In the inland areas of Area 5 that will be covered with the 4 foot soil cover, radionuclide hotspots, which are defined as material exhibiting gamma radiation readings of approximately 2 times background, will be excavated down to 1 foot. All excavations will backfilled with clean soil. Following excavation, exposed beach areas will be covered with additional riprap brought in from off-site. The riprap will help stabilize the beach areas and prevent exposure to potential contamination greater than two feet below ground surface (bgs). A soil cover will be placed over Area 5 inland areas as part of Alternative S6-4. The Navy will also implement ICs to prohibit residential land uses and land disturbing activities that may reduce the effectiveness of the remedy.

Site-Wide Radiologically-Impacted Soil, Soil Alternative S6-4.

The Proposed Plan (Navy 2006a) presented a remedial alternative that addressed excavation of radiologically-impacted soil. However, the Navy, with agreement from EPA, DTSC, and Water Board (hereinafter referred to as the FFA signatories), decided to address site-wide radiological contamination in a TCRA, which was completed in 2008. The Navy was unable to address all potential radiological contamination at Site 1 during the TCRA, and this ROD selects a remedy to address remaining potential radiological contamination across IR Site 1.

Prior to placing the final cover at Area 1a, Area 2b, Area 4, and the inland areas of Area 5, the Navy will scan the surface using gamma radiation field screening instruments. Radiological hot spots will be identified and removed to a depth of one foot prior to placing the soil cover. The surface scan will be conducted using field screening instruments, which provide measurement results in counts per minute (cpm). For the purpose of this remedial action, the Navy will identify hot spots as material exhibiting gamma radiation readings approximately 2 times background, while recognizing that background radiation readings typically vary depending on whether the source material is soil, gravel, or concrete (all of which are present at Site 1), and that different field instruments will also influence the selected screening value. The final numerical screening values (in cpm) will be determined in the remedial design after field instrumentation has been selected. The remedial design will also describe the screening and removal procedures.

Most accessible radiological contamination at the surface was identified and removed during the TCRA, and residual contamination will be addressed by the soil cover and institutional controls. However, contamination is not homogeneous, and there will be some grading to prepare a foundation for the soil cover. The purpose of surface screening and removal of hot spots is to prevent the spread of potential contamination and ensure worker health and safety during construction of the cover. Radiological remedial action objectives are met by the proposed cover, which prevents direct exposure to waste material and exposure to radionuclides of concern (ROC) above the remediation goals. Durable ICs will be used to restrict future use including potential future land disturbing activities, thereby ensuring that the cover remains protective and ensure that the public is not exposed to radiological contaminants.

The Navy will use the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) (Nuclear Regulatory Commission [NRC] 2000) guidelines to survey the surface prior to placement of the covers to obtain data to conduct a dose assessment. There will be a follow on MARSSIM survey after placement of the covers to ensure the RAOs for radionuclides has been met.

DESCRIPTION OF THE SELECTED REMEDY FOR GROUNDWATER

Figure D-2 presents the contaminated groundwater plume at Site 1. Five groundwater remedial alternatives were developed and analyzed to address the potential risk to human and aquatic life in the San Francisco Bay from arsenic, VOCs, and SVOCs in groundwater at Site 1. Alternative GW-3 was selected as the preferred remedy for groundwater, with the following components:

- Investigate the VOC Plume Area.
- Implement *in-situ* chemical oxidation or similar process treatment inside the VOC plume area and monitor groundwater to determine: the effectiveness of treatment; if natural attenuation is a viable final step in treating the VOCs to meet the groundwater remediation goals; when the remediation goals are met; and concentrations of ROCs.

- Implement monitored natural attenuation inside the VOC plume area when and where chemical of concern (COC) concentrations are approaching remediation goals.
- Monitor concentrations of metals and ROCs in groundwater outside the VOC plume area.
- Implement ICs that prohibit activities that may reduce the effectiveness of the remedy and that prohibit construction of buildings over the VOC plume unless approved by the FFA signatories.

STATUTORY DETERMINATIONS

The selected soil and groundwater remedies for chemical and radiological contamination at Site 1 are protective of human health and the environment, comply with federal and state requirements that are legally applicable or relevant and appropriate (ARAR) to the remedial action, are cost-effective, and utilize permanent solutions and alternative treatment technologies to the maximum extent practicable. The selected remedies will obviate the need for and satisfy the corrective action requirements of Resource Conservation and Recovery Act (RCRA) or otherwise applicable state hazardous waste or water quality protection laws. The selected soil remedy does not satisfy the statutory preference for a remedy that reduces the toxicity, mobility, or volume of hazardous substances through treatment as a principal element. Several treatment technologies for soil were evaluated in the FS; however, these technologies were eliminated as the preferred alternative because of concerns over effectiveness, implementability, and high costs. The selected remedy for groundwater does satisfy the statutory preference for a remedy that reduces the toxicity, mobility, and volume of hazardous substances through treatment and uses alternative treatment or resource recovery technologies to the maximum extent practicable. Statutory 5-year reviews pursuant to CERCLA § 121 and the NCP will be conducted because the soil and groundwater remedies will leave contamination in place at Site 1 above levels which allow for unrestricted use and unlimited exposure.

DATA CERTIFICATION CHECKLIST

Checklist Item	Description
Chemicals of potential concern (COPC) and their respective concentrations.	COPC are characterized throughout Site 1 based on data from previous investigations. A description of these investigations is provided in Section 2.2 of this ROD. A description of the nature and extent of contamination at Site 1 is presented in Section 5.3 of this ROD.
Risk assessments are representative of the COPCs.	Human health risk assessments and a screening-level ecological risk assessment were conducted as part of the remedial investigation using data representative of current conditions at Site 1. Results of these risk assessments are presented in Section 7.0 of this ROD.
Remediation goals established for COCs and the basis for these goals.	The selected remedies for soil and groundwater in this ROD are designed to protect human health and the environment from actual or threatened releases of hazardous substances. The selected remedy for addressing soil contamination at Site 1 includes the following components: excavation and off-site disposal of soil; on-site reuse of soil; placement of a 4-foot soil cover; placement of a 2-foot soil cover over Area 2b paved surfaces; placement of riprap in beach areas not receiving a new soil cover or already covered by riprap; and implementation of ICs. Each area containing soil contaminated with COCs and ROCs above the remediation goals will be addressed by one or more of the components of the selected remedy. Active treatment to meet remediation goals is the selected remedy for addressing volatile COCs in groundwater at Site 1. Groundwater monitoring, including groundwater monitoring for ROCs both inside and outside the VOC plume area, will be implemented. The risk assessments are presented in Section 7.0 of this ROD, and the remediation goals are presented in Section 8.0.
How source materials constituting principal threats are addressed.	Principal threat wastes are those source materials considered to be highly toxic or highly mobile that generally cannot be reliably contained or would present a significant risk to human health or the environment should exposure occur (EPA 1991c). Source material is defined as material that includes or contains hazardous substances, pollutants, or contaminants that act as a reservoir for migration of contamination or act as a source of direct exposure (EPA 1991c). There are no source materials constituting principal threat waste in soil at Site 1. Contaminated groundwater generally is not considered source material, with the possible exception of the presence of non-aqueous phase liquids. Non-aqueous phase liquids may be present in Site 1 groundwater; however, none have been noted. The Navy has determined that there is no principal threat waste in groundwater; however, the Navy has selected treatment as the remedial action for groundwater. Section 5.3 of this ROD describes the nature and extent of contamination, and Section 11.0 discusses principal threat waste.

Checklist Item	Description
Current and reasonably anticipated future land use assumptions and current and potential beneficial uses of groundwater used in the baseline risk assessment and ROD.	Site 1 is currently vacant, with a fence surrounding its perimeter. According to the Alameda Point General Plan Amendment, the long-term reuse of Site 1 is anticipated to be recreational. As part of the human health risk assessment, the risks were evaluated under two different scenarios: recreational and occupational (which includes light industrial). Future land use and beneficial uses of groundwater are discussed in Section 6.0 of this ROD.
Potential land and groundwater use that will be available at the site as a result of the selected remedy.	According to the Alameda Point General Plan Amendment, the long-term reuse of Site 1 is anticipated to be recreational. Groundwater is not currently used for drinking water, irrigation, or industrial supply. Potential land and groundwater uses at Site 1 are discussed in Section 6.0 of this ROD. After remediation goals are achieved, the selected remedies will allow for recreational use of Site 1.
Estimated capital, annual operation and maintenance, and total present worth costs; discount rate; and the number of years over which the remedy cost estimates are projected.	Estimated capital and operation and maintenance costs are presented in Tables 12-1 and 12-2 of Section 12.0 of this ROD.
Key factors that led to selecting the remedy.	The key factors in selecting the soil remedies include (1) the remedy meets the threshold criteria of protecting human health and the environment and complying with ARARs; (2) short-term effectiveness is generally very good because the risks to the community and workers are low and can easily be controlled; (3) the technologies are conventional and can be implemented quickly; and (4) excavation and off-site disposal is a highly effective and permanent solution. The soil remedy provides the most appropriate balance of site-specific conditions, conventional technologies, and cost. Key factors for selecting the groundwater remedy at Site 1 include: (1) maintaining the potential freshwater beneficial use of the groundwater and (2) reducing the toxicity, mobility, and volume of VOCs through active treatment. Section 12.0 of this ROD describes the selected remedy, and Section 13.0 describes the statutory determinations that were made regarding the selected remedy. Attachment B presents the transcript from the public meeting and Attachment C documents that the Navy has reviewed all written and oral comments submitted during the public comment period. New information made available in the Final TCRA Post-Construction Report for IR Sites 1, 2, and 32 (Tetra Tech EC, Inc. 2009) significantly changed the basic features of the remedy with respect to scope for four of the Preferred Alternatives selected in the Proposed Plan. These changed are described in Section 14.0.

This signature sheet documents the Navy's and the EPA's co-selection of the remedies in this ROD for chemical and radiological contamination in soil and for groundwater at Site 1 of Alameda Point, and the State of California's (DTSC and Water Board) concurrence with this ROD. The respective parties may sign this sheet in counterparts.

AUTHORIZING SIGNATURES

George Patrick Brooks
Signature

9-21-09
Date

Mr. George Patrick Brooks
Base Realignment and Closure Environmental Coordinator
Base Realignment and Closure Program Office West
Department of the Navy

Signature

11-16-09
Date

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

The State of California, Department of Toxic Substances Control had an opportunity to review and comment on the Record of Decision and our concerns were addressed.

Dot Lofstrom
Signature

11-17-09
Date

Ms. Dot Lofstrom
East Bay Urban Infill Team Leader
Brownfields Environmental Restoration Program
California Environmental Protection Agency
Department of Toxic Substances Control

Bruce H. Wolfe
Signature

11/17/09
Date

Mr. Bruce H. Wolfe
Executive Officer
San Francisco Bay Regional Water Quality Control Board

FIGURES

- Fence Line
- IR Site 1 Boundary
- Rebuilt Training Wall
- Intact Training Wall
- Road or Airfield Surface
- Water
- Soil Area 1a
- Soil Area 1b
- Soil Area 2b
- Soil Area 4
- Soil Area 5a
- Soil Area 5b

Note:
IR Installation Restoration

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Alameda Point, Alameda, California
U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE D-1

SOIL CONTAMINATION AREAS

Record of Decision for Installation Restoration Site 1
1943-1956 Disposal Area

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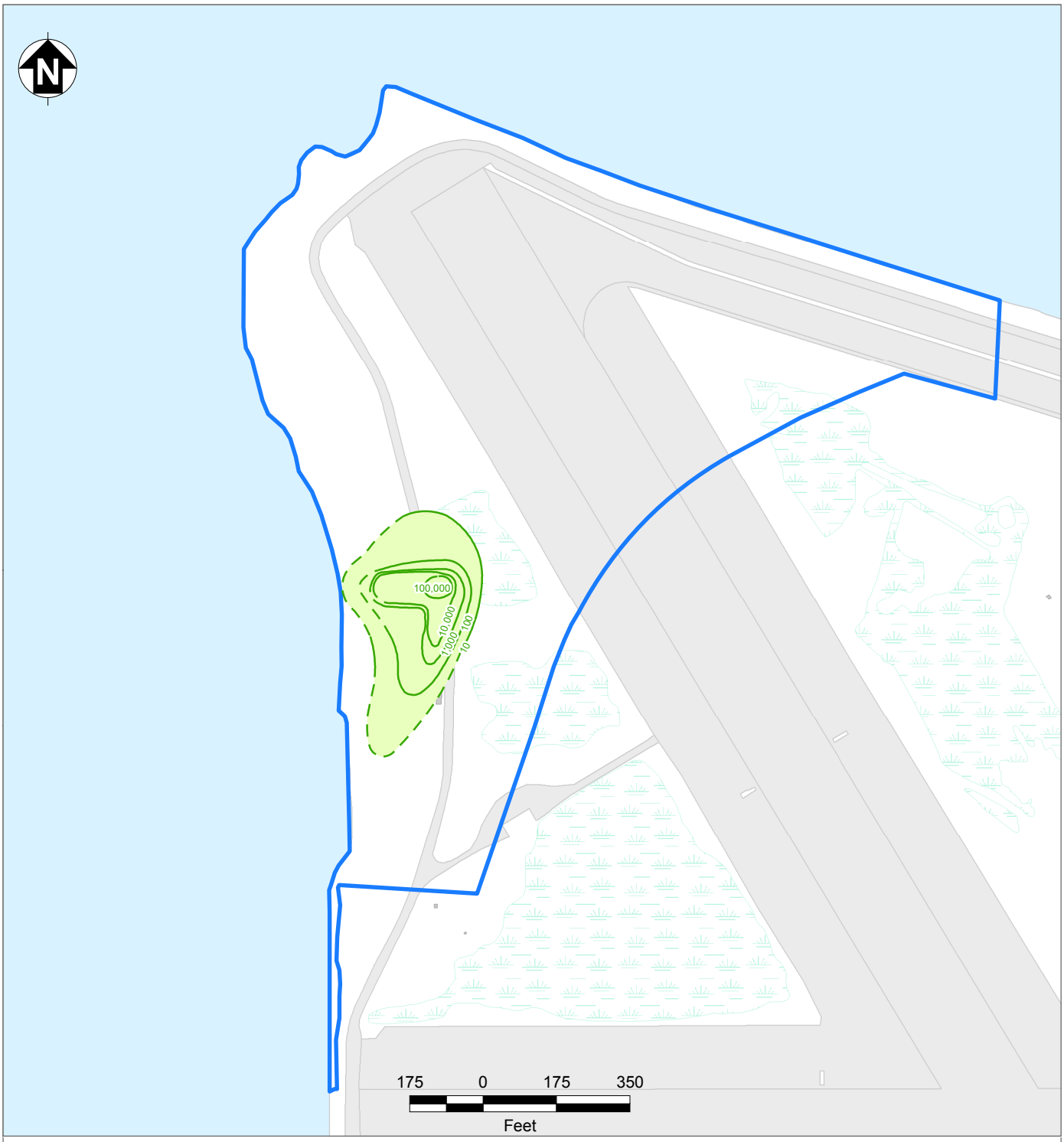

IR Site 1 and Institutional Control Boundary

Groundwater Contamination Area

VOC Groundwater Concentration Contour in µg/L (dashed where inferred)

Building

Road or Airfield Surface

Water

Notes:

ug/L	Micrograms per liter
IR	Installation Restoration
VOC	Volatile Organic Compound

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Alameda Point, Alameda, California

U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE D-2

GROUNDWATER CONTAMINATION AREA

Record of Decision for Installation Restoration Site 1
1943-1956 Disposal Area

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1.0 SITE NAME, LOCATION, AND DESCRIPTION

This Record of Decision (ROD) presents the selected remedies for soil and groundwater at Installation Restoration (IR) Site 1, 1943-1956 Disposal Area at Alameda Point (formerly Naval Air Station [NAS] Alameda), in Alameda, California. The ROD was developed in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986 (Title 42 United States Code [USC] Section [§] 9601 et seq.) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (Title 40 Code of Federal Regulations [CFR] Part 300 et seq.). The decision for Site 1 is based on the information contained in the administrative record. The administrative record index for Site 1 is found in Attachment A.

1.1 SITE NAME

For management purposes, Site 1 (1943-1956 Disposal Area), also referred to as operable unit (OU) 3 was originally divided into five main geographic areas (Areas 1, 2, 3, 4, 5), site-wide radiologically-impacted soil, and groundwater as presented in the Feasibility Study (FS) and Proposed Plan (Bechtel Environmental, Inc. [BEI] 2006, U.S. Department of the Navy [Navy] 2006a). Subsequent to the release of the Proposed Plan, the Navy revised the boundary of Site 1. Site 1 now includes Areas 1a, 1b, 2b, 4, 5a, 5b, site-wide radiologically-impacted soil, and groundwater. This ROD selects a remedy for these areas. This ROD does not select a remedy for Areas 2a and 3a or 3b that were formerly part of Site 1.

1.2 SITE LOCATION

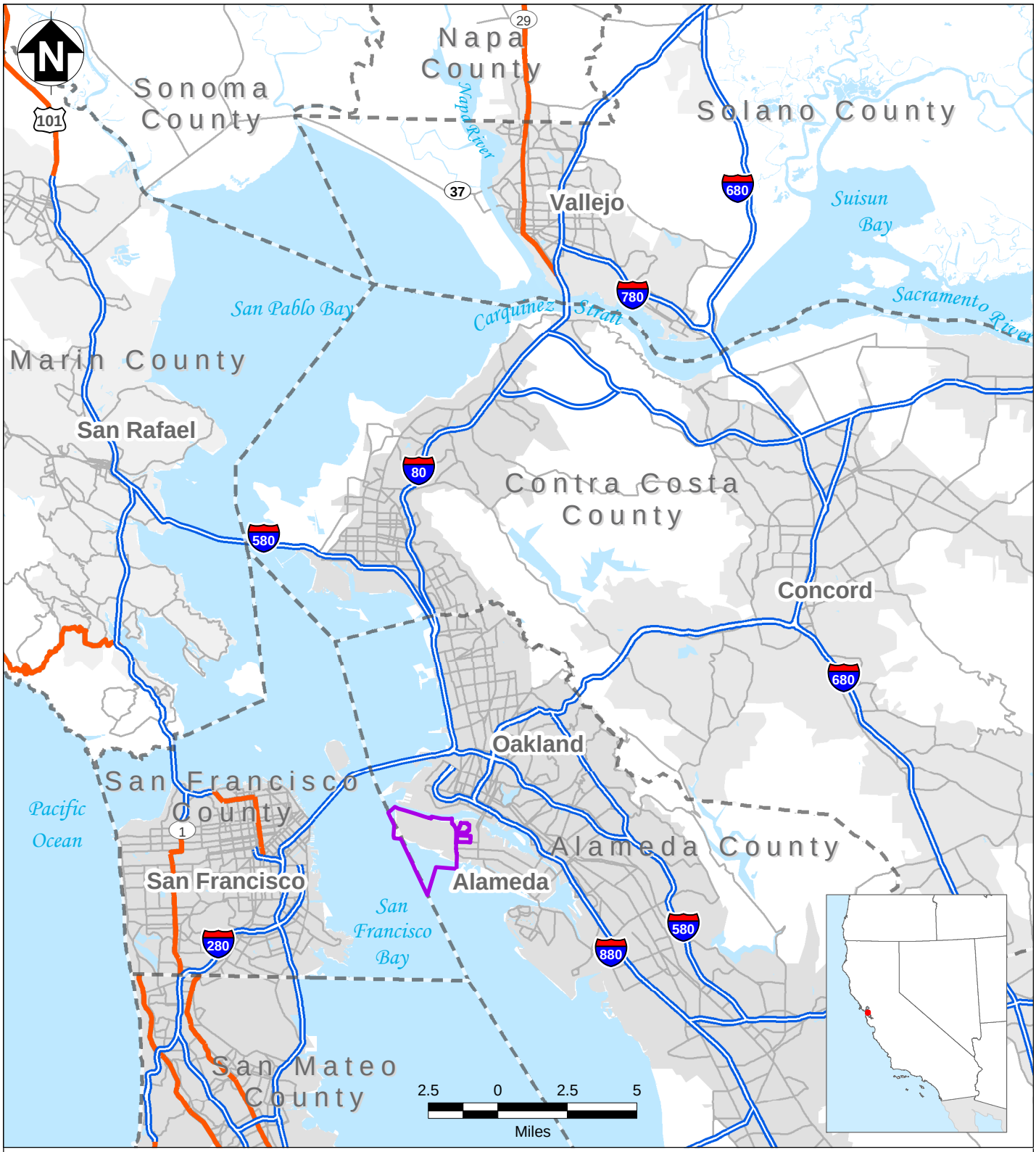
Site 1 is part of Alameda Point in Alameda, California, which is adjacent to the City of Oakland (see Figure 1-1). Alameda Point is generally rectangular in shape, being about 2 miles long (east to west) and 1 mile wide (north to south), and occupies 1,734 acres of onshore land. Site 1 is located on the northwestern tip of Alameda Point where the Oakland Inner Harbor joins the San Francisco Bay (see Figure 1-2).

1.3 SITE DESCRIPTION

Site 1 consists of 36.8 acres and was historically used to dispose of waste, store aircraft parts and petroleum, and as a pistol and skeet range. The site is partially paved and has a relatively flat topography, with slight depressions that sometimes flood during winter rains (Tetra Tech FW, Inc. [TtFW] 2004b) (see Figure 1-3). Site 1 presently includes four buildings (111, 133, 339, and 576), a portion of former aircraft runways 7 and 13, a former pistol and skeet range, a former baseball field, a former aircraft engine and parts storage area, a catch basin, and several storm and sanitary sewer lines (see Figure 1-3). According to the City of Alameda, Alameda Point General Plan, as amended May 7, 2003, the proposed land use throughout IR Site 1 is recreational (City of Alameda 2003).

The Alameda Training Wall, a rubble masonry jetty, is located along portions of the northern border of the site (see Figure 1-3). The historic training wall was built by the United States Army Corps of Engineers between 1874 and 1896 and was designed to use the tidal action to scour a navigation channel between Oakland and Alameda. The Alameda Training Wall, which is also known as the south jetty of the Oakland Inner Harbor Jetties and Federal Channel Historic District, is eligible for listing in the National Register of Historic Places and was placed on the City of Alameda's Historical Building Study List in 2000 (BEI 2006).

FIGURES



Former Naval Air Station Alameda
County Boundary
Urban Area*

Interstate
Highway
Major Road

Note:
* Darker shading indicates greater population density

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Alameda Point, Alameda, California
U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE 1-1

ALAMEDA POINT LOCATION MAP

Record of Decision for Installation Restoration Site 1
1943-1956 Disposal Area

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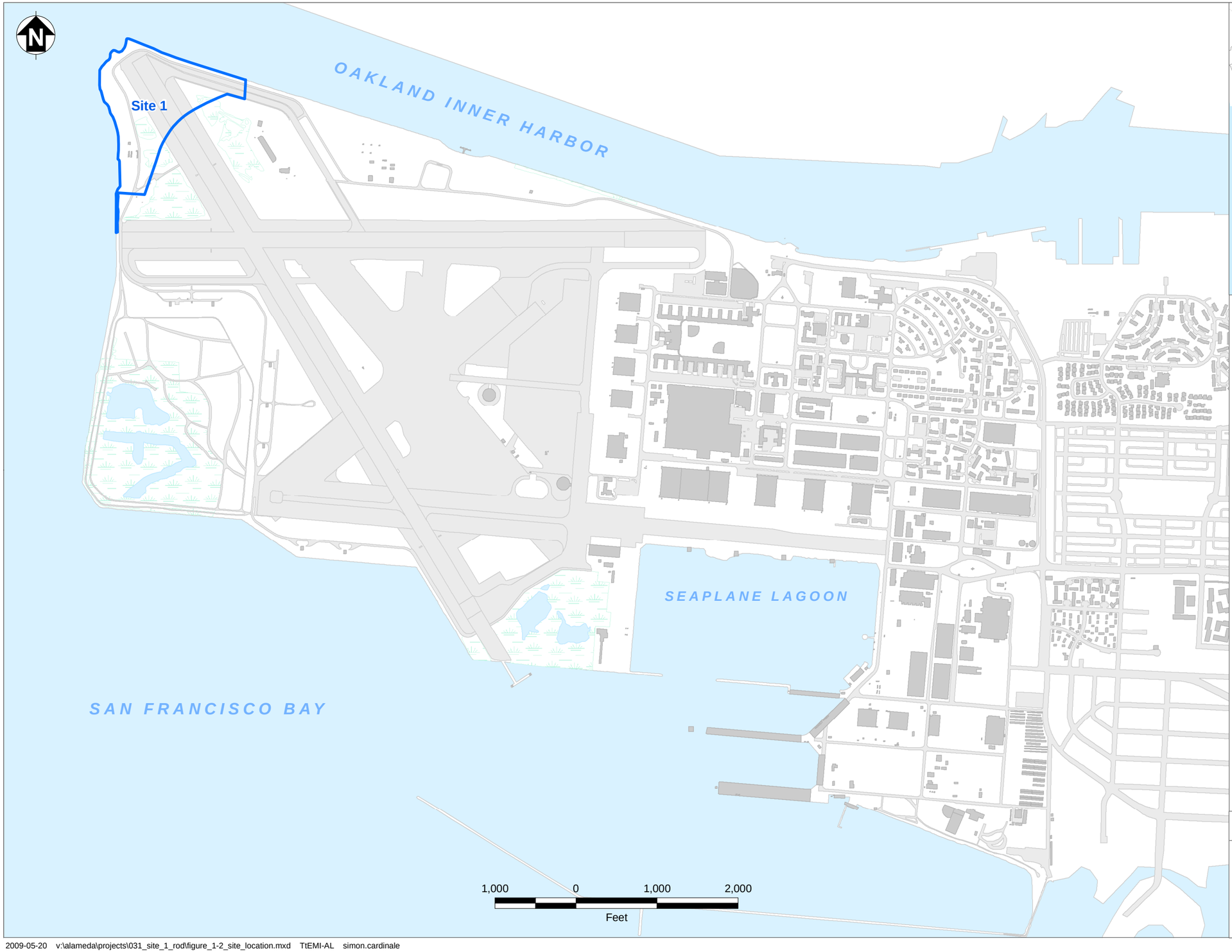

IR Site 1 Boundary
Building
Road or Airfield Surface
Wetland
Water

Note:
IR Installation Restoration

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FIGURE 1-2

SITE LOCATION MAP

Record of Decision for Installation Restoration Site 1
1943 - 1956 Disposal Area

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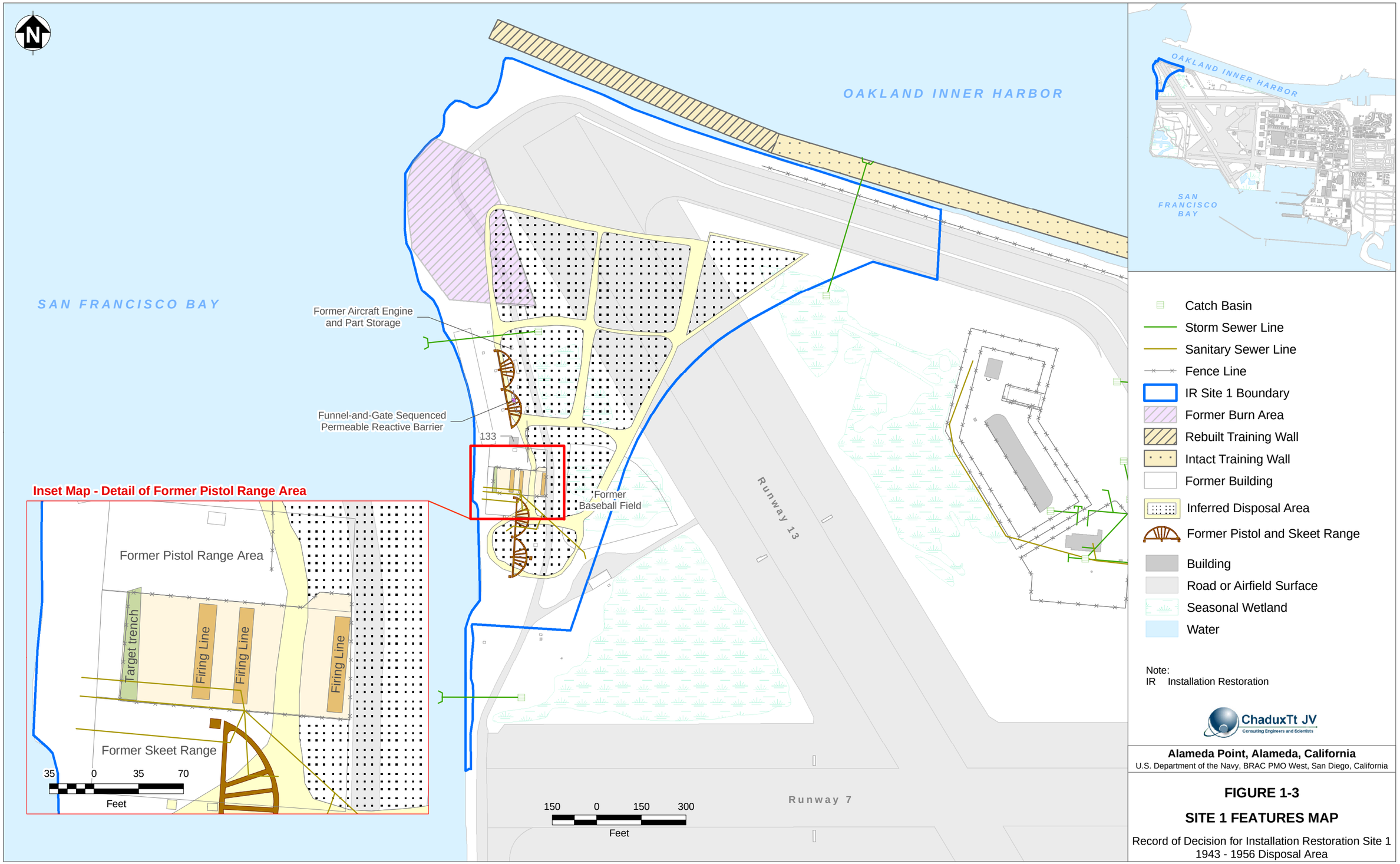

Note:
IR Installation Restoration

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FIGURE 1-3

SITE 1 FEATURES MAP

Record of Decision for Installation Restoration Site 1
1943 - 1956 Disposal Area

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2.0 SITE HISTORY AND ENFORCEMENT ACTIVITIES

This section summarizes the site history and enforcement activities conducted at Site 1. It should be noted that Section 2 includes information from investigation activities for the former definition of Site 1 (Areas 1a, 1b, 2a, 2b, 3a, 3b, 4, 5, site-wide radiological contamination, and groundwater) prior to the change in the conceptual site model that resulted in the completion of the TCRA (Tetra Tech EC, Inc. 2008). After completion of the TCRA, Areas 2a, 3a, and 3b were removed from Site 1. This ROD will select a remedy for Area 1a, 1b, 2b, 4, 5, site-wide radiological contamination, and groundwater. This ROD does not select a remedy for Areas 2a, 3a, or 3b, but discussion of the investigation of these areas is relevant to this ROD because the investigations included areas of Site 1 that are the subject of this ROD.

2.1 SITE HISTORY

Former NAS at Alameda, now referred to as Alameda Point, is located on the northwestern tip of Alameda Island, which is on the eastern side of San Francisco Bay. Most of the northern portions of Alameda Island were covered by the waters and tidal lands of San Francisco Bay. To create NAS Alameda, fill material was dredged from San Francisco Bay. In 1930, the U.S. Army acquired the land from the City of Alameda. In 1936, the U.S. Navy acquired the land from the U.S. Army, and built NAS Alameda to support the U.S. Navy's operations in Europe before World War II. The base was operated as an active Naval facility from 1940 to 1997. During the history of NAS Alameda, it housed approximately 60 military tenant commands for a combined military and civilian workforce of over 18,000 personnel.

Site 1 was used as the principal waste disposal area for all waste generated at NAS Alameda between the years 1943 to 1956, except for wastewater, which was discharged into Seaplane Lagoon (Naval Energy and Environmental Support Activity 1983). Disposed materials included a documented one-time disposal resulting from the decommissioning of the radium-contaminated instrumentation shop in Building 5. Materials from this decommissioning were disposed of in an unlined, 8- by 11- by 20-foot trench at Site 1b (Ecology & Environment, Inc. 1983). There were other undocumented disposal activities associated with the process for applying radioluminescent paints. According to the HRA (Weston 2007) known radioactive items disposed of at Site 1 (based on items recovered) include radium painted components, such as dials, switches, warning signs, radium and strontium deck markers, and optical glass.

Historical aerial photographs and early maps show that the disposal area of Site 1 was part of San Francisco Bay (Canonie Environmental 1990), with the depth of the water along the current western shoreline being approximately 20 feet deep (U.S. Coast and Geodetic Survey 1942). Fill operations within the disposal area began by placing sunken barges and pontoons near the western edge of the disposal area, and filling the area with clay and silt sediments (BEI 2006). The northern edge of the disposal area consists of a rock seawall and a former jetty that was installed to protect the harbor entrance. New taxiways and runways were extended over the disposal area in the 1950s. The entire disposal area was eventually covered with a soil cover estimated to range in thickness from less than 6 inches to 2.5 feet (Tetra Tech EM Inc. [Tetra Tech] 2001; Foster Wheeler Environmental Corporation [Foster Wheeler] 2002).

In 1982, the Navy began investigations of contaminated sites under the Navy Assessment and Control of Installation Pollutants program. The Navy's procedures and priorities for conducting environmental investigations and cleanups have evolved, partly in response to events such as the closure of NAS Alameda in April 1997, under the Base Closure and Realignment Act of 1996, and the designation of Alameda Point as a National Priority List (NPL) site in July 1999 (U.S. Environmental Protection Agency [EPA] 1999b). When NAS Alameda was listed for base closure, responsibility for the environmental cleanup program passed to the Base Realignment and Closure (BRAC) Cleanup Team (BCT). At Alameda Point, the BCT comprises representatives from the Navy, EPA, the California Environmental Protection Agency's (Cal/EPA) Department of Toxic Substances Control Board (DTSC), and the San Francisco Bay Regional Water Quality Control Board (Water Board). The Navy and EPA negotiated and signed a Federal Facility Agreement (FFA) in 2001 (EPA and Navy 2001), and DTSC and the Water Board signed the agreement in 2005.

Historical activities performed within Site 1 that may have led to contamination at the site are summarized below.

- An estimated 15,000 to 200,000 tons of waste generated at NAS Alameda (except wastewater) was disposed of at Site 1 between 1943 and 1956. The waste may have included old aircraft engines, cables, scrap metal, waste oil, paint waste, solvents, cleaning compounds, construction debris, incinerator ash, and low-level radiological waste (Naval Energy and Environmental Support Activity 1983). Radiological waste (such as scraping solids, rags, and used paint brushes from refurbishing dials and gauges) was disposed of in an unlined trench in the vicinity of the rifle range located in the north end of the site, west of the runway (BEI 2006).

- Open burning was the primary waste disposal method at Site 1 in the 1950s. Burning occurred at the northern end of Site 1, where the burn residue was then bulldozed into the San Francisco Bay (Naval Energy and Environmental Support Activity 1983). Review of aerial photographs from 1953 and 1957 indicated that the burn area was constructed as currently configured (BEI 2006). Review of boring logs recorded during the solid waste assessment test program indicated that the shoreline was filled with burned and unburned refuse and a thin covering of sand (Tetra Tech 1999c).

- A former pistol range, which included an earthen firing-range berm lined with sandbags, a skeet range, and a disposal area for spent ordnance (lead bullets and pellets), is located in the western portion of Site 1 (Tetra Tech 1999c). During the construction of the pistol range, an unknown quantity of 55-gallon drums filled with fired 20-millimeter projectiles mixed with concrete was placed in the excavation approximately 8 feet below ground surface (bgs) (BEI 2006).

- An area of Site 1 was used to store aircraft engines and parts and may have been used for aircraft engine maintenance (BEI 2006).

2.2 INVESTIGATION ACTIVITIES

Environmental investigation and remedial activities associated with the site are implemented under the IR Program, which is an installation-wide environmental program. The purpose of the IR Program is to identify, investigate, assess, characterize, and cost-effectively clean up or control releases of hazardous substances to reduce the risk to human health and the environment. The program is administered in accordance with various laws including CERCLA, as amended by SARA and Resource Conservation and Recovery Act (RCRA).

CERCLA applies to sites where a hazardous substance is known or suspected to have been released to the environment. RCRA generally applies to active solid and hazardous waste management facilities. RCRA corrective action requirements apply to past solid waste management units (SWMU) at RCRA-permitted facilities. CERCLA and RCRA address the investigation and cleanup of contaminated property through slightly different, but functionally equivalent processes; therefore, regulatory authorities normally require the application of one of the processes, when both CERCLA and RCRA apply to a single site. In these instances, brief explanations are prepared to indicate the fulfillment of the requirements for the process that was not used.

In addition to investigations under CERCLA and RCRA, Site 1 also underwent an environmental baseline survey (EBS).

Results of the previous investigations identified metals, volatile organic compounds (VOC), semivolatile organic compounds (SVOC), polycyclic aromatic hydrocarbons (PAH), pesticides, polychlorinated biphenyls (PCB), total petroleum hydrocarbons (TPH), munitions potentially presenting an explosive hazard (MPPEH), dioxins, furans, strontium-90 (Sr-90), and radium in soil at Site 1. Additionally, results of previous investigations identified a VOC groundwater plume in the first water-bearing zone (FWBZ) in the central western portion of Site 1; metals, SVOCs, and TPH were also detected in groundwater in this area. Chemicals at Site 1 are generally not mobile, except for VOCs inside the VOC plume. Table 2-1 summarizes the findings of the previous investigations at Site 1. A more comprehensive discussion of the CERCLA investigations and the EBS can be found in the Final Site 1 FS Report (BEI 2006). A more comprehensive overview of RCRA investigations can be found in the SWMU Evaluation Report for Site 1 (SulTech 2005).

Storm sewers are currently being addressed within their respective CERCLA site; therefore, the storm sewers located within the boundary of Site 1 are addressed by this decision document. Three storm sewers are located within the boundaries of Site 1 (see Figure 1-3). These storm sewers were inspected during follow-up work to the time-critical storm sewer solids and debris removal in 1997 and found to be in good condition (Tetra Tech 2000b). The Site 1 storm sewers were listed as non-priority lines and recommended for no further action in the Alameda Point Storm Sewer Study Report (Tetra Tech 2000b). Non-priority lines intersect groundwater plumes of indicator chemicals, but are either not submerged or are submerged and known to be in sound condition and not subject to groundwater infiltration.

TABLES

TABLE 2-1: SUMMARY OF INVESTIGATION ACTIVITIES
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Date	Activity/Report	Objective	Summary of Findings
1983	Initial Assessment Study	Identify and assess sites posing a potential threat to human health or to the environment due to contamination from past use of hazardous materials.	Characterization of Site 1 was recommended by installing three groundwater monitoring wells along the shoreline of the site. Water level measurements and groundwater samples were collected and analyzed for inorganic chemicals, organic chemicals, radionuclides, and pH (Ecology & Environment Inc. 1983).
1984	Characterization Study and Verification Step	Verify and characterize sites that were recommended for further study in the Initial Assessment Study.	The study concluded that detected chemicals in soil and groundwater at Site 1 did not pose a threat to human health; however, additional groundwater monitoring was recommended to further characterize the site (Wahler Associates 1985).
1990	Phase I of SWAT Investigation	Determine if soil at Site 1 was contaminated by the disposed materials.	Data collected during this investigation were summarized in the Final OU-3 RI Report (Tetra Tech 1999c).
1991	Phase II of SWAT Investigation	Determine if groundwater at Site 1 was contaminated by disposed materials.	Data collected during this investigation are summarized in the 1999 OU-3 RI (Tetra Tech 1999c).
RCRA Investigation Activities, 2001-2005			
2001	Final Environmental Baseline Study Data Evaluation Summaries	Identify management activities of both solid and hazardous wastes, including those present in soil, groundwater, surface water, and air.	This review indicated that storage and treatment of hazardous wastes were regulated through two operating permits issued by DTSC (International Technology Corporation 2001).
2005	SWMU Evaluation	Identify the need for further actions at SWMUs that should be managed under the Alameda Point TPH or CERCLA programs.	Aboveground storage tanks 466A, 466B, and 467A were recommended for integration with Alameda Point TPH Program and recommended for no further action. No further action concurrence from regulatory agencies is pending. No SWMUs were integrated with the CERCLA program (SulTech 2005).
Environmental Baseline Survey			
1995	Environmental Baseline Survey	Assess potential environmental concerns associated with real estate parcels.	The survey concluded that no significant soil contamination was present in the areas investigated except for detected concentrations of lead and SVOCs (primarily PAHs) (Tetra Tech 1999c).

TABLE 2-1: SUMMARY OF INVESTIGATION ACTIVITIES (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Date	Activity/Report	Objective	Summary of Findings
Pistol Range Investigations, 1995-1998			
1995	Pistol Range Investigation	Determine the extent of lead contamination in soil and groundwater at the former pistol range.	Lead concentrations were highest in the target trench, ranging from 30 to 60,000 mg/kg, and the area behind the firing-berm behind the pistol range, ranging from less than 10 to 34,000 mg/kg (Chemical Engineering and High Polymer Materials Lab 1995 and 1996).
1998	Pistol Range Investigation	Collect sufficient data to characterize potential lead contamination in soil.	Concentrations of lead at the pistol range could pose risk to human health. Additionally, modeling results indicated that lead could leach from the soil at the pistol range into groundwater and adversely affect aquatic organisms (AGS, Inc. 1998).
Radiological Surveys and Removal Actions, 1995-2008			
1995	Preliminary Radiological Survey	Identify any radiological anomalies exceeding basewide background levels.	Survey results indicated that radium-226 was present in Site 1 soil at levels above background; as a result, additional radiological surveys at Site 1 were recommended (TtFW 2004a).
1996	Radiological Survey	Identify any radiological anomalies exceeding basewide background levels.	Survey results identified anomalies in the northwestern portion of Site 1 and in the jogging trail area; as a result, additional radiological surveys at Site 1 were recommended (TtFW 2004a).
2004	Radiological Survey	Delineate the vertical (to a depth of approximately 20 inches bgs) and horizontal extent of radiological contamination.	Survey results indicated several anomalies at Site 1; as a result, additional radiological surveys at Site 1 were recommended (TtFW 2005).
2006	Radiological Survey of Shorelines	Identify radiological anomalies along the shoreline area.	Survey results indicated anomalies in the shoreline area of Site 1 (Tetra Tech EC, Inc. 2006) and were used to determine radiological contamination addressed in the TCRA (Tetra Tech EC, Inc 2009).
2008	Time-Critical Removal Action	Mitigate potential risk posed by radiological contamination and the threatened release of hazardous substances to the environment.	During the TCRA, 105 discrete radiological items were removed and disposed of off-site. Additionally, 790 cubic yards of radiologically contaminated soil was removed and disposed of off-site (Tetra Tech EC, Inc 2009).
Pilot-Scale Demonstration, 1996-1999			
1996-1999	Pilot-Scale Demonstration (Funnel-and-Gate)	Demonstrate the effectiveness and feasibility of a pilot-scale *in-situ* sequenced permeable active barrier for the remediation of chlorinated solvents and petroleum hydrocarbons groundwater plume at Site 1.	Demonstration results showed a 98 percent or greater decrease in all chlorinated VOCs and BTEX compounds (Tetra Tech 1998a, 1998b, 1999a, 1999b).

TABLE 2-1: SUMMARY OF INVESTIGATION ACTIVITIES (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Date	Activity/Report	Objective	Summary of Findings
Munitions Surveys and Removal Actions, 1998-2008			
1998-1999	UXO Survey and Removal	Locate, identify, and remove all exposed ordnance materials that could present a danger to site workers.	Ordnance was discovered during the survey. The ordnance was removed and disposed of off-site (Tetra Tech 1999c).
2001	UXO Survey and Removal Action	Locate, identify, and remove all exposed ordnance materials that could present a danger to site workers.	Ordnance was discovered during the survey. The ordnance was removed and disposed of off-site (Foster Wheeler 2002).
2004	MEC Surface Sweep	Locate, identify, and remove all exposed ordnance materials that could present a danger to site workers.	A practice round was discovered during a radiological survey. As a result, a munitions surface sweep was conducted. Munitions were discovered during the sweep. The munitions were removed and disposed of off-site (TtFW 2005).
2008	Time-Critical Removal Action	Mitigate potential risk posed by material potentially presenting an explosive hazard and the threatened release of hazardous substances to the environment.	Ordnance was, identified, removed, and disposed of off-site during the TCRA (Tetra Tech EC, Inc 2009). There was a total of 54,503 MPPEH items, or approximately 11,500 pounds removed.
RI, 1999-2002			
1999	Remedial Investigation	Collect additional data to (1) support a HHRA and ERA for the site and (2) characterize potential chemical sources at the site.	The RI results indicated that metals, VOCs, SVOCs, pesticides, PCBs, TPH, and radionuclides were present in soil at Site 1; and VOCs, SVOCs, TPH, and radionuclides were present in groundwater at Site 1 (Tetra Tech 1999c). Several data gaps were identified during the RI. The data gaps were resolved in the 2001 OU-3 RI Addendum.
2001	RI Addendum, Volume I – Data Gaps Summary Report	Resolve data gaps identified during the 1999 OU-3 RI.	In 1999 and 2000, additional samples were collected at Site 1 to address identified data gaps (Tetra Tech 2001). Samples were collected to (1) define the eastern boundary of COCs in the groundwater VOC plume; (2) determine if contaminated groundwater from outside the VOC groundwater plume and cyanide concentrations at monitoring well M025-A were impacting the shoreline at concentrations that may affect aquatic receptors; (3) determine methane and VOC concentrations in soil gas in the disposal areas; (4) determine the thickness and geotechnical parameters of the soil cover on the disposal areas; and (5) collect data to support the FS. The data gaps were resolved in the 2001 OU-3 RI Addendum.
2002	RI Addendum, Volume II, Cumulative HHRA	Combine the chemical and radiological HHRA results that were reported separately in the 1999 OU 3 RI Report.	COCs presented most of the risk under the DTSC assumptions and about half the risk under EPA assumptions. Radiological and chemical risks were addressed in an FS and will be addressed with remedial actions (Tetra Tech 2002).

TABLE 2-1: SUMMARY OF INVESTIGATION ACTIVITIES (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Date	Activity/Report	Objective	Summary of Findings
2002	RI Addendum, Volume III – Ordnance and Explosive Waste/Geotechnical Characterization	Conduct a geotechnical and seismic evaluation of OU-3 to identify associated hazards for evaluation in the FS.	The evaluation consisted of a performing a site survey and bathymetric survey to a distance of 500 feet offshore, characterizing ordnance or explosive waste, performing CPT soundings, drilling and sampling boreholes, and excavating test pits. To characterize the thickness and composition of the disposal area, eight test pits were excavated to a maximum depth of 4 feet bgs or until waste material was encountered. Waste material encountered in the test pits included cables, Plexiglas, wire, asphalt, miscellaneous wood, aluminum, and metal objects (Foster Wheeler 2002). The soil cover was estimated to range from less than 0.5 foot to 2.5 feet thick (Foster Wheeler 2002).
Alameda Point Basewide Groundwater Monitoring Program, 2002-2008			
2002-2003, 2006, 2008	Alameda Point Basewide Groundwater Monitoring Program	Collect basewide groundwater monitoring data from monitoring wells at regular intervals.	Data shows an overall trend of decreasing VOCs concentrations for most analytes over the monitoring period. In addition, VOCs groundwater contamination plume boundaries appeared to be stable (ITSI 2005, 2006, 2009).
2004	Tidal Study	Determine the effect of tidal influences in monitoring wells at the site.	The study concluded that groundwater monitoring wells near the San Francisco Bay shoreline are moderately to strongly influenced by tidal fluctuations in San Francisco Bay (Shaw 2005).
2004	Evaluation of Radiological Groundwater Analyses	Determine if radiological activity in groundwater is natural or attributable to activities at the site.	Trends of radionuclides detected in groundwater samples that were collected in summer 2004 through spring 2005 were evaluated. The data indicated that no gross alpha anomalies were present in any of the samples, naturally occurring potassium-40 may be a significant contributor to gross beta activity, and the source of uranium isotopes is natural (Shaw 2004).
Feasibility Study 2006			
2006	Feasibility Study	Summarize the results of the previous investigation, develop RAOs and remedial alternatives, evaluate the alternatives against the NCP criteria, and recommend a preferred remedial alternative for soil and groundwater at Site 1.	The FS developed RAOs for chemical contamination in soil and groundwater, and radiological contamination in soil. The site was divided into five geographic soil areas plus a site-wide radiologically-impacted waste area for management purposes. Soil remedial alternatives were developed for each identified soil area, and groundwater remedial alternatives were developed for the site as a whole (BEI 2006).

TABLE 2-1: SUMMARY OF INVESTIGATION ACTIVITIES (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Date	Activity/Report	Objective	Summary of Findings
Proposed Plan			
2006	Proposed Plan	Present the Navy's recommendation for remediation of soil and groundwater; summarize the history of the site, including the environmental investigations conducted; and notify the community of the public meeting and public comment period.	Based on the results of the comparative analysis of alternatives against the NCP criteria, the Navy identified the following preferred remedial alternatives in the Proposed Plan: S1-4a for Soil Area 1, S2-3 for Soil Area 2, S3-4 for Soil Area 3, S4-4 for Soil Area 4, S5-4 for Soil Area 5, and S6-4 for site-wide radiologically-impacted soil and GW-3 for site-wide groundwater contamination as the preferred alternatives for Site 1 (BEI 2006).
Historical Radiological Assessment 2007			
2007	Historical Radiological Assessment, Volume II	Assess the likelihood of potential radioactive contamination and migration pathways. Designate sites as impacted or non-impacted.	IR Site 1 was designated as impacted. Known and potential radioactive items disposed of at Site 1 include radium painted components, slag from smelter operations, burn residue, depleted uranium counterweights, spark gap irradiators, and liquid and solid waste from disassembly and decontamination of aircraft engines. Known radioactive items disposed of (based on items recovered) include radium painted components, such as dials, switches, warning signs, radium and strontium deck markers, and optical glass (Weston 2007). The Navy's recommended action was to develop a remediation plan based on the 1998/1999 and 2004 radiological surveys. (Weston Solutions Inc. 2007).

TABLE 2-1: SUMMARY OF INVESTIGATION ACTIVITIES (CONTINUED)

Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Date	Activity/Report	Objective	Summary of Findings
Other CERCLA Activities			
2000	Alameda Point Basewide Storm Sewer Report	Evaluate condition of storm sewers.	The storm sewer evaluation identified three storm sewers at OU-3, two of which intersect the VOC plume at the site. The storm sewers were inspected during the follow-up work to the 1997 TCRA for storm sewer solids and debris and found to be in good condition. No further action was recommended for these storm sewers (Tetra Tech 2000b).
2004	Wetlands Delineation	Determine presence and extent of potential wetlands at Site 1.	The wetland delineation survey evaluated vegetation, soils, and hydrology of potential wetlands areas at Site 1. The survey identified approximately 18 acres of seasonal wetlands in four areas at the site (TtFW 2004b).
2005	Soil Gas Sampling	Collect soil gas samples to determine if landfill gases were present.	Soil gas results indicated low concentrations of BTEX and trichloroethene in the vadose zone at Site 1 (ITSI 2005).
2005	Burn Area and Beach Area Field Sampling	Collect additional soil and sediment samples from the former burn area and proposed beach area to supplement previous data.	Results of the sampling event indicated that several metals, dioxins, furans, and PAHs were reported at concentrations exceeding the 2004 residential EPA PRGs (BEI 2006).
2008	Exploratory Trenching	Characterize the condition of buried drums and increase the accuracy of the waste volume estimate.	The Navy excavated two 25-foot-long pits in each of the five waste cells outside the runway and one 25-foot-long test pit in the waste cell partially covered by the runway. Results of the trenching indicated that no intact drums were present in the areas investigated (Tetra Tech EC, Inc. 2008). During the trenching activities, excavated soil was scanned for potential radiological impacts. The scanned soil showed gamma readings ranging from below the investigation level up to 78,000 counts per minute (cpm). Excavated soil exhibiting gamma readings above 6,000 cpm was removed and disposed of off-site. This resulted in approximately 57 cubic yards of soil being disposed of off-site.

Notes:

AOC	Area of concern	FS	Feasibility study	RCRA	Resource Conservation and Recovery Act
BEI	Bechtel Environmental Inc.	HHRA	Human health risk assessment	RI	Remedial investigation
bgs	Below ground surface	IC	Institutional control	Shaw	Shaw Environmental & Infrastructure, Inc.
BTEX	Benzene, toluene, ethylbenzene, and xylenes	ITSI	Innovative Technical Solutions, Inc.	SSPORTS	Supervisor of Shipbuilding, Conversion and Repair, Portsmouth
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	mg/kg	Milligram per kilogram	SVOC	Semivolatile organic compound
COC	Chemical of concern	MPPEH	Materials potentially presenting an explosive hazard	SWAT	Solid waste assessment test
CPT	Cone penetrometer test	mrem/yr	Millirem per year	SWMU	Solid waste management unit
cpm	Counts per minute	NCP	National Oil and Hazardous Substances Pollution Contingency Plan	TCRA	Time critical removal action
DTSC	Department of Toxic Substance Control	OU	Operable Unit	TEDE	Total effective dose equivalent
EPA	U.S. Environmental Protection Agency	PAH	Polycyclic aromatic hydrocarbon	Tetra Tech	Tetra Tech EM Inc.
ERA	Ecological risk assessment	PCB	Polychlorinated biphenyl	TPH	Total petroleum hydrocarbons
ERV	Ecological reference value	PRG	Preliminary remediation goal	TtFW	Tetra Tech Foster Wheeler, Inc.
Foster Wheeler	Foster Wheeler Environmental Corporation	RAO	Remedial action objective	UXO	Unexploded ordnance
				VOC	Volatile organic compound

TABLE 2-1: SUMMARY OF INVESTIGATION ACTIVITIES (CONTINUED)

Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

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TtFW. 2004b. "Wetland Delineation Report, I Site 1, 1943-1956 Disposal Area and Site 2, West Beach Landfill, Alameda Point, Alameda, California." Preliminary Draft. October 18.

TtFW. 2005. "Final Installation Restoration Site 1 Radiological Survey Characterization Report, Alameda Point, Alameda, California." August 5.

Wahler Associates. 1985. "Verification Step Confirmation Study of Naval Air Station Alameda, Draft Report." for Navy Contract N62474-83-C-3075 for Commanding Officer, Western Division Naval Facilities Engineering Command, San Bruno, California.

Weston Solutions, Inc.. 2007. "Final Historical Radiological Assessment Volume II, Alameda Naval Air Station, Use of General Radioactive Materials, 1941-2005." June.

3.0 COMMUNITY PARTICIPATION

This section discusses the community participation activities that have been performed for Site 1. A community relations plan was developed to document interests, issues, and concerns raised by the community in regard to ongoing investigation and cleanup activities at Alameda Point, and to describe a specific community relations program designed to address community issues and concerns. The initial plan was prepared in February 1989 and revised in 1996, 1998, 2002, 2003, and 2009. The revisions incorporated the most recent assessment of community issues, concerns, and informational needs related to the ongoing environmental investigation and remediation program at Alameda Point.

3.1 RESTORATION ADVISORY BOARD

In 1993, individuals from local communities began to play an increasingly significant role in the environmental restoration process with the establishment of the Alameda Point Restoration Advisory Board (RAB). Original membership in the board was solicited by the Navy through newspaper notices, including businesses' and homeowners' representatives, residents, local elected officials, and regulatory agency staff.

The RAB currently consists of members of the Navy, the regulatory agencies, and the community. The RAB meetings occur monthly and are open to the public. Meetings are held in the evenings after normal working hours at Building 1, Room 140, at 950 West Mall Square at Alameda Point. RAB members review and comment on technical documents.

The Navy and the regulatory agencies report information about Site 1, including the availability of Site 1 documents, to the RAB members during the monthly RAB meetings. Copies of the RAB meeting minutes and documents describing environmental investigations and removal actions are available at the following Alameda Point information repository and administrative record file locations:

Alameda Point	Administrative Record
950 West Mall Square	Naval Facilities Engineering Command, Southwest Division
Building 1, Rooms 240 and 241	937 North Harbor Drive, Building 1, 3rd Floor
Alameda, California	San Diego, California 92132-5190

RAB meeting minutes also are available at the Navy BRAC Program Management Office website at: http://www.bracpmo.navy.mil.

3.2 PUBLIC MAILINGS

Public mailings, including information updates, fact sheets, and proposed plans, are used to ensure a broad dissemination of information throughout the local community. Information updates announcing the IR Program process at Alameda Point are mailed to residents in the vicinity of Alameda Point; city, state, and federal officials; regulatory agencies; local groups;

and individuals identified in the community relations plan since March 1990 (Tetra Tech 2003). Previous updates and fact sheets included information concerning the status of environmental investigations, the upcoming remedy selection process, ways the public can participate in the investigation and remediation, the history and geology of the area, and the availability of the administrative record for Alameda Point. Proposed plans provide an overview of environmental investigation results (including human health risk assessment [HHRA] and ecological risk assessment [ERA] results), summarize the remedial alternatives for a site or group of sites, and present the Navy's preferred alternative. The updates, fact sheets, and proposed plans are mailed to 679 households, businesses, public officials, and regulatory agencies in an effort to reach as many community members as possible. Table 3-1 summarizes the Alameda Point updates, fact sheets, and proposed plan for Site 1.

3.3 COMMUNITY PARTICIPATION FOR SITE 1

The OU-3 Remedial Investigation (RI) Report was finalized in August 1999 (Tetra Tech 1999c) and the Site 1 FS Report was finalized in February 2006 (BEI 2006). The Site 1 Proposed Plan was submitted to the public on September 27, 2006, to provide information and solicit public input on the Navy's recommended action (Navy 2006). These documents are available to the public at the information repositories maintained at Alameda Point and at the administrative record file. The information repositories also contain a complete index of the administrative record file (see Attachment A), along with information about how to access the complete file at the Naval Facilities Engineering Command, Southwest Division, in San Diego, California.

The original 30-day public comment period for Site 1 (September 27, 2006 to October 27, 2006) was extended an additional two weeks and ended on November 10, 2006. In addition, a public meeting was held on October 24, 2006. A notice of the public comment period and public meeting was published in the *Alameda Journal* on September 26, 2006 and in the *Oakland Tribune* on September 27, 2006. Copies of the public notices are presented in Attachment B.

At the public meeting, the Navy's BRAC environmental coordinator and remedial project manager gave presentations on the conditions at Site 1, and representatives from the Navy and the regulatory agencies were available to answer questions. A court reporter prepared a transcript of the meeting (see Attachment B). Responses to written comments received during the public comment period are included in the Responsiveness Summary as part of this ROD (see Attachment C).

In 2006, the RAB applied for and received a Technical Assistance for Public Participation (TAPP) grant through a program sponsored by the Department of Defense. Consultants were solicited by the Navy. Several consultants responded. The RAB assembled a subcommittee to assist the Navy in selecting a consultant, who was tasked with assisting the RAB with interpretation and formulation of technical comments associated with the Site 1 Proposed Plan. The TAPP grant provided the funding mechanism for the TAPP advisor to assist the RAB on technical issues and to prepare a presentation of their findings during a RAB meeting.

TABLES

TABLE 3-1: SUMMARY OF ALAMEDA POINT FACT SHEETS, NEWSLETTERS, AND PROPOSED PLANS RELATED TO SITE 1
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area
Alameda Point, Alameda, California

Fact Sheets	Date	Title
1	March 1990	Fact Sheet 1: Remedial Investigation/Feasibility Study Update
2	September 1990	Fact Sheet 2: Remedial Investigation/Feasibility Study Update
3	May 1991	Fact Sheet 3: Remedial Investigation/Feasibility Study Update
4	March 1993	Fact Sheet 4: Installation Restoration Program Update
5	May 1995	Fact Sheet 5: Base Realignment and Closure Cleanup Plan
7	June 1996	Fact Sheet 7: History and Geology
Newsletters		
	July 1, 2003	Alameda Point Focus Environmental July 2003 Newsletter
	March 1, 2004	Newsletter Regarding the Navy's Environmental Activities at Alameda Point
Proposed Plan		
	September 2006	Proposed Plan for Site 1, 1943-1956 Disposal Area

4.0 SCOPE AND ROLE OF OPERABLE UNIT AND RESPONSE ACTION

This ROD presents the final remedy for chemical and radiological soil contamination and for groundwater contamination at Site 1. Site 1, which was originally designated as OU-3, is the only site managed under this OU. Site 1 was known as Site 2 during the initial assessments completed at NAS Alameda in the 1980s. It is unknown when the name changed; however, the former 1943-1956 disposal area (currently Site 1) was evaluated under the name of Site 1 in the 1995 EBS Report. Site 1 currently consists of Areas 1a, 1b, 2b, 4, 5a, 5b, site-wide radiologically-impacted soil, and groundwater. This ROD will select a remedy for chemical and radiological contamination in soil at these Areas and for groundwater. In addition to these areas, Site 1 formerly included Areas 2a, 3a, 3b; however, Areas 2a, 3a, and 3b were removed from Site 1 after completion of the TCRA (Tetra Tech EC, Inc. 2009) in 2008 because of the nature and extent of radiological contamination. This ROD does not select a remedy for chemical or radiological contamination in Areas 2a, 3a, or 3b.

5.0 SITE CHARACTERISTICS

This section summarizes information on the geology, hydrogeology, and chemicals that are present in soil and groundwater at Site 1. A complete discussion of sampling locations and methods, chemicals detected at each site, nature and extent of contamination, fate and transport, and evaluation of human and ecological risks is presented in the "Final OU-3 RI Report"; "Final OU-3 RI Addendum, Volume I"; and the "Final OU-3 RI Addendum, Volume II" (Tetra Tech 1999c, 2001, 2002).

5.1 GEOLOGY

Alameda Island occupies a depression between two uplifted areas: the Berkeley Hills to the east and the San Bruno Mountains, as well as other mountains on the San Francisco Peninsula, to the west. The depression and uplifted areas are formed by two subparallel, active faults (the San Andreas and the Hayward Faults). Evidence exists that liquefaction occurred at Site 1 after the magnitude 7.1 Loma Prieta earthquake in 1989 (Foster Wheeler 2002). Alameda Point and the surrounding San Francisco Bay are underlain by 400 to 500 feet of unconsolidated sediments that overlie the metamorphosed sandstone, siltstone, shale, greywacke, and igneous bedrock, which forms the Franciscan Formation (BEI 2003).

Surface and near-surface soil at Alameda Point consists of artificial fill emplaced during historical filling of the tidal marshlands and the subtidal area of San Francisco Bay during site development. Additionally, the western perimeter of Site 1 was partly reclaimed by aligning sunken barges before adding fill material (Foster Wheeler 2002). The fill material consists of sediments that were dredged from the San Francisco Bay and Oakland Inner Harbor and is characterized by sands, clays, and silts dredged from the tidal flats in the region (BEI 2003). The unconsolidated sediments that lie beneath the Artificial Fill consist of the following five units, from top to bottom: (1) the Bay Sediment Unit (BSU), (2) the Merritt Sand Formation, (3) the upper unit of the San Antonio Formation, (4) the lower unit of the San Antonio Formation (Yerba Buena Mud), and (5) the Alameda Formation.

The fill layer at Site 1 extends from the ground surface to depths ranging from 10 feet to 30 feet bgs or deeper (Foster Wheeler 2002). The fill layer varies in thickness and is mostly thin in the eastern portion of the site. The western portion of the site, the former disposal area, contains refuse that is buried in the fill material (Tetra Tech 1999c). The BSU is encountered below the fill layer and is up to 67 feet thick in the southwestern portion of the site (BEI 2006). The BSU consists of the upper Younger Bay Mud (mostly clay and silt) and is underlain in some areas by coarser bay sediments (fine-grained sand). The Merritt Sand Formation encountered below the BSU in the northern portion of the site varies between 30 and 60 feet thick (Foster Wheeler 2002). The Upper San Antonio Formation, underlying the BSU or Merritt San Formation in the northern portion of the site, is a discontinuous layer found at a depth of approximately 70 to 80 feet bgs (BEI 2006). The Lower San Antonio Formation (Yerba Buena Mud), also underlying the BSU or Merritt San Formation, is a continuous layer at depths of approximately 80 to 90 feet bgs (Tetra Tech 1999c).

5.2 HYDROGEOLOGY

Groundwater across Alameda Point is typically encountered at depths between 3 to 8 feet bgs in the Artificial Fill. Three hydrogeologic units are present in the unconsolidated sediment column beneath Alameda Point. These units were designated the FWBZ, second water-bearing zone (SWBZ), and the deep aquifer. At Site 1, the following four shallow hydrogeologic units are present (Tetra Tech 1999c).

- FWBZ
- Aquitard
- SWBZ
- Regional aquitard

The first of these units is the unconfined FWBZ, which is encountered within the Artificial Fill at Site 1, at a depth ranging from ground surface to approximately 8 feet bgs and averaging from 3 to 5 feet bgs (Tetra Tech 1999c). The Young Bay Mud portion of the upper BSU acts as an aquitard between the FWBZ and the SWBZ. The semiconfined SWBZ comprises the course-grained sediments of the lower portion of the BSU, Merritt Sand, and Upper San Antonio Formation. The SWBZ is underlain by the Lower San Antonio Formation, which acts as the regional aquitard separating the brackish-to-very-saline groundwater of the SWBZ from the fresh groundwater of the deeper Alameda aquifer (Tetra Tech 1999c).

Groundwater flow at Alameda Point is highly variable. Seasonal variations are caused from precipitation levels, and diurnal variations are related to tidal cycles. At Site 1, the general direction of flow in the FWBZ is toward the shoreline, westerly toward the San Francisco Bay and northerly toward the Oakland Inner Harbor.

Groundwater in the FWBZ underlying the western portion of Alameda Point (which includes Site 1) is classified as a Class II aquifer based on total dissolved solids (TDS) and yield criteria. EPA classifies groundwater having an existing or potential use as a drinking water supply (Class I or II) using the following criteria: a TDS concentration less than 10,000 milligrams per liter (mg/L) and a minimum well yield of 150 gallons per day or 0.104 gallons per minute (EPA 1998a). The SWBZ is a Class III aquifer, not a potential source of drinking water, and is of limited beneficial use because TDS concentrations exceed 10,000 mg/L. A Class II aquifer is a current or potential source of drinking water and has other beneficial uses. Other potential beneficial uses of groundwater include industrial supply and agricultural use (crop irrigation or livestock watering). However, a beneficial use evaluation conducted for the purposes of CERCLA cleanup decisions determined that groundwater in the western region of Alameda Point is unlikely to be used as a potential drinking water source, or for watering livestock, based on proposed land uses (Tetra Tech 2000a). High concentrations of TDS in groundwater (or the likelihood of saltwater intrusion if any significant pumping takes place) would require pretreatment, which would not be economical. Within the western region of Alameda Point, which includes Site 1, no water supply wells exist within or downgradient of groundwater

contamination. Drinking water is supplied to Alameda Point by the East Bay Municipal Utilities District (Tetra Tech 1999c).

In addition, the EPA stated that it is unlikely that groundwater in this area will be a potential source of drinking water in the future (EPA 2000). This statement was based on the shallow depth of the aquifer in this area, the likelihood of saltwater intrusion (based on groundwater flow directions) if any significant pumping takes place, and the fact that no wells currently exist within or close to this area. In the letter dated January 3, 2000, the EPA stated the following:

> "The NAS Alameda BCT have concluded that the groundwater beneath Sites 1 and 14 is unlikely to be used as a potential drinking water source due to the location of the landfill over the aquifer and the reuse restrictions that will be inherent with turning Site 1 and 14 into a golf course."

The EPA also stated that the impact of groundwater migration to the Bay and any inhalation or dermal threats posed by construction activities must be evaluated for remediation purposes.

In 2000, the Water Board adopted groundwater basin plan amendments that dedesignated the municipal supply as beneficial for use in portions of Alameda Point, including Site 1 (BEI 2006). These amendments are still subject to approval by the State Water Resources Control Board (SWRCB) and the State Office of Administrative Law. At this time, SWRCB staff has not yet determined when these amendments will be considered. However, in a letter dated July 21, 2003, the Navy received concurrence from the Water Board that groundwater meets the municipal and domestic water supply designation exemption criteria in SWRCB Resolution (Res.) 88-63, "Sources of Drinking Water" (SWRCB 1988), and Water Board Res. 89-39 for groundwater west of Saratoga Street at Alameda Point (Water Board 1989). The Water Board's concurrence included groundwater beneath Site 1.

5.3 NATURE AND EXTENT OF CONTAMINATION IN SOIL AND GROUNDWATER

The Navy identified historical activities performed within 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 (see Section 2.2). Sources of contamination may have included buried waste, burn area waste, pistol range bullets, skeet shot, drums reportedly containing 20-millimeter projectiles, and possible chemical releases from the former aircraft engine and parts storage area. The buried waste included old aircraft engines, cables, scrap metal, waste oil, paint waste, solvents, cleaning compounds, construction debris, and incinerator ash, as well as low-level radiological material collected from the radium paint shop from the 1940s through the early 1960s (Ecology & Environment, Inc. 1983). Site 1 has been adequately characterized to support the selection of the proposed remedy. The nature and extent of contamination in soil and groundwater are summarized below.

5.3.1 Nature and Extent of Contamination in Soil

Soil samples were collected within Site 1 during several sampling events between 1990 and 1996 (Tetra Tech 1999c), and during an additional soil and sediment sampling event performed in March 2005 in the former burn area and the western shoreline (BEI 2006). The Final OU-3 RI Report compared analytical results for soil with the 1998 EPA Region 9 residential preliminary remediation goals (PRG) (EPA 1998a) and the Alameda Point background concentrations for metals in soil (Tetra Tech 1999c). During the March 2005 sampling event at the former burn area and western shoreline, analytical results for soil samples were compared with the 2004 EPA Region 9 residential PRGs (EPA 2004) and sediment samples were screened against sediment screening criteria. The sediment screening criteria were based on the Water Board's "Sediment Screening Criteria and Testing Requirements for Wetland Creation and Upland Beneficial Reuse" (Water Board 1992).

For management purposes, Site 1 was originally divided into five geographic soil areas and a site-wide radiologically-impacted waste area as described in the FS (BEI 2006) and Proposed Plan (Navy 2006a):

- Area 1 is the former waste disposal area, which is subdivided into Areas 1a and 1b. Area 1a consists of the main disposal area and Area 1b is the former burn area. Area 1 also includes areas of seasonal wetlands.

- Area 2 is the paved areas outside of the former disposal area, which includes runways, taxiways, and aprons. Area 2a is to the south and east of Area 1, and Area 2b is to the north of Area 1. Area 2a is no longer part of Site 1 as of the date of this ROD. Chemical and radiological contamination at Area 2a will be addressed with IR Site 32.

- Area 3 is the unpaved areas located outside of the former disposal area; Areas 3a (north and east of Area 2a) and 3b (south and west of Area 2a) are located on either side of Area 2a. Area 3 includes some areas of seasonal wetland. Areas 3a and 3b are no longer part of Site 1 as of the date of this ROD. Chemical and radiological contamination at Areas 3a and 3b will be addressed with IR Site 32.

- Area 4 is the former firing-range berm located near the western shoreline of Site 1.

- Area 5 is the shoreline area of Site 1. Area 5a is located along the western shoreline, and Area 5b is located along the northern shoreline. The Area 5 shorelines include both beach and inland areas.

- Site-wide radiologically-impacted soil consists of locations within Site 1 (site-wide soil) with elevated levels of ROC.

In response to new information discovered during the TCRA (Tetra Tech EC, Inc. 2009), Site 1 now consists of Area 1, Area 2b, Area 4, Area 5, and site-wide radiologically-impacted soil (see Figure 5-1). Areas 2a and 3a and 3b were removed from Site 1 and incorporated into Site 32.

Chemicals found in soil at Site 1 included metals, VOCs, SVOCs, PAHs, pesticides, PCBs, and TPH, as well as dioxins and furans in the burn area (Area 1b) (see Figure 5-1). Radionuclides were also detected. In general, the highest chemical concentrations throughout the site were detected in the waste disposal area (Area 1) (see Figure 5-1). The highest concentrations of lead were detected in the former firing-range berm area (Area 4) (see Figure 5-1). A complete set of soil analytical results for Site 1 from previous investigations, including historical studies, can be found in Appendix E of the Final Site 1 FS Report (BEI 2006).

During the 1999 RI, cadmium and lead were detected in soil samples at concentrations exceeding 1998 residential PRGs. Several other metals were detected in soil, but did not exceed 1998 residential PRGs. The highest concentrations of lead were detected in the former firing-range berm (Area 4), which is consistent with the historical use of lead shot in that area. During the March 2005 sampling event, several metals were detected in soil at Area 5a, with only arsenic exceeding 2004 residential PRGs.

Nine VOCs were detected in soil at Site 1. None of the detected VOCs at Site 1 exceeded the 1998 residential PRGs or 2004 residential PRGs.

Phthalates and SVOCs, mostly PAHs, were detected in soil samples from shallow (0 to 2 feet bgs) and intermediate (2 to 10 feet bgs) depth intervals. Phthalates were infrequently detected, with no concentrations exceeding 1998 residential PRGs. PAHs were detected at concentrations above 1998 residential PRGs in soil samples from shallow (0 to 2 feet bgs) and intermediate (2 to 10 feet bgs) depth intervals near the former aircraft engine and parts storage area. During the March 2005 sampling event, PAHs also were detected in Area 5a soil at concentrations exceeding the 2004 PRGs.

PAHs were detected in sediment samples collected from the beach area at Site 1. The beach area at Site 1 is adjacent to offshore sediment that has been affected by historical launching of shot and skeet targets, an area known as Site 29. Previous investigations determined that PAHs are chemicals of potential concern (COPC) at Site 29. The Navy determined that Site 29 poses no risk to human health, the environment, or the ecological community and has issued a ROD of no further action for the offshore sediment at Site 29 (Navy 2005). The source of PAHs in the shoreline sediment of Site 1 is believed to be from the San Francisco Bay, rather than from historical activities at Site 1.

Pesticides and PCBs were detected in soil samples from shallow (0 to 2 feet bgs), intermediate (2 to 10 feet bgs), and deep (greater than 10 feet bgs) depth intervals throughout Site 1. Pesticide concentrations did not exceed the 1998 residential PRGs. Detected concentrations of PCBs collected from shallow and intermediate depths exceeded 1998 residential PRGs. PCB concentrations from deep depth samples did not exceed 1998 residential PRGs.

TPH was detected in soils throughout Site 1 in soil samples from shallow (0 to 2 feet bgs) and intermediate (2 to 10 feet bgs) depth intervals. A single source of TPH contamination has not been identified.

Dioxins and furans were detected in all soil samples collected in the former burn area (Area 1b).

A site-wide radiological survey was conducted at Site 1 in summer 2004 (TtFW 2005). This survey did not include the shoreline areas, asphalt or concrete areas of Site 1. Over 3 million sodium iodide measurements were collected during the scan survey of Site 1. These measurements represent 919,602 geographic coordinate pairs. A threshold value of 4,000 cpm net was used to filter the data to facilitate identifying areas of potential interest. The average background count rate in the reference area was calculated to be 4,803 cpm. A net of 4,000 cpm therefore is approximately two times the expected background count rate. Of the 919,602 discrete locations, only 2,091 had net cpm greater then 4,000 cpm. The 2,091 measurements above background were congregated in essentially 13 areas. The majority of the locations were located along the west side of IR Site 1 in and around the former pistol and skeet ranges (TtFW 2005).

In November 2006, a supplemental survey was performed to survey the shoreline areas of Site 1 (Tetra Tech EC, Inc 2007). The dosimetry study along with the pressurized ion chamber and static sodium iodide measurements collected along the shoreline indicated no elevated radiological activity. Therefore, no action was recommended for the shorelines of Site 1. Static sodium iodide measurements collected over the riprap resulted in elevated radiological measurements. However, measurements indicated that elevated readings were naturally occurring due to geologic composition of the riprap, and were not assumed to be originating from man-made sources. No removal action was warranted for the riprap areas with elevated readings (Tetra Tech EC, Inc 2007).

Exploratory trench activities were performed in September 2007 (Tetra Tech EC, Inc. 2008). Eleven trenches were excavated within the Site 1 disposal area. Seven former disposal cells are believed to lie within the Site 1 landfill (BEI, 2006). The objectives of these excavations were to better understand the nature of the waste materials present and the estimated waste volume in the Site 1 disposal area, to confirm the absence of buried drums, and to characterize any waste material encountered or removed (Tetra Tech EC, Inc. 2008). An estimated 225 cubic yards of soil was excavated. Only trace debris was encountered during exploratory trench excavations. In general, throughout the trenches, soil was observed interspersed with some debris such as concrete, bricks, pipes, glass, and wood. Debris was observed from a very shallow depth (0 to 2 feet bgs) down to groundwater at about 7 to 8 feet bgs. During these investigations, debris was not readily apparent immediately below groundwater. While the overall density of debris intermixed with the soil was much less than would be expected at a landfill, the overall volume of soil and debris mixture was within the range expected (Tetra Tech EC, Inc. 2008). Based on the results of exploratory trenching, the current findings indicate that intact drums are not present in these areas (Tetra Tech EC, Inc. 2008).

A TCRA was completed in July 2008, at IR Sites 1, 2, and 32 (Tetra Tech EC, Inc. 2009). At Site 1, the TCRA removal action was conducted in one area of Area 1b, Area 4, Area 5, and Area 3, which is no longer part of Site 1. Construction activities included the excavation and removal of the firing-range berm, debris pit, and disposal trench (containing radiological anomalies and MPPEH); excavation of radiological anomalous areas containing discrete items or

dispersed radiological contamination; soil screening; MPPEH demilitarization; backfilling of excavated areas; and restoration of the site. MPPEH was removed only from the firing-range berm and debris pit excavations. Fieldwork began in February 2007 and was completed after the IR Sites 1, 2 and 32 post-characterization surveys were finalized in July 2008. Items and soils contaminated with radium-226 (Ra-226) were identified and removed from IR Sites 1, 2, and 32. Specifically at Site 1, 105 discrete radiological items were removed and disposed of off-site. Additionally, 790 cubic yards of radiologically contaminated soil was removed and disposed of off-site (Tetra Tech EC, Inc 2009). Background Reference Area Table 3-1 from the Tetra Tech EC, Inc 2009 Final Post-Construction Report indicates sodium iodide ambient gamma of 5,292 cpm. The TCRA removal action did not remove all radiological contamination from Site 1. The TCRA identified and removed radiological anomalies, but soil displaying elevated gamma readings remains at the bottom of select excavations. Current field conditions indicate that Ra-226 contamination is still present throughout the IR sites (Tetra Tech EC, Inc. 2009).

Figure 5-4 presents cumulative (from the 2004, 2006, and 2009 radiological surveys) ground surface survey for gamma-emitting radionuclides that was conducted after completion of the TCRA. Figure 5-4 shows that radioactive material has not been relocated or additional contamination introduced into the areas used to perform the removal actions and represents the current radiological conditions at Site 1 (Tetra Tech EC, Inc 2009).

5.3.2 Nature and Extent of Contamination in Groundwater

Chemicals identified in groundwater at Site 1 included metals, VOCs, SVOCs, pesticides, and TPH. Site 1 has been divided into the following three areas for the purpose of focusing the groundwater discussions:

- FWBZ outside the VOC plume area (Figure 5-2)
- SWBZ area (Figure 5-2)
- VOC plume area, in the central western portion of Site 1 (Figure 5-3)

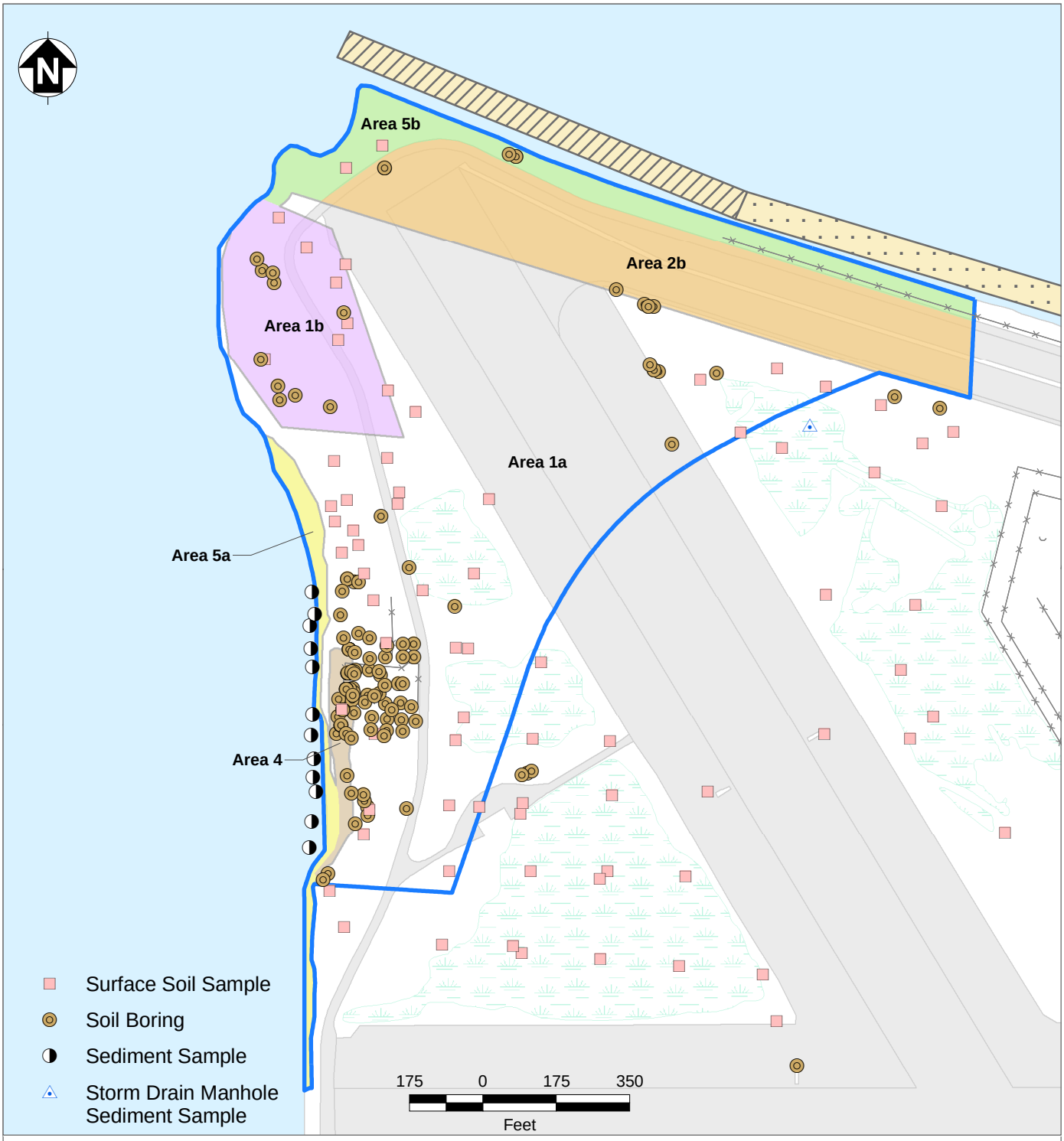
A complete set of analytical results for Site 1 from all previous investigations can be found in Appendix E of the Final Site 1 FS Report (BEI 2006). Appendix E of the FS Report includes the results of historical groundwater studies, the three groundwater studies that were conducted between 1991 and 1998 and reported in the Final OU-3 RI Report (Tetra Tech 1999c), data gaps sampling event in 2000 (Tetra Tech 2001), and historic groundwater monitoring as part of the basewide groundwater monitoring program (ITSI 2005). The Annual Groundwater Monitoring Report for 2008 (ITSI 2009) contains a summary of monitoring data from 2002 through 2008, including graphs depicting concentration change over time.

The extent of the VOC plume in the central western part of Site 1 is approximately 350 feet wide by 600 feet long (Figure 5-3). The VOCs with the highest detected concentrations in the plume area are benzene, 1,1-dichlorethene, toluene, and vinyl chloride, as well as ethene, a product of biodegradation of chlorinated VOCs. Tetrachloroethene (PCE) and trichloroethene (TCE) also were detected, but at relatively lower concentrations. A pilot-scale demonstration using a funnel and gate and permeable reactive barrier was completed in 1999. Review of historical site data indicated that the pilot-scale project was successful (Table 2-1) and suggested that the source of VOC contamination was relatively shallow and indicated that natural attenuation of chlorinated VOCs has occurred and continues to occur. In addition to VOCs, groundwater investigations have identified metals, SVOCs, pesticides, and TPH in the plume area. The VOC plume monitoring wells include MW028A, MW028C, MW028E, MW033A, MW034A, and MW035A.

Chemicals detected in groundwater in the FWBZ outside the VOC plume area included metals, chlorinated VOCs, SVOCs, pesticides, and TPH. Generally, concentrations of organic chemicals found outside of the plume area were lower than concentrations found inside of the plume area, while metals concentrations were similar or sometimes higher. The metals exceed California Toxics Rule (CTR) standards for surface water within the waste disposal area, but not at the shoreline. These exceedances occurred over a decade ago during the initial round of groundwater sampling. Recent groundwater data from 2006 and 2008 indicate that although metals sporadically exceed these criteria, there is no indication of a plume or that they were released from the former waste disposal area (ITSI 2006 and 2009). Chemicals detected in groundwater in the SWBZ included low concentrations of metals and isolated detections of VOCs and SVOCs. These data do not suggest the presence of a chemical plume in the SWBZ.

According to EPA (1993c), identifying whether dense nonaqueous-phase liquid (DNAPL) is present or suspected at a site is critical for remedy design and evaluation of the restoration potential of a site. EPA acknowledges that identification of DNAPL may be difficult if not directly observed and may require the presence of DNAPL be inferred from geologic information and/or from interpretation of the aqueous concentration of chemicals derived from DNAPL sources (EPA 1993c). Aqueous concentrations greater than 1 percent of a compound's solubility are generally regarded as reflecting an area where DNAPL is possible, and aqueous concentrations greater than 10 percent of a compound's solubility are generally regarded as reflecting an area where DNAPL is suspected (Jackson and others 2001; EPA 1993c). The maximum concentrations for TCE, 1,1-dichloroethene (DCE), and vinyl chloride are below the EPA aqueous concentrations that are indicative of possible DNAPL for a single compound and direct observation of DNAPL was not noted at IR Site 1.

FIGURES



Fence Line
IR Site 1 Boundary
Rebuilt Training Wall
Intact Training Wall
Road or Airfield Surface
Water

Soil Area 1a
Soil Area 1b
Soil Area 2b
Soil Area 4
Soil Area 5a
Soil Area 5b

Note:
IR Installation Restoration

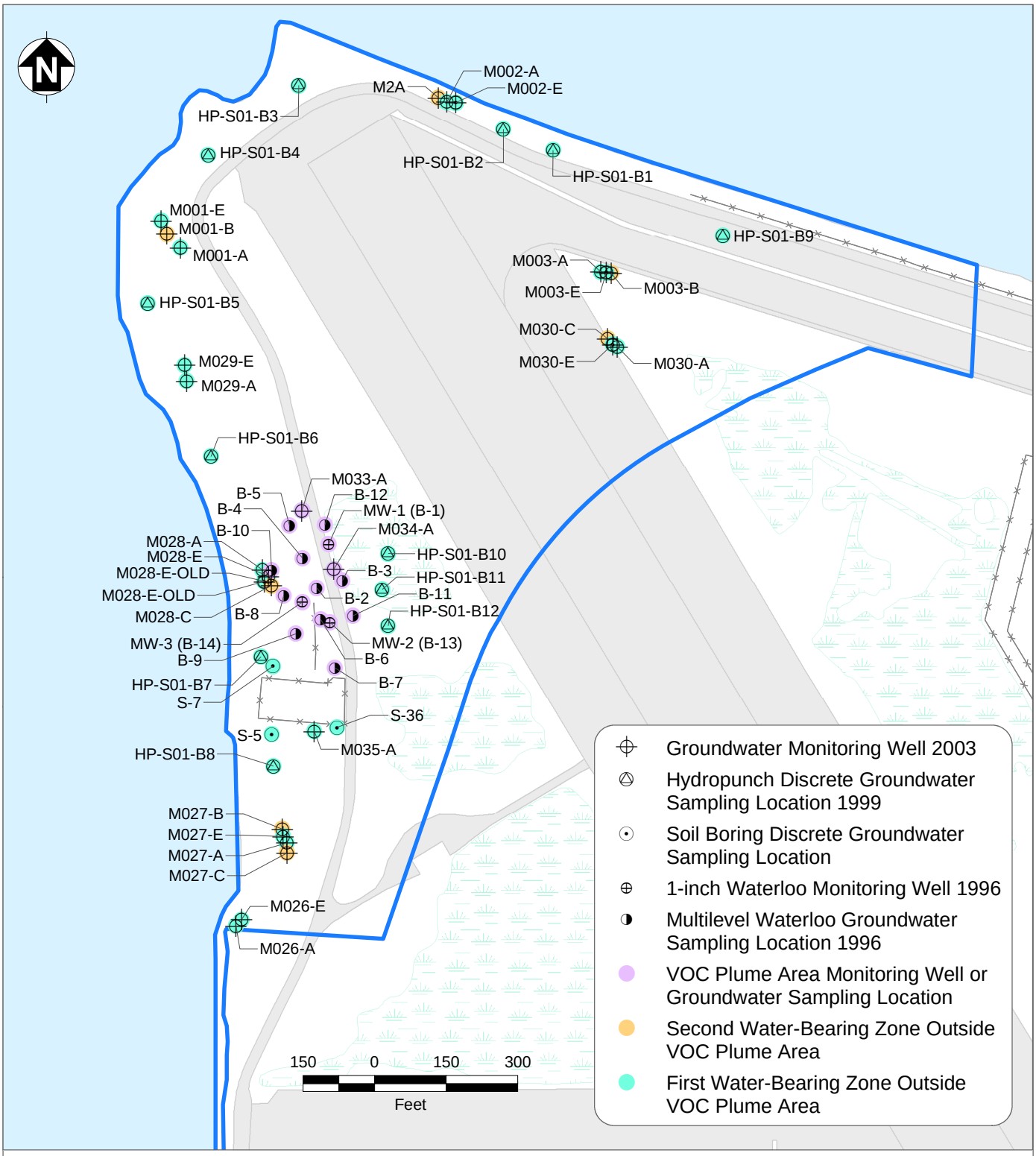
ChaduxTt JV
Consulting Engineers and Scientists

Alameda Point, Alameda, California
U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE 5-1
SOIL AREAS AND SOIL SAMPLING LOCATIONS

Record of Decision for Installation Restoration Site 1
1943-1956 Disposal Area

2009-05-20 v:\alameda\projects\031_site_1_rod\figure_5-1_soil.mxd TtEMI-AL simon.cardinale



Notes:
IR Installation Restoration
VOC Volatile Organic Compound

Source: Bechtel 2007

ChaduxTt JV
Consulting Engineers and Scientists

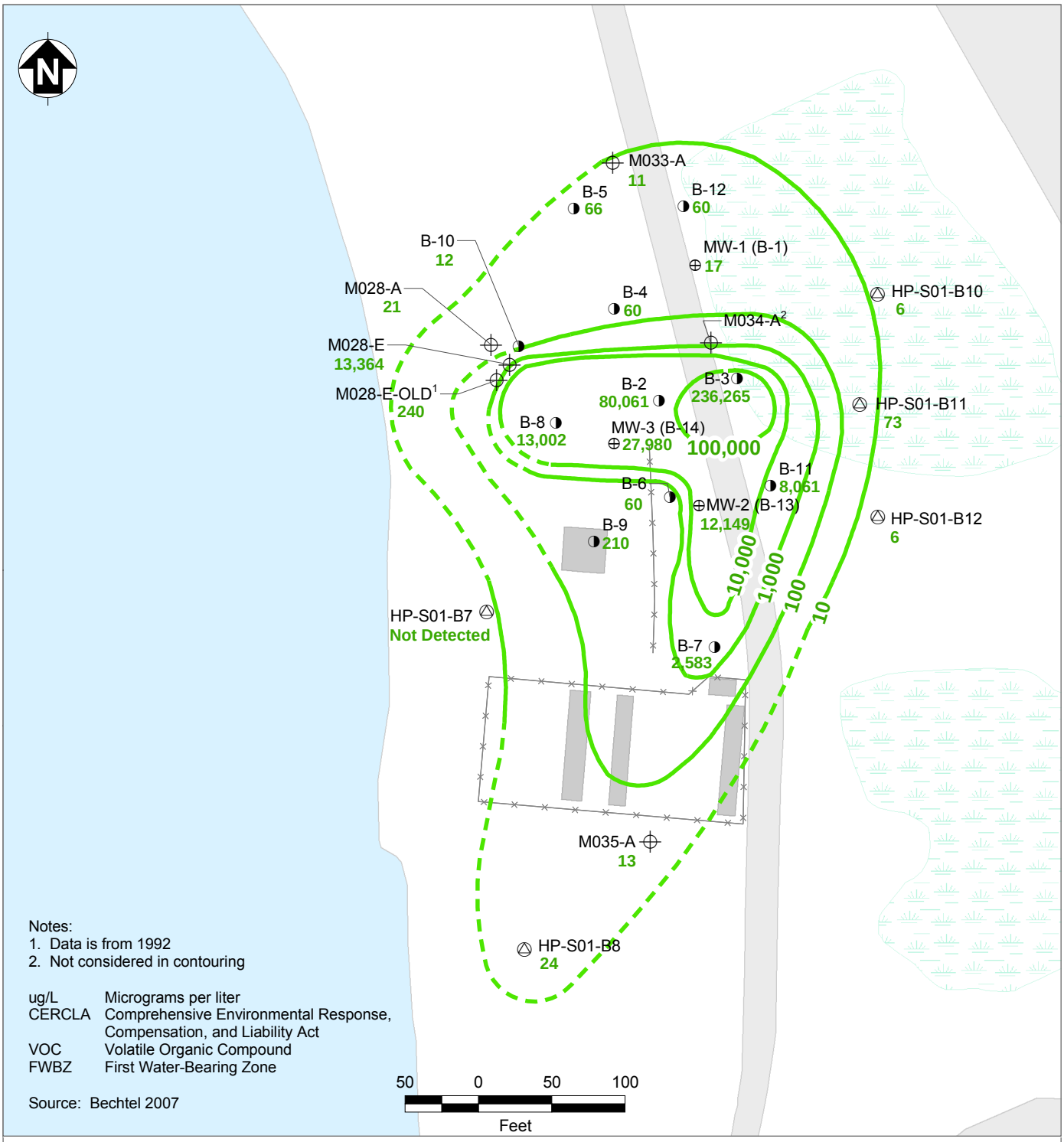
Alameda Point, Alameda, California
U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE 5-2

MONITORING WELL LOCATIONS AND GROUNDWATER AREAS

Record of Decision for Installation Restoration Site 1
1943-1956 Disposal Area

2009-05-20 v:\alameda\projects\031_site_1_rod\figure_5-2_groundwater_sampling.mxd TtEMI-AL simon.cardinale



Notes:
1. Data is from 1992
2. Not considered in contouring

ug/L	Micrograms per liter
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
VOC	Volatile Organic Compound
FWBZ	First Water-Bearing Zone

Source: Bechtel 2007

- Groundwater Monitoring Well 2003
- Hydropunch Discrete Groundwater Sampling Location 1999
- 1-inch Waterloo Monitoring Well 1996
- Multilevel Waterloo Groundwater Sampling Location 1996
- Fence Line
- VOC Groundwater Concentration Contour in µg/L (dashed where inferred)
- Road or Airfield Surface
- Building
- Wetland
- Water

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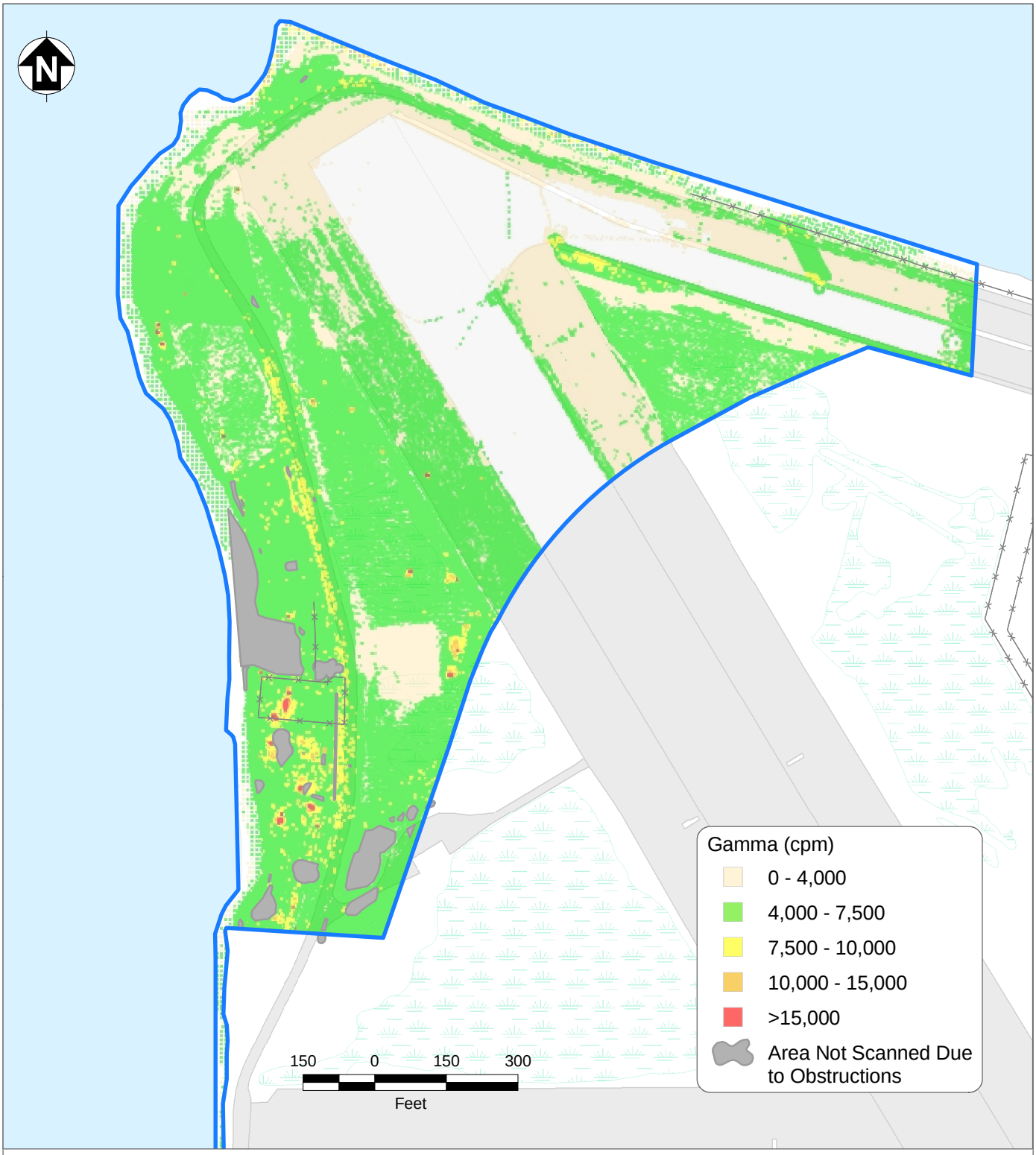
FIGURE 5-3
INTERPRETED EXTENT OF TOTAL CHLORINATED VOCS IN FWBZ GROUNDWATER

Record of Decision for Installation Restoration Site 1
1943-1956 Disposal Area



Fence Line
IR Site 1 Boundary
Road or Airfield Surface
Water
Wetland

Notes:
cpm Counts per minute
IR Installation Restoration

Source: Tetra Tech EC 2009

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FIGURE 5-4

CUMULATIVE GAMMA SCAN

Record of Decision for Installation Restoration Site 1
1943-1956 Disposal Area

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6.0 CURRENT AND POTENTIAL FUTURE SITE AND RESOURCE USES

This section discusses (1) current and reasonably anticipated future land uses and (2) current and potential groundwater and surface water uses at Site 1. This information was incorporated into the development of exposure scenarios for the HHRA. According to the City of Alameda, Alameda Point General Plan, as amended May 7, 2003, the proposed land use throughout IR Site 1 is recreational (City of Alameda 2003). This land use is shown in the Alameda Point PDC dated February 1, 2006. Therefore, the future land use for IR Site 1 addressed in this ROD is recreational.

6.1 LAND USES

Currently, Site 1 is owned by the federal government and under the jurisdiction of the Navy. Much of the site is covered by paved runway surfaces, and the remaining area is primarily covered by nonnative annual grassland, with some seasonal wetlands that occur during rainy winter periods. Site 1 is currently fenced and not in use. According to the City of Alameda, Alameda Point General Plan, as amended May 7, 2003, the proposed land use throughout IR Site 1 is recreational (City of Alameda 2003). This land use is shown in the Alameda Point Preliminary Development Plan (PDC) dated February 1, 2006. Therefore, the future land use for IR Site 1 addressed in this ROD is recreational.

EPA has issued guidance entitled "Reusing Cleaned Up Superfund Sites: Golf Facilities Where Waste is Left on Site" that endorses future use of landfills as golf courses (EPA 2003). Also located adjacent to Site 1 is the Alameda Training Wall, a rubble masonry jetty built by the United States Army Corp of Engineers between 1874 and 1896. The Navy has determined that a portion of this jetty meets the criteria for listing in the National Register of Historic Places (California Department of Parks and Recreation 1996; Navy 1999b; ARRA 2005).

For Site 1, the proposed future land use is recreational. The reuse parcel number for Site 1 is Economic Development Conveyance (EDC) reuse parcel number EDC-13 (City of Alameda 2002).

6.2 GROUNDWATER USES

As described in Section 5.2, groundwater beneath the western portion of Alameda Point (including Site 1) is not currently used for drinking water, irrigation, or industrial supply and meets SWRCB exemption criteria to dedesignate the aquifer beneath portions of Alameda Point as having potential beneficial uses as a municipal supply (Water Board 2003). Drinking water is supplied to Alameda Point by the East Bay Municipal Utilities District. In addition, EPA stated that based on the shallow depth of the aquifer in this area, the likelihood of saltwater intrusion (based on groundwater flow directions) if any significant pumping takes place, and the fact that no wells currently exist within or close to this area, it seems unlikely that groundwater in this area will be a potential source of drinking water in the future. As a result, EPA concurs with the cleanup level for Site 1 such that the threats posed by such exposures as inhalation, dermal

contact, and those associated with irrigation use are eliminated, and any significant ongoing degradation of the groundwater from contamination is prevented (EPA 2000).

As specified in the Basin Plan, groundwater beneath the western portion of Alameda Point may have potential use for freshwater replenishment; that is, use of water for natural or artificial maintenance of surface water quantity or quality. At Site 1, groundwater remedial action objectives (RAO) and remediation goals are protective of the freshwater replenishment beneficial use by reducing concentrations of identified chemicals that pose risk to human health and the environment to below remediation goals for people who fish (ingesting the organism only) and aquatic life.

6.3 SURFACE WATER USES

Site 1 does not have any naturally occurring surface streams or ponds; however, several seasonal wetlands occur at the site during seasonal rain events. The Oakland Inner Harbor borders the site to the north, and the San Francisco Bay borders the site to the west.

7.0 SUMMARY OF SITE RISKS

A baseline HHRA was conducted for Site 1 as part of the RI Report using data collected during investigations from 1990 to 1997 (Tetra Tech 1999c). A screening-level ecological risk assessment (SLERA) was also conducted to evaluate potential risk to aquatic ecological receptors (Tetra Tech 1999c). In response to regulatory agency comments, three addendums to the RI Report were prepared. The first addendum summarized the results from requested data gaps sampling (Tetra Tech 2001); the second addendum presented the total risks to human health from chemical and radiological exposures, which were originally reported in the OU-3 RI Report (Tetra Tech 2002); and the third addendum presented the results of the geotechnical and seismic evaluations of Site 1 to identify associated hazards for the FS Report (Foster Wheeler 2002). To support the FS Report, additional risk calculations using data collected in 2005 were performed to update the HHRA and a Tier 1 SLERA was conducted to evaluate potential risk to terrestrial ecological receptors (BEI 2006).

A conceptual site model (see Figure 7-1) was presented in the OU-3 RI Report and used to support the risk assessments by identifying the potential receptors and exposure pathways associated with each of the sources of chemicals at Site 1. A waste disposal area, burn waste area, former pistol and skeet range (including clay pigeons), and radium-contaminated material in an unlined trench were identified and evaluated in the HHRA (Tetra Tech 1999c). Based on data quality objectives, the pistol and skeet range area was not included in the baseline HHRA.

The future occupational worker and recreational user were evaluated as exposure pathways in the risk assessment. Residential and construction worker exposures were not considered compatible with remedy and closure of the former disposal area. A detailed description of the approach and results of the Site 1 HHRA is presented in the Final OU-3 RI Report (Tetra Tech 1999c), with updated calculations presented in the Final OU-3 RI Report Addendum, Volume II (Tetra Tech 2002) and Final Site 1 FS Report (BEI 2006). 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. They provide the basis for taking action and identify the chemicals of concern (COC) and exposure pathways that need to be addressed by the remedial action.

Results of the HHRAs and SLERAs conducted for Site 1 are summarized below.

7.1 HUMAN HEALTH RISK ASSESSMENTS

The 1999 HHRA conducted for Site 1 evaluated exposure scenarios based on possible future land uses, assessed toxicity, and characterized cancer and noncancer health risks based on conservative assumptions (Tetra Tech 1999c). COPCs in soil and groundwater were identified, and calculated risks were compared with federally established risk ranges. Details of the HHRA methodology can be found in the OU-3 RI Report (Tetra Tech 1999c). Following publication of the 1999 RI Report, additional samples were collected and analyzed to respond to data gaps identified during the RI. Results of samples collected during the 1999 and 2000 data gaps sampling event were presented in the RI Addendum, Volume I (Tetra Tech 2001). RI Addendum, Volume II, incorporated the results for the data gaps samples with higher chemical concentrations than those originally used in

the baseline HHRA and combined chemical and radiological results to provide an estimate of total human health risks at Site 1 (Tetra Tech 2002).

The baseline and updated HHRA approaches and results are discussed below.

7.1.1 Identification of Chemicals of Concern

The methodology used to identify COCs and evaluate risk in the baseline HHRA was consistent with the following guidance:

- "Risk Assessment Guidance for Superfund [RAGS], Volume I: Human Health Evaluation Manual, Part A" (EPA 1989) and "Part B" (EPA 1991a)
- *Exposure Factors Handbook* (EPA 1997a)
- "Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors" (EPA 1991b)
- "Superfund's Standard Default Exposure Factors for Central Tendency and Reasonable Maximum Exposure" (EPA 1993b)
- Region 9 1998 PRGs (EPA 1998a)
- "Dermal Exposure Assessment: Principles and Applications" (EPA 1992a)
- "Supplemental Guidance for Human Health Multimedia Risk Assessments of Hazardous Waste Sites and Permitted Facilities" (DTSC 1992b)

EPA Region 9, DTSC, and Water Board policy positions that differed from the federal guidance were also used. In addition to the HHRA, a radiation dose assessment was conducted using Residual Radiation (RESRAD), a computer program, to calculate dose from exposure to radium (U.S. Department of Energy 1990).

The identification of COPCs included a data summary that involved the compilation of the arithmetic mean and 95 percent upper confidence limit (95UCL) of the arithmetic mean concentrations for every chemical detected at least once in soil. The probability density function was determined for each chemical from detected values only. If the chemical was detected fewer than five times, a probability density function could not be determined and a normal distribution was assumed. Following the data summary, screening criteria were applied, including determining whether the COPC was an essential nutrient (such as calcium, magnesium, potassium, and sodium), frequency of detection was calculated, and a background comparison was made. Any chemical with a detection frequency of 5 percent or less was compared with one-tenth of its EPA Region 9 PRG to determine risk before excluding it as a COPC. The background comparison used a "hot spot" comparison, as well as parametric and nonparametric tests for inorganic chemicals based on guidance from DTSC (1997). In accordance with guidance from EPA (1992b), the 95UCL of the arithmetic mean was calculated and used as the

exposure point concentration (EPC) in the HHRA to estimate chemical intakes for soil exposures. All chemicals detected in at least one sample, except for the essential human nutrients, were identified as COPCs.

During preparation of the cumulative HHRA at the request of EPA, additional data were evaluated and new groundwater results were incorporated into the risk assessment. As a result, the occupational exposure pathway for inhalation of volatiles from irrigation was 1.3×10^{-7} in 1999, but was recalculated as 3.2×10^{-7} in the 2002 HHRA (Tetra Tech 1999c and 2002). Likewise, the occupational and recreational exposure pathways for inhalation of volatiles from the FWBZ in outdoor air was less than 1×10^{-6} in 1999, but was revised to 4.0×10^{-5} in 2002 (Tetra Tech 1999c and 2002). The RI Addendum, Volume II, only incorporated new data for groundwater chemicals with higher detected concentrations than those historically detected, and did not incorporate soil gas and flux chambers samples from the 1999 HHRA (Tetra Tech 2002). Therefore, exposure scenarios between the baseline (1999) and cumulative (2002) HHRA differed. EPA guidance suggested a cumulative risk number be compiled for the site (EPA 1997a). A statistical comparison with background was conducted for metals as part of the COC identification process (Tetra Tech 2002).

Laboratory results for samples collected at Site 1 between 1990 through 1997 from within and near the site were included in the Final OU-3 RI Report (Tetra Tech 1999c). Soil data for 0 to 2 feet bgs, which is representative of surface soil, were evaluated for occupational workers and recreational users. Exposure to subsurface soil was not considered a complete pathway because the future anticipated reuse of Site 1 is recreational. The exposure pathway for the residential user is not considered complete because residential reuse is not compatible with the former waste disposal area. The groundwater pathway for ingestion or domestic uses was not considered complete because groundwater is not suitable for use as a source of drinking water. Complete groundwater exposure pathways included inhalation of VOCs that migrate to outdoor air from groundwater in the FWBZ and irrigation (Tetra Tech 1999c).

The FS Report (BEI 2006) identified the COCs for affected media based on the COPCs identified in the baseline HHRA (Tetra Tech 1999c) and the cumulative HHRA (Tetra Tech 2002). Table 7-1 presents the COCs. COCs in soils were selected based on whether risk exceeded 1×10^{-6}. Groundwater results from sampling in 2002 through 2004 were compared with potential applicable or relevant and appropriate requirements (ARAR) in the FS to identify groundwater COCs (BEI 2006).

Although the HRA identified a number of ROCs that could possibly be present within the waste material at Site 1, only two have been consistently detected (radium-226 and strontium-90). Of those, only radium-226 is considered a COC based on risk exceeding 1×10^{-6}. Radium-226 is included as a COC on Table 7-1.

7.1.2 Exposure Assessment

As recommended by EPA, the 95UCL of the arithmetic mean was used to represent the potential EPC for soil exposures. In areas where the 95UCL exceeded the maximum detected concentration,

the maximum detected concentration was used as the EPC. The detailed approach for calculating the EPC is presented in the OU-3 RI Report (Tetra Tech 1999c). Groundwater EPCs were calculated by comparing risk-based screening levels with maximum detected groundwater concentrations. Lead at the site was assessed using DTSC's LeadSpread Model for residential exposure, although residential redevelopment is not anticipated. However, lead concentrations detected in soils during the pistol range investigation were not used in the risk assessment because the lead data did not meet the data quality objectives for the HHRA and all remedial alternatives in the FS Report included removal of the berm (BEI 2006).

A dose assessment was conducted for Ra-226 (Tetra Tech 1999c). The dose assessment was conducted in accordance with RAGS (EPA 1989) and using "Federal Guidance Report 11: Limiting Values of Radionuclide Intake and Air Concentration and Dose Conversion Factors for Inhalation, Submersion and Ingestion" (EPA 1988). The program RESRAD was used to calculate the dose from exposure to radium (U.S. Department of Energy 1990). The results of the dose assessment were described in millirems per year (mrem/yr). Results were compared with EPA's acceptable level of 15 mrem/yr effective dose equivalent (EPA 1997b).

The FS (BEI 2006) also prepared an evaluation to quantify the potential magnitude of exposures by a human receptor to external radiation at Site 1. Four exposure scenarios were evaluated assuming that the FS alternative(s) could eliminate certain exposure pathways (ingestion, dermal contact, and/or inhalation of particulates from radium-impacted waste and associated impacted soil). The first scenario provides an estimate of site wide exposure assuming no removal of radium-impacted waste. The second scenario provides an estimate of site wide exposure assuming partial removal consistent with Alternative S6-4 described in the FS Report. The third scenario evaluates potential direct exposure from an uncovered surface point source. The fourth scenario assesses the reduction in radiological exposure with a 2-foot or 4-foot soil cover.

Exposure scenario 1 analysis indicates that the overall exposure to external radiation would be less than for the background reference area for a receptor that randomly traverses the site. For exposure scenario 2 the duration-adjusted dose for this scenario is 13.7 mrem/yr (gross, including background), which is approximately a 1 percent reduction from the calculated dose for exposure scenario 1. This calculation does not take into account the shielding that would be provided by the soil cover or engineered alternative cap, or the reduction in site acreage containing radiological anomalies. For exposure scenario 3 the calculated dose rate for this scenario is 0.0793 mrem/hr. This dose rate suggests that hypothetical future recreational users or groundskeepers who experience short-term incidental exposure to a group of five closely spaced point sources on the ground surface would receive a dose lower than the RAO of 15 mrem/yr. For exposure scenario 4 the risk associated with calculated duration-adjusted dose rates for the 2-foot and 4-foot soil cover is within or below the National Contingency Plan's risk management range of 10^{-6} to 10^{-4}. This calculation assumes that the receptor is directly over the central deck marker (covered with a soil cover) 8 hours per day for 250 days per year for 30 years. Comparison of these maximum dose and cancer rates suggests that a properly maintained 2-foot soil cover is adequate for the shielding of radium-impacted waste at Site 1 (BEI 2006).

Based on results of the cumulative chemical and radiological risks presented in the 2002 HHRA, and in preparation for the FS, additional data collected between 2002 and 2004 were assessed for

risk using recreational risk-based screening levels for soil. These screening levels were calculated for risk drivers identified in the 2002 HHRA using the exposure assumptions from the previous HHRA and toxicity factors from the 2004 EPA Region 9 PRGs (EPA 2004) and DTSC (Office of Environmental Health Hazard Assessment [OEHHA] 1994). The cancer risk in outdoor air calculation also was modified (BEI 2006).

Future reuse is recreational, however when the HHRA was prepared future resuse plans included industrial and recreational uses; therefore, occupational and recreational exposure scenarios were evaluated. The majority of Site 1 is considered public trust land. Public trust land is defined as ungranted tidelands and submerged lands owned by the state and the beds of navigable rivers, streams, bay, estuaries, and inlets within its boundaries and is under the jurisdiction of the California State Lands Commission, California Public Resources Code § 6301. Public trust land is subject to the use restrictions identified in the State Tideland Trust and can be used only for activities related to commerce, fisheries, navigation, ecological preservation, and recreation. Public trust land cannot be used for residential purposes. The Navy did not consider residential exposures complete because the majority of the land will be public trust land and a residential use scenarios is improbable at the former waste disposal area. Construction worker exposures were also not considered complete because they are improbable at a former waste disposal area and the future reuse of the site is recreational. DTSC generally requires that a residential scenario be evaluated; however, future land uses at Site 1 are known to be nonresidential, and zoning will prohibit housing development at the former waste disposal area. Therefore, only occupational and recreational exposures were evaluated for Site 1 (see Table 7-2). The occupational and recreational risk by pathway is presented in Table 7-3. The exposure assumptions for each of these scenarios are summarized below.

7.1.2.1 Occupational Scenario

If a site is redeveloped for commercial business, the individual most likely exposed would be owners and employees of the businesses. Under the occupational scenario, COCs in the upper 2 feet of soil are considered to be available. Potential exposure pathways included incidental soil ingestion, dermal contact with soil, inhalation of soil particulates in outdoor air, and inhalation of vapors from groundwater in outdoor air, and external exposure to radionuclides. The occupational receptor is assumed to use the site for 25 years, with 250 days per year (Tetra Tech 1999c).

7.1.2.2 Recreational Scenario

If a site is redeveloped for recreational uses, such as parks or golf courses, the individuals exposed would be those using the facilities. Under the recreational scenario, COCs in the upper 2 feet of soil are considered to be available. Potential exposure pathways included incidental soil ingestion, dermal contact with soil, inhalation particulates from soil in outdoor air, inhalation of vapors from groundwater in outdoor air, and external exposure to radionuclides. The recreational receptor is assumed to use the site for 30 years, 2.5 hours per day, 242 days per year (Tetra Tech 1999c).

7.1.3 Toxicity Assessment

The toxicity assessment focused on the toxicity of COCs. Qualitative and quantitative toxicity values and EPA- and DTSC-derived toxicity values were gathered for all Site 1 COCs (Tetra Tech 1999c). Detailed toxicity profiles were prepared for each COC. Sources of the toxicity values include Integrated Risk Information System (EPA 1998c), Health Effects Assessment Summary Tables (EPA 1995), the DTSC's OEHHA (1994), and the EPA's Superfund Health Risk Technical Support Center (EPA 1998b). All available information collected from these sources was used in the risk assessment.

Toxicity equivalency factors for dioxins and PAHs obtained from EPA and DTSC were used to adjust toxicity for these chemicals relative to 2,3,7,8-tetrachlorodibenzodioxin and benzo(a)pyrene. Radionuclide toxicity was assessed differently from nonradiological chemicals.

7.1.4 Risk Characterization

The final step in the HHRA is the characterization of the potential risks associated with exposure to detected chemicals. Risk characterization combines the exposure and toxicity assessments to produce quantitative estimates of risk from COCs. Chemicals might present cancer risks and noncancer health effects; therefore, the potential for both types of effects was evaluated. Cancer risks and noncancer health hazards are characterized separately, as described below and in Table 7-4.

Excess lifetime cancer risks are probabilities generally expressed in scientific notation (for example, 1×10^{-6} or 1E-6). An excess lifetime cancer risk of 1×10^{-6} indicates that, as a plausible upper bound, an individual has a one in a million probability of developing cancer as a result of site-related exposure to a carcinogen over a 70-year lifetime under the specific exposure conditions at a site. The exposure conditions that are reasonably expected to occur at the site, as defined by EPA, are termed the reasonable maximum exposure (EPA 1989). To assist with the characterization of cancer risks, a federally established risk management range was developed to protect human health and help risk managers determine if site risks are significant enough to warrant cleanup. Guidelines for managing cancer risks are promulgated in the NCP at Title 40 CFR § 300.430[e][2][i][A][2]. According to these regulations, when an excess cancer risk is above 10^{-4}, action is generally warranted, and when excess cancer risks are within the risk management range from 10^{-6} to 10^{-4}, site-specific factors are considered when making decisions about whether action is required.

Results of the baseline 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 Site 1 was 2.6×10^{-5}, and the noncancer hazard index (HI) was less than 1 (Tetra Tech 1999c). Most of the risk under the occupational scenario was from PAHs, PCBs, and chromium (hexavalent). The soil ingestion exposure pathway posed the most risk to the occupational user. The calculated risks presented in the 2002 cumulative HHRA remained within the risk management range (Tetra Tech 2002). The cancer risk for an occupational worker exposed to groundwater at Site 1 was 4.0×10^{-5} and the noncancer hazard was less

than 1. The cancer risk for an occupational worker exposed to radiological contaminants at Site 1 was 3.6×10^{-5}. The cancer risk for an occupational worker exposed to both soil and groundwater was 1.0×10^{-4} and the noncancer hazard was less than 1 (see Table 7-4). Groundwater exposure posed the most risk to the occupational user. The evaluation of chromium assumed that all chromium was hexavalent, although this is not necessarily true, and the inhalation risks were likely overestimated (Tetra Tech 2002).

The cancer risk calculated in the baseline HHRA for a recreational user exposed to soil at Site 1 was 4.4×10^{-5}, and the noncancer HI was less than 1. Most of the risk in the recreational scenario was from PAHs, PCBs and chromium. The soil ingestion exposure pathway posed the most risk to the recreational user (Tetra Tech 1999c). The cancer risk for a recreational user exposed to groundwater at Site 1 was 4.0×10^{-5} and the noncancer hazard was less than 1. The cancer risk for a recreational user exposed to radiological contaminants at Site 1 was 2.0×10^{-5}. The cancer risk calculated in the baseline HHRA for a recreational user exposed to both soil and groundwater at Site 1 was 1×10^{-4}, and the noncancer HI was less than 1 (see Table 7-4). Most of the risk under the recreational scenario is from PAHs, PCBs and chromium. The soil ingestion exposure pathway posed the most risk to the recreational user (Tetra Tech 2002).

It is important to note that the noncancer HI is estimated differently than lifetime cancer risk. Noncancer effects manifest over a specific time period, and once the exposure period is over, the hazard has also passed (that is, no latency is assumed). An HI of 1 or less is set by EPA as protective of noncancer health hazards.

Results of lead assessments for the occupational scenarios indicated the range of detected concentrations and EPCs were acceptable when compared with the EPA residential screening concentration and the occupational screening level. No lead screening level is available for recreational exposures.

Results of the dose assessment for radionuclides indicated that the estimated occupation and recreation doses for Ra-226 were below the EPA residential limit of 15 mrem/yr for exposure to surface soil (Tetra Tech 1999c).

Section 7.1.4.1 discusses how contaminants that drive the risk at the site were determined, and Section 7.1.4.2 discusses incremental risk and risk due to background concentrations of metals.

7.1.4.1 Chemicals of Concern

Cancer and noncancer COCs were identified for Site 1. A COC is defined as a COPC that is not attributed to background and has total excess lifetime cancer risk that exceeds 1×10^{-6} or an HI greater than 1.

The following chemicals were evaluated under the soil and groundwater scenarios:

- Metals, PAHs, pesticides, PCBs, and Ra-226 were identified as COCs in soil.

- Vinyl chloride, benzene, 1,2-DCE, and TCE were identified as indicator COCs for the groundwater irrigation scenario, based on their concentrations, mobility, and/or toxicity. Modeling results based on indicator COCs were applied to generate the appropriate exposure concentrations.

- Benzene, chlorobenzene, chloroform, 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, 1,1-DCE, 1,2-DCE, toluene, 2-methylphenol, TCE, vinyl chloride, and xylene were identified as potential contributors under the scenario of volatile chemicals migrating to air from shallow groundwater. The maximum detected concentration in groundwater for each chemical was applied to generate the appropriate exposure concentrations.

7.1.4.2 Incremental Risk

Metals are natural components of the earth's crust. Some metals are carcinogenic and some are systemic toxicants that have noncancer health effects, such as arsenic, which can pose both cancer and noncancer risks. Metals can present risks at naturally occurring (background) concentrations. Human-caused releases of a chemical to the environment, where metals already exist, do not create risk, but rather increases risk. This increased risk is called "incremental risk." The incremental risk for a site is estimated by subtracting the risk from background metals from the total site risk.

For Site 1, a background comparison of metals was conducted using hot spot analysis and analytical results for metals in samples representative of Site 1 (Tetra Tech 1999c). This comparison was used to determine which metals in soil and groundwater were detected at concentrations greater than what is estimated as background. The results of the comparisons for soil at Site 1 indicated that arsenic, cobalt, and titanium concentrations were below background concentrations across Alameda Point. As a result, these metals were eliminated as COCs.

7.2 ECOLOGICAL RISK ASSESSMENT

An ERA for potential aquatic receptors was conducted in 1999. The 1999 ERA did not evaluate risk to potential terrestrial receptors because complete exposure pathways for terrestrial ecological receptors were not identified based on an assumed landfill cover. As a result, a SLERA was conducted for Area 3 in 2006. The results of the 1999 ERA (Tetra Tech 1999c) and the SLERA are provided in Appendix C of the FS Report for Site 1 (BEI 2006) are briefly summarized below in Sections 7.2.1 and 7.2.2. Complete discussions of these documents can be found in the Final OU-3 RI Report (Tetra Tech 1999c) and the Final FS Report for Site 1 (BEI 2006).

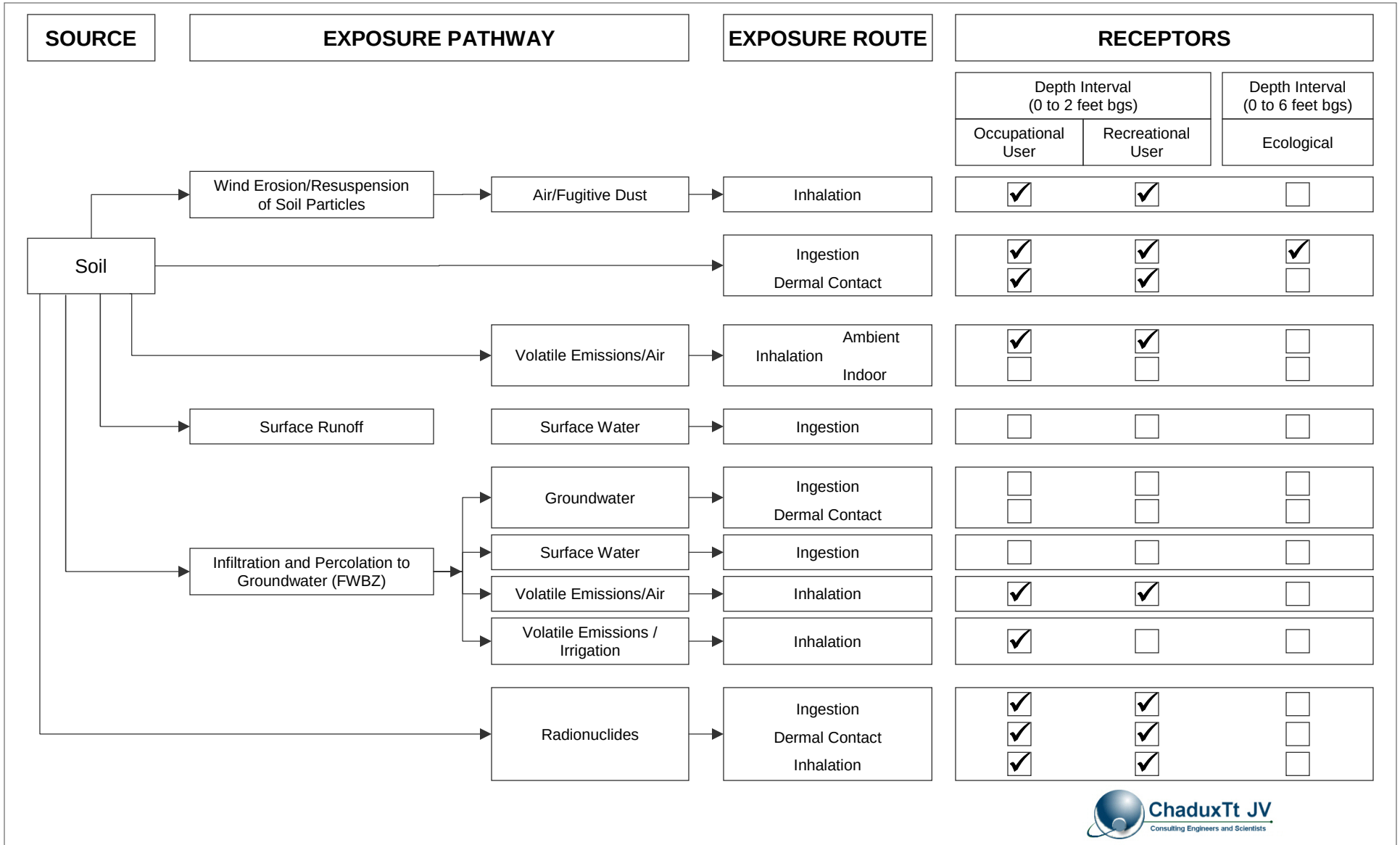
7.2.1 1999 Ecological Risk Assessment

An ERA was conducted to evaluate potential risk to aquatic ecological receptors from chemicals in shallow groundwater that could migrate to San Francisco Bay. Chemicals of potential ecological concern (COPEC) were determined based on comparisons with essential nutrients, background concentrations, and ambient water quality criteria. Details of the methods followed to prepare the ERA are provided in the Final OU-3 RI Report (Tetra Tech 1999c). Site 1 was divided into the following two areas for the ERA: Area A, the area outside the groundwater VOC plume, and Area B, the groundwater VOC plume. Results of the ERA indicated no ecological risks were posed to aquatic organisms outside the groundwater VOC plume. The following chemicals of ecological concern (COEC) were identified from groundwater within the VOC plume close to the shoreline: 2,4-dimethylphenol; 2-methylphenol; 1,2-DCE; toluene; and xylene (Tetra Tech 2001; BEI 2006).

7.2.2 2006 Screening-Level Ecological Risk Assessment

A SLERA was conducted for Area 3 to determine if complete exposure pathways existed for soil and groundwater and to estimate risk from chemicals for the complete exposure pathways (BEI 2006). Area 3 is no longer part of Site 1 and a remedy for Area 3 is not being selected in this ROD. Therefore, specific findings of the SLERA are not presented in this ROD.

FIGURES



Notes:
bgs Below ground surface
FWBZ First water-bearing zone

☑ Complete exposure pathway

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U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE 7-1
CONCEPTUAL SITE MODEL

Record of Decision for Installation Restoration Site 1
1943-1956 Disposal Area

TABLES

TABLE 7-1: SUMMARY OF CHEMICALS OF CONCERN EVALUATED IN THE UPDATED 2004 HUMAN HEALTH RISK ASSESSMENT AND MEDIA (TABLE 7-1 WAS PUBLISHED WITHIN THE 2006 FEASIBILITY STUDY AS TABLE 3-1 [BEI 2006])

Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area
Alameda Point, Alameda, California

Chemical of Concern	Medium			
	Soil	Groundwater (VOC Plume Area)	Groundwater (FWBZ Outside VOC Plume Area)	Groundwater (SWBZ Area)
Metals				
Arsenic		✓		✓
Cadmium	✓			
Chromium (hexavalent)	✓			
Copper		✓	✓	✓
Lead	✓			
Mercury		✓	✓	✓
Nickel		✓	✓	✓
Silver		✓	✓	✓
Zinc		✓	✓	✓
Volatile Organic Compounds				
Benzene		✓		
1,1-Dichloroethene		✓		
Trichloroethene		✓		
Vinyl Chloride		✓		
Semivolatile Organic Compounds				
Bis(2-chloroethyl)ether			✓	
Bis(2-ethylhexyl)phthalate		✓	✓	✓
2,4-dimethylphenol		✓		
Polycyclic Aromatic Hydrocarbons				
Benzo(a)anthracene	✓			
Benzo(b)fluoranthene	✓			
Benzo(a)pyrene	✓			
Dibenzo(a,h)anthracene	✓			
Indeno(1,2,3-c,d)pyrene	✓			
Pesticides				
4,4'-DDD	✓			
4,4'-DDT	✓			
Polychlorinated Biphenyls				
Aroclor-1254	✓			
Aroclor-1260	✓			
Radionuclides				
Radium-226	✓			

Notes:

DDD Dichlorodiphenyldichloroethane
DDT Dichlorodiphenyltrichloroethane
FWBZ First water-bearing zone
SWBZ Shallow water-bearing zone
VOC Volatile organic compound

TABLE 7-2: FUTURE EXPOSURE SCENARIOS FOR THE HUMAN HEALTH RISK ASSESSMENT
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area
Alameda Point, Alameda, California

	Exposure Setting		Proposed Future Land Use
Site	**Occupational/Industrial**	**Recreation**	
1	**X**	**X**	Recreational, Open Space

TABLE 7-3: SUMMARY OF 1999 BASELINE HUMAN HEALTH RISK ASSESSMENT RESULTS
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area
Alameda Point, Alameda, California

Exposure Scenarios	Media	Cancer Risk	Noncancer Hazard Index
Occupational	Soil	2.6×10^{-5}	0.09
	Groundwater	4.0×10^{-5}	0.00012
	Radiological	3.6×10^{-5}	NA
Recreational	Soil	4.4×10^{-5}	0.1
	Groundwater	4.0×10^{-5}	<1
	Radiological	2.0×10^{-5}	NA

Note:

NA Not available

TABLE 7-4: SUMMARY OF SITE 1 OCCUPATIONAL AND RECREATIONAL RISK BY PATHWAY AS PRESENTED IN THE 2002 CUMULATIVE HUMAN HEALTH RISK ASSESSMENT

Record of Decision for Installation Restoration Site 1, the 1943-1956 Disposal Area, Alameda Point, Alameda, California

	Occupational			Recreational		
Media and Pathway	**Cancer Risk[1]**	**Noncancer HI[1]**	**Chemical Risk Drivers (Cancer)**	**Cancer Risk[1]**	**Noncancer HI[1]**	**Chemical Risk Drivers (Noncancer)**
Soil						
Ingestion of Soil	1.5×10^{-5}	0.045	Benz(a)anthracene, Benzo(b)fluoranthene, Benzo(a)pyrene, Dibenzo(a,h)anthracene, Aroclor-1254, Aroclor-1260, Chromium	2.4×10^{-5}	0.061	2
Dermal Contact	8.9×10^{-6}	0.013		1.9×10^{-5}	0.022	Aroclor-1254
Inhalation of Particulates	2.4×10^{-6}	0.029		1.3×10^{-6}	0.012	Aluminum, Antimony, Chromium, Manganese
Inhalation of Outdoor Air – from soil	NA	0.000055	2	NA	0.000025	2
Subtotal	*2.6×10^{-5}*	*0.09*		*4.4×10^{-5}*	*0.1*	
Groundwater						
Volatile Inhalation (outdoor air) Spray Irrigation	3.2×10^{-7}	0.00012	Benzene, Trichloroethene, Vinyl Chloride	NA	NA	1,2-Dichloroethene
Volatile Inhalation (outdoor air) Vapor-Phase Migration for the First Water-Bearing Zone	4.0×10^{-5}	<1.0	Benzene, Chloroform, 1,4-Dichlorobenzene, 1,1-Dichloroethene, Trichloroethene, Vinyl Chloride, Xylene	4.0×10^{-5}	<1	Chlorobenzene, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,2-Dichloroethene, Toluene, 2-Methylphenol, Xylene
Subtotal	*4.0×10^{-5}*	*0.00012*		*4.0×10^{-5}*	*<1*	
Radiological						
External Exposure	3.6×10^{-5}	NA	2	2.0×10^{-5}	NA	2
Soil Ingestion	1.5×10^{-8}	NA	Radium-226	2.0×10^{-8}	NA	NA
Inhalation	6.0×10^{-7}	NA	2	1.8×10^{-9}	NA	2
Subtotal	*3.6×10^{-5}*	*NA*		*2.0×10^{-5}*	*NA*	
TOTAL	**1×10^{-4}**	**0.09**		**1×10^{-4}**	**0.1**	

Notes:

1 Based on U.S. Environmental Protection Agency-derived toxicity values

2 Although the cumulative total of all chemicals analyzed exceeds the threshold limit, no individual chemical within the media or pathway exceeded the limit.

HHRA Human health risk assessment HI Hazard index NA Not applicable

8.0 REMEDIAL ACTION OBJECTIVES

This section summarizes the RAOs identified for Site 1 based on the future site use and the results of the HHRA. RAOs provide the foundation used to develop the remedial alternatives for a site. An RAO is a statement that contains an objective for the protection of one or more specific receptors from exposure to one or more specific chemicals in a specific medium (such as soil, groundwater, or air) at a site. Reasonably anticipated future use of the site is an important consideration in selecting the RAOs and, thus, the remedy selected for the site. The following sections summarize the RAOs developed for soil, groundwater, and radiological materials at Site 1 based on the identified COCs, potential receptors and exposure pathways, ARARs, and remediation goals.

8.1 SOIL

Soil RAOs were developed to protect human health for future recreational visitors (or occupational workers) and terrestrial ecological receptors. These RAOs reflect the current and planned future use of Site 1 for recreational purposes. The soil interval considered for potential exposure for a recreational visitor is 0 to 2 feet bgs and for ecological receptors is 0 to 6 feet bgs.

The RAOs for chemical contamination are to:

- Protect future recreational visitors from exposure to hexavalent chromium, PAHs, and PCBs at concentrations above human health remediation goals; and

- Protect terrestrial ecological receptors from cadmium, lead, zinc, 4,4'-dichlorodiphenyldichloroethane (DDD), and 4,4'-dichlorodiphenyltrichloroethane (DDT) at concentrations above ecological remediation goals.

Soil remediation goals for chemical contamination protective of human and ecological receptors are listed in Tables 8-1 and 8-2, respectively.

8.2 GROUNDWATER / SURFACE WATER

CERCLA remedial actions for contaminated groundwater are driven by the expectation that aquifers will be returned to beneficial uses wherever practicable (Title 40 CFR § 300.430 [a][1][iii][F]). Groundwater beneath Site 1 does not have a beneficial use as a source of drinking water. As described in Section 5.2, in a letter dated July 21, 2003, the Navy received concurrence from the Water Board that groundwater meets the municipal and domestic water supply designation exemption criteria in SWRCB Res. 88-63, "Sources of Drinking Water" (SWRCB 1988), and Water Board Res. 89-39 for groundwater west of Saratoga Street at Alameda Point (Water Board 2003). The Water Board's concurrence included groundwater beneath Site 1. In a letter dated January 3, 2000, EPA concurred that the groundwater at Site 1 was unlikely to be used as a drinking water source.

Freshwater replenishment, the discharge of groundwater to surface water, is a potential beneficial use of the groundwater at Site 1. Potential risks to human health and the environment are posed by the discharge of groundwater to surface water within the VOC plume. The Navy developed RAOs and PRGs in the FS to address these risks (BEI 2006). The CTR (at 40 CFR § 131.38), National Toxics Rule (NTR) (at 40 CFR § 131.36), and the surface water quality criteria in the Basin Plan were identified as potential chemical-specific ARARs for surface water where groundwater discharges to surface water to be used as the basis for identifying preliminary remediation goals protective of the recreational fisherman pathway (ingesting the organism only; not ingesting the surface water and the organism) and aquatic receptors in surface water. Therefore, VOC concentrations in the CTR and NTR are identified as surface water remediation goals. These criteria function as remediation goals for surface water where groundwater discharges to surface water. Groundwater trigger levels that would initiate further evaluation of whether groundwater is impacting surface water at concentrations that exceed surface water ARARs will be developed in the remedial design.

The Navy calculated a risk-based concentration for vinyl chloride in groundwater that would protect human receptors from the inhalation of VOCs in outdoor air (BEI 2006). The calculated risk-based concentration for vinyl chloride in groundwater is 6,011 micrograms per liter (µg/L). The volatilization of VOCs from groundwater to outdoor air will be addressed by meeting the risk-based remediation goal.

The RAOs for groundwater are to:

- Prevent human exposure to VOCs in outdoor air by reducing VOC concentrations in groundwater to risk-based remediation goals;

- Prevent ingestion of VOCs and SVOCs by people who fish recreationally (ingesting the organism only) by ensuring that groundwater discharges to surface water do not cause concentrations in the surface water above CTR and NTR criteria for surface water; and

- Prevent ingestion of arsenic by aquatic receptors by ensuring that groundwater discharges to surface water do not cause concentrations in the surface water above the CTR, NTR and Basin Plan criteria, for the aquatic life remediation goal for surface water.

Groundwater remediation goals protective of human and ecological receptors are listed in Tables 8-1 and 8-2, respectively.

8.3 RADIOLOGICAL MATERIAL

The Navy, with agreement of the FFA Signatories, completed a TCRA to address chemical contamination in soil at Area 4 and radiological contamination at Site 1, Site 2, and Site 32. While completing the TCRA, radiological contamination was found deeper than expected at Site

1 Areas 3a and 3b and Site 32. The Navy will address radiological and chemical contamination in Areas 2a, 3a, and 3b within the revised boundaries of Site 32 because of the similarity in radiological contamination and proximity in location. The Navy will address radiological contamination at Site 1 Areas 1a, 1b, 2b, 4, 5a, and 5b in this ROD.

The RAO for radiological contamination in soil is to:

- Prevent exposure to radionuclides of concern (radium-226 [Ra-226], cesium 137 [Cs-137], strontium 90 [Sr-90], depleted uranium [DU], uranium oxide [UO_2], thorium 232 [Th-232], cobalt 60 [Co-60]) that exceed remediation goals.

Soil remediation goals for ROCs protective of human receptors are presented in Table 8-3.

The Navy will use the MARSSIM (Nuclear Regulatory Commission [NRC] 2000) guidelines to survey the surface prior to placement of the covers to obtain data to conduct a dose assessment. There will be a follow on MARSSIM survey after placement of the covers to ensure the RAO for radionuclides has been met.

TABLES

TABLE 8-1: CHEMICAL REMEDIATION GOALS FOR HUMAN RECEPTORS

Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area
Alameda Point, Alameda, California

Chemical of Concern	Remediation Goal
SOIL	
Metals (mg/kg)	
Chromium (hexavalent)	3.1[a]
Polynuclear Aromatic Hydrocarbons (mg/kg)	
Benzo(a)anthracene	16.4[a]
Benzo(b)fluoranthene	16.4[a]
Benzo(a)pyrene	1.6[a]
Indeno(1,2,3-cd)pyrene	16.4[a]
Dibenzo(a,h)anthracene	2.7[a]
Polychlorinated Biphenyls (mg/kg)	
Aroclor-1254	0.38[a]
Aroclor-1260	0.38[a]
GROUNDWATER	
Volatile Organic Compounds (µg/L)	
Vinyl Chloride	6,011[b]
SURFACE WATER	
Volatile Organic Compounds (µg/L)	
1,1-Dichlorethene	3.2[c]
Benzene	71[c]
Trichloroethene	81[c]
Vinyl Chloride	525[c]
Semivolatile Organic Compounds (µg/L)	
Bis(2-chloroethyl)ether	1.4[c]
Bis(2-ethylhexyl)phthalate	5.9[c]
2,4-Dimethylphenol	2,300[d]

Notes:

a Remediation goal is risk-based screening level calculated in the HHRA (Tetra Tech 1999c)

b Remediation goal is based on a risk-based concentration for vinyl chloride in groundwater that would protect human receptors from the inhalation of VOCs in outdoor air (BEI 2006).

c Numerical water quality criteria promulgated for surface water in the California Toxics Rule (40 CFR § 131.38) and the National Toxics Rule (40 CFR § 131.36), and implemented in the Inland Surface Waters, Enclosed Bays, and Estuaries Plan as a part of the Basin Plan. These goals are to be met in the surface water where groundwater discharges to surface water.

d Numerical water quality criteria promulgated for surface water in the California Toxic Rule (40 CFR § 131.38) and implemented in the Policy for Implementation of Toxic Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California as part of the Basin Plan. These goals are to be met in the surface water where groundwater discharges to surface water.

§ Section
µg/L Microgram per liter
CFR Code of Federal Regulations
mg/kg Milligram per kilogram
SWRCB State Water Resources Control Board

Source: State Water Resources Control Board. 2000b. "Proposed Changes to Water Quality Control Plan for the San Francisco Bay Region." April 10.

TABLE 8-2: REMEDIATION GOALS FOR ECOLOGICAL RECEPTORS

Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area
Alameda Point, Alameda, California

Chemical of Concern	Remediation Goal
SOIL	
Metals (mg/kg)	
Cadmium	1.50[a]
Lead	88.32[a]
Zinc	300[b]
Pesticides (mg/kg)	
4,4'-DDD	1.2[b]
4,4'-DDT	1.2[b]
SURFACE WATER	
Metals (µg/L)	
Arsenic	36[c]

Note:

a Remediation goal is based on Q95 background concentration (BEI 2006)

b Value based on the midpoint of the TRV_{Low} and the TRV_{High}.

c Numerical water quality criteria promulgated for surface water in the California Toxics Rule (40 CFR § 131.38) and the National Toxics Rule (40 CFR § 131.36), implemented in the Policy for Implementation of Toxic Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California as a part of the Basin Plan, and Table 3-3 of the Basin Plan. These goals are to be met in the surface water where groundwater discharges to surface water.

µg/L Microgram per liter
§ Section
CFR Code of Federal Regulations
DDD Dichlorodiphenyldichloroethane
DDT Dichlorodiphenyltrichloroethane
mg/kg Milligram per kilogram
SWRCB State Water Resources Control Board
TRV Toxicity reference value

Source:

BEI. 2006. "Final Feasibility Study Report IR Site 1, 1943-1956 Disposal Area, Alameda Point." February 8.

SWRCB. 2000a. "Policy for Implementation of Toxic Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (Inland Surface Waters Plan)". March.

TABLE 8-3: RADIOLOGICAL REMEDIATION GOALS FOR HUMAN RECEPTORS
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area
Alameda Point, Alameda, California

Chemical of Concern	Remediation Goal[a]
SOIL (pCi/g)	**RESIDENT[b]**
Radionuclide[c]	
Cesium-137+D	0.113[f]
Cobalt-60	0.0361[f]
Radium-226	1.0+[d,f]
Strontium-90	0.331[f]
Thorium-232	1.69[f]
U-238+D (Used for Depleted Uranium and Uranium Oxide)	0.742[e]

Notes:

a Remediation goals meet or are more protective than the 15 millirem per year residual does level consistent with the 1997 EPA OSWER Directive 9200.4-18.

b Residential use will be prohibited based on institutional controls.

c Radionuclides are identified based on the findings of the HRA (Weston Solutions, Inc. 2007).

d Goal is 1 pCi/g above background per agreement with EPA.

e EPA. 2009. "Preliminary Remediation Goals for Radionuclides." http://epa-prgs.ornl.gov/radionuclides/

f Navy. 2006b. "Final Basewide Radiological Removal Action Action Memorandum, Revision 2006, Hunter Point Shipyard, San Francisco, California". April 21.

+D Daughter products

pCi/g picocurie per gram

PRG preliminary remediation goal

Reference

Weston Solutions, Inc. 2007. "Final Historical Radiological Assessment, Volume II, Alameda Naval Air Station, Use of General Radioactive Materials, 1941-2005." June.

9.0 DESCRIPTION OF ALTERNATIVES

The development of remedial alternatives for soil and groundwater for Site 1 followed the requirements identified in CERCLA, as amended by SARA of 1986, 42 USC § 9601, et seq., and the NCP. The Site 1 FS evaluated soil alternatives based on the five soil areas and radiologically-impacted soil (BEI 2006). Alternatives S2-2, S3-2, S3-3, S5-2, S6-2, and S6-3 were eliminated for reasons described within the Site 1 FS Report (BEI 2006), thus they are not discussed further in this ROD. The FS evaluated six alternatives for groundwater, all of which were carried forward into the detailed alternative analysis in the Site 1 FS (BEI 2006). Minor changes were made to the alternatives since the issuance of the FS and the proposed plan. These minor changes are described in Section 14.0. It should be noted that Section 9 summarizes information contained in the Site 1 FS (BEI 2006) prior to the TCRA (Tetra Tech EC, Inc. 2008) being implemented, therefore, the language that describes the alternatives that were not selected as part of the remedy in this ROD, were not updated to reflect the current conceptual site model.

9.1 REMEDIAL ALTERNATIVES FOR SOIL

This section summarizes the remedial alternatives evaluated for five soil areas and site-wide radiologically-impacted waste at Site 1. Soil alternatives were numbered to coincide with the soil study areas. For example, Alternatives S1-1 through S1-4 are the four alternatives developed to address Area 1. Remediation of site-wide radiologically-impacted waste is addressed in Alternatives S6-1 through S6-5. The remedial alternatives are summarized below by area.

9.1.1 Area 1 Soil Alternatives

Area 1, the former waste disposal area, is approximately 25.8 acres in size. Area 1 is divided into Area 1a (the main disposal area) and Area 1b (the former burn area). Area 1a consists of the main disposal area and is approximately 22.1 acres. Area 1b is the former burn area and is approximately 3.7 acres. Components of the soil remedial alternatives for Area 1 include no action, a soil cover, a low-permeability cap, excavation and off-site disposal of soil, a wetlands mitigation plan (WMP), and institutional controls (IC). Before covering or capping, waste from other areas of Site 1 may be consolidated into the interior of Area 1.

The shoreline portion of Area 1b is addressed under Area 5 (shoreline) alternatives. It is assumed that Area 1 would be developed for recreational purposes after remediation. The subsections below discuss the components associated with each remedial alternative for Area 1.

9.1.1.1 Alternative S1-1 – No Action

Under this alternative, no actions would be performed. This alternative provides a baseline for comparing all other alternatives. No costs are associated with this alternative.

9.1.1.2 Alternative S1-2 – Soil Cover, Wetlands Mitigation Plan (WMP), and Institutional Controls (ICs)

This alternative would consist of constructing a 4-foot-thick soil cover over the former waste disposal area. The soil cover would prevent exposure to soil and debris and shield receptors from underlying radiological anomalies. The Site 1 FS Report presented an analysis to support the use of a low-permeability cap based on the assumptions that VOCs in groundwater would be remediated under groundwater alternatives (BEI 2006).

Approximately 2.1 acres of Area 1 are designated as seasonal wetlands. Seasonal wetlands in Area 1 were not evaluated for "as-is" preservation because the wetlands overlie subsurface buried waste and contain radiological anomalies. This alternative (and Alternative S1-3) would result in the loss of this seasonal wetlands habitat. Wetlands mitigation is assumed to be required at a 1:1 ratio for the acreage of seasonal wetlands affected by this alternative. This alternative includes development and implementation of a WMP for 2.1 acres of seasonal wetlands. ICs would prohibit use of the property for residential use, hospitals for humans, schools for persons under 21 years of age, daycare centers for children, and any permanent human habitation other than for industrial purposes. ICs would also prohibit actions that could damage or otherwise reduce the effectiveness of the soil cover and require compliance with a soil management plan approved by the FFA signatories for any excavation into the cover. No fencing or signage would be included.

9.1.1.3 Alternative S1-3 – Engineered Alternative Cap, WMP, and ICs

The components of this alternative are the same as those for Alternative S1-2, with the addition of placement of an engineered alternative cap and liner, rather than a soil cover, over the former waste disposal area. The engineered alternative cap would provide a low-permeability cover to prevent surface water infiltration, act as protection from exposure to contaminated soil and debris, and act as a shield from radiologically-impacted waste. The same wetlands effects and mitigation described for Alternative S1-2 apply to this alternative. ICs would be the same as those for Alternative S1-2.

9.1.1.4 Alternative S1-4a – Excavation and Off-Site Disposal of Soil, Soil Cover, Radiological Screening and MPPEH Sweep, WMP, and ICs

The components of this alternative are the same as those for Alternative S1-2, with the addition of excavation and off-site disposal of soil from the 3.7 acre burn area, screening of excavated soil for radiological materials, and sweeping the excavation for MPPEH. Prior to excavation of soil in Area 1b, the burn area, radiological screening and the MPPEH sweep would be conducted in the proposed excavation area. Radiological waste in the excavated soil or debris would be segregated and disposed of off-site separately from other excavated soil and debris. MPPEH encountered in the excavation would also be disposed of off-site. Soil that has been screened and shown to be free from MPPEH and is below chemical or radiological remediation goals may be reused as foundation material for the soil cover. The ICs for this alternative are the same as those for Alternative S1-2.

9.1.1.5 Alternative S1-4b – Excavation and Off-Site Disposal of Soil, Engineered Alternative Cap, Radiological Screening and MPPEH Sweep, WMP, and ICs

The components of this alternative are the same as those for Alternative S1-4a, with the addition of an engineered alternative cap, rather than a soil cover, to prevent surface water infiltration, act as protection from exposure to contaminated soil and debris, and act as a shield from radiologically-impacted waste.

9.1.1.6 Alternative S1-5 – Complete Removal and WMP

This alternative would include excavation and off-site disposal of all soil and radiologically - impacted waste from Area 1. This alternative would involve removal of paved areas within Area 1, including portions of the runway. After demolition of paved areas, soil would be characterized for appropriate disposal. As in Alternative S1-4a, a radiological and MPPEH screening would be conducted in advance of any excavation in the area.

9.1.2 Area 2b Soil Alternatives

Area 2b is approximately 6.8 acres in size and includes the paved surfaces outside of the waste disposal area. Paved surfaces include the former concrete runways (which are believed to be at least 4 feet thick) and asphalt areas adjacent to the former runways. Prior to 1947, materials were stored on unpaved surfaces in Area 2b (BEI 2006). In 1953, Area 2b was paved and used as a taxiway for aircraft. Limited soil investigation data are available for Area 2 (BEI 2006).

Components of the soil remedial alternatives for Area 2 include no action; demolition of paved surfaces within the area; placement of a 2-foot-thick soil cover on top of the paved surfaces; excavation and off-site disposal of soil, screening for radiological materials and MPPEH, removal of soil with concentrations of chemicals that exceed remediation goals; and ICs. The subsections below discuss the components associated with each remedial alternative for Area 2.

9.1.2.1 Alternative S2-1 – No Action

Under this alternative, no actions would be performed. This alternative provides a baseline for comparing all other alternatives. No costs are associated with this alternative.

9.1.2.2 Alternative S2-3 –Soil Cover and Institutional Controls

Under this alternative, the existing pavement would be kept in place and covered with at least 2 feet of soil. This alternative also would include ICs that prohibit use of the property for residential use, hospitals for humans, schools for persons under 21 years of age, daycare centers for children, and any permanent human habitation other than for industrial purposes unless approved by the Navy and DTSC. ICs would prohibit use of the property for residential use, hospitals for humans, schools for persons under 21 years of age, daycare centers for children, and any permanent human habitation other than for industrial purposes. ICs would also prohibit actions that could damage or otherwise reduce the effectiveness of the soil cover and require

compliance with a soil management plan approved by the FFA signatories for any excavation into the cover.

9.1.2.3 Alternative S2-4 – Pavement Demolition, Excavation and Off-Site Disposal of Soil, Radiological Screening and MPPEH Sweep, Removal of Soil Hot Spots, and ICs

Under this alternative, all pavement within Area 2 would be demolished and removed. A radiological survey and MPPEH surface sweep would be performed on the uncovered soil, and any radiological anomalies discovered in Area 2 would be disposed of off-site. After any anomalies are removed, soil borings would be advanced in Area 2, and samples would be collected to characterize the remaining soil. Any additional soil hot spots in Area 2 with chemical concentrations exceeding remediation goals for human or terrestrial ecological receptors would be excavated and transported off-site for disposal. ICs would require compliance with a soil management plan approved by the FFA signatories for any excavation into this area.

9.1.3 Area 4 Soil Alternatives

Area 4 is the former firing-range berm in the southwestern portion of Area 1. Components of the soil remedial alternatives considered for Area 4 included no action, removing and screening of soil for lead and shell casings, relocating berm soil to Area 1, and disposal of soil off-site. Alternatives involving removal of the firing-range berm also assume that an MPPEH surface sweep will be performed by trained unexploded ordnance (UXO) personnel throughout the excavation and soil handling process.

The subsections below discuss the components associated with each remedial alternative for Area 4.

9.1.3.1 Alternative S4-1 – No Action

Under this alternative, no actions would be performed. This alternative provides a baseline for comparing all other alternatives. No costs are associated with this alternative.

9.1.3.2 Alternative S4-2 –Removal, Screening, and Relocation of Soil

This alternative would involves excavation of the firing-range berm, screening of the berm soil to separate bullets and other recoverable metal from berm material, and relocation of the berm material beneath the soil cover or cap in Area 1. This alternative would be implemented in conjunction with Alternatives S1-2 or S1-3. Recovery of metals under this alternative would be conducted using a vibratory screen (or similar equipment) to separate bullets and other recoverable metal from berm material. Recovered metal would be transported off-site for recycling. Following metal recovery, the berm soil would be stockpiled. After characterization, all berm soil would be moved into the interior of Area 1 (away from shorelines), and spread out before Area 1 is covered or capped. Soil would be relocated in accordance with guidance from

EPA (1996). A UXO survey crew would oversee the soil excavation and screening activities. Although MPPEH is not expected to be found, a surface sweep would be conducted, and the UXO survey crew would be present as a safety precaution.

9.1.3.3 Alternative S4-3 – Removal, Screening, Relocation, and Off-Site Disposal of Soil

The components of this alternative are the same as those for Alternative S4-2, except that nonhazardous soil would be placed under the cover or cap in Area 1 and hazardous soil would be disposed of off-site. Based on analytical results, the nonhazardous soil would be relocated to the interior of Area 1 before emplacement of the soil cover or cap. Berm soil that is found to be hazardous based on analytical results would be transported off-site for disposal. This alternative would be implemented in conjunction with Alternatives S1-2 or S1-3.

9.1.3.4 Alternative S4-4 – Removal, Screening, and Off-Site Disposal of Soil, and Institutional Controls

This alternative is similar to Alternative S4-2, except that all soil would be disposed of off-site. Firing-range berm soil would be excavated and screened with a vibratory screen (or similar equipment) to recover bullets and other metal for recycling. Following screening, the soil would be stockpiled and characterized. Soil would be disposed of based on characterization results. Soil with soluble lead (or other RCRA chemicals) present at concentrations exceeding the toxicity characteristic leaching procedure would be disposed of as RCRA-hazardous waste. Soil with total lead or other California-regulated chemicals present at concentrations exceeding the total threshold limit concentration, or soluble lead present at concentrations exceeding the soluble threshold limit concentration, would be disposed of as California hazardous waste. Soil with total and soluble lead present at concentrations below these limits would be disposed of as nonhazardous soil. ICs would prohibit use of the property for residential use, hospitals for humans, schools for persons under 21 years of age, daycare centers for children, and any permanent human habitation other than for industrial purposes. ICs would also prohibit actions that could damage or otherwise reduce the effectiveness of the remedy and require compliance with a soil management plan approved by the FFA signatories for any excavation.

9.1.4 Area 5 Soil Alternatives

Area 5 includes the shoreline areas at Site 1, including beach and inland areas. Area 5a consists of approximately 1 acre of riprap and shoreline along the western boundary of the site. Area 5b consists of approximately 2.6 acres of shoreline and riprap area on the northern boundary of the site, including a small flat area within the northwestern portion of the site. The historic Alameda Training Wall is present along the northern boundary of Area 5b. The shoreline portion of Area 1b (within 25 feet of San Francisco Bay) is included in Area 5, and discussed as part of the remedial alternatives for Area 5.

Areas 5a and 5b are believed to be outside the former waste disposal area, and limited soil data are available for these areas. It is unlikely the former waste disposal area extended to the

shoreline, except possibly in Area 1b (BEI 2006). However, there is a potential for buried waste in the subsurface.

Components of the soil remedial alternatives for Area 5 include no action, collecting soil samples for analysis to confirm chemicals concentrations meet the remediation goals, relocation of hot spot soils and shoreline debris, riprap cover and ICs. The subsections below discuss the components associated with each remedial alternative for Area 5.

9.1.4.1 Alternative S5-1 – No Action

Under this alternative, no actions would be performed. This alternative provides a baseline for comparing all other alternatives. No costs are associated with this alternative.

9.1.4.2 Alternative S5-3 – Confirmation Sampling and Institutional Controls

This alternative would involve collection of soil samples along the shoreline areas not covered with riprap. Samples would be analyzed to confirm that there are no significant human-health (recreational receptor) or ecological impacts in the shallow soil (0-2 feet bgs) of accessible shoreline areas that would require further action. Sampling activities would be conducted in a manner that would preserve the integrity of the historic training wall. Effects from chemicals to human and ecological receptors are expected to be limited because Areas 5a and 5b are outside the former waste disposal area. As a result, this alternative presumes that confirmation sampling results would conclude that no significant human health or ecological effects are posed in Areas 5a and 5b that would require further action. The remedy for the shoreline in Area 1b would be selected from the Area 1 soil alternatives (see Section 9.1.1). ICs would prohibit use of the property for residential use, hospitals for humans, schools for persons under 21 years of age, daycare centers for children, and any permanent human habitation other than for industrial purposes. The ICs would also prohibit excavation and/or disturbance of riprap slopes and underlying material without concurrence from the FFA signatories.

9.1.4.3 Alternative S5-4 – Confirmation Sampling, Hot Spot Relocation, Placement of Riprap Cover, and Institutional Controls

The components of this alternative are the same as those for Alternative S5-3, except that where chemical concentrations confirm significant human health or ecological impacts in the beach areas, the Navy would excavate and relocate chemically-contaminated soil into the interior of Area 1a before placement of cover. This alternative presumes that confirmation sampling results would conclude that beach area soil poses an unacceptable risk to human health or the environment and that removal is therefore warranted. Therefore, in the beach portions of Area 5, excavation to meet remediation goals (including radiological remediation goals) would occur in the top 2 feet of soil. Shoreline soil in Area 1b would remain in place and be managed in accordance with remedial alternative selected for Area 1. Delineation of waste and development of appropriate setback distances from the shoreline will be incorporated into the remedial design. Riprap along the shoreline will be left in place and augmented with imported riprap to cover exposed beach areas of Area 5. ICs would prohibit residential use of the property, hospitals for

humans, schools for persons under 21 years of age, daycare centers for children, and any permanently occupied human habitation other than those used for industrial purposes unless approved by the Navy and DTSC. ICs would also prohibit actions that could damage or otherwise reduce the effectiveness of the riprap cover and require compliance with a soil management plan approved by the FFA signatories for any excavation into the cover.

9.1.4.4 Alternative S5-5 – Confirmation Sampling, Hot Spot Relocation, Shoreline Debris Relocation, and Institutional Controls

The components of this alternative are the same as those for Alternative S5-3, and this alternative presumes that sampling results would confirm significant human-health or ecological impacts and indicate remedial action is warranted in Areas 5a and 5b, as described for Alternative S5-4. However, this alternative also presumes it would be necessary to relocate shoreline debris and/or soil from the shoreline in Area 1b. If confirmation sampling results indicate shoreline debris or soil contain chemical concentrations exceeding remediation goals in the top 2 feet, then the debris or soil would be excavated and relocated to the interior of Area 1 before placement of the cover or cap. Each soil excavation area would be backfilled with select fill material. Any debris from past waste disposal operations within 25 feet of sea level at the shoreline would be excavated and relocated to the interior of Area 1 before placement of the cover or cap. Excavated areas would be backfilled with select fill material, and the riprap would be restored to its previous condition. Because the inferred boundary of the former waste disposal area (Area 1) does not extend into Area 5b, debris relocation activities were assumed not to affect the Alameda Training Wall in Area 5b, which meets the criteria for listing in the National Register of Historic Places (see Section 13.2.2 below). If debris is identified in the shoreline areas adjacent to the training wall, measures would be taken to preserve the integrity of the wall during excavation activities. ICs would be put in place to establish requirements for management of excavated soil. The ICs under Alternative S1-2, S1-3, S1-4a, or S1-4b would prevent damage to the soil cover or alternative cap and prevent contact with the relocated contaminated soil and debris. The ICs would also prohibit excavation or disturbance of Area 5 riprap slopes and underlying material without concurrence from the Navy and regulatory agencies.

9.1.4.5 Alternative S5-6 – Confirmation Sampling, Hot Spot Relocation, Shoreline Debris Removal, and ICs

This alternative is identical to Alternative S5-5, except that soil and debris would be disposed of off-site.

9.1.5 Site-Wide Radiologically-Impacted Soils

A site-wide radiological survey was conducted at Site 1 in summer 2004 (TtFW 2005). This survey did not include the shoreline areas, asphalt or concrete areas of Site 1. More than 3 million gamma radiation measurements were collected during the scan survey of Site 1. The 2,091 measurements above background were congregated in essentially 13 areas. The majority of the measurements were collected along the west side of IR Site 1 in and around the former pistol and skeet ranges (TtFW 2005). In November 2006, a supplemental survey was performed to survey the shoreline areas of Site 1. The dosimetry study along with the pressurized ion

chamber and static sodium iodide measurements collected along the shoreline detected no elevated radiological activity. A TCRA was implemented in July 2008 at IR Site 1, 2, and 32. At Site 1, the TCRA was conducted in one area of Area 1b, Area 4, Area 5, and Area 3, which is no longer part of Site 1. Current field conditions indicate that Ra-226 contamination is still present throughout IR Site 1 (Tetra Tech EC, Inc 2009).

Components of the remedial alternatives evaluated for site-wide radiologically-impacted waste include no action, partial removal of radiologically-impacted waste, placement of a cover or cap over remaining waste, removal of all radiologically-impacted waste and items, and a WMP. The subsections below discuss the components associated with each remedial alternative for site-wide radiologically-impacted waste.

9.1.5.1 Alternative S6-1 – No Action

Under this alternative, no actions would be performed. This alternative provides a baseline for comparing all other alternatives. No costs are associated with this alternative.

9.1.5.2 Alternative S6-4 – Removal of Radiologically-Impacted Waste at Site 1 and Cover or Cap Remaining Radiologically-Impacted Waste in Site 1.

For this alternative, the surface of Site 1 would be scanned for radiological hotspot removal prior to placement of the soil cover or riprap cover. Radiological hot spots are material exhibiting gamma radiation readings approximately 2 times background. Radiological hot spots will be excavated to a depth of one foot. Scanning methods will be described in the remedial design. This alternative also extends the soil cover described for Area 1 over Area 4 and to the existing riprap in Area 5 to prevent exposure to potential subsurface contamination.

9.1.5.3 Alternative S6-5 – Removal of All Radiologically-Impacted Soil and Items and WMP

Under this alternative, all radiologically-impacted waste would be removed from Site 1. This alternative would be implemented concurrently with Alternative S1-5 (complete soil removal for Area 1) and Alternative S2-4 (demolition of paved surfaces) to aid removal of all radiologically-impacted waste at Site 1. It is assumed that removing radiologically-impacted waste from these areas would not be disruptive to the seasonal wetlands (BEI 2006).

9.2 REMEDIAL ALTERNATIVES FOR GROUNDWATER

This section summarizes the remedial alternatives evaluated for groundwater at Site 1. Groundwater alternatives were numbered in a similar manner as the soil study areas; for example, GW-1, GW-2, and so forth. All of the groundwater remedial alternatives (except no action) include monitoring and ICs to prevent human exposure to contaminated groundwater at Site 1. Each remedial alternative for groundwater is summarized below.

9.2.1 Alternative GW-1 – No Action

Under this alternative, no actions would be performed. This alternative provides a baseline for comparing all other alternatives. No costs are associated with this alternative.

9.2.2 Alternative GW-2 – Source Removal, WMP, Monitored Natural Attenuation, Monitoring, and Institutional Controls

Under Alternative GW-2, an initial investigation would be performed to assess the current configuration of the VOC plume. After the initial investigation, a soil investigation would be conducted to delineate the suspected source of the VOCs affecting groundwater. To address the suspected source of contamination, soil containing elevated concentrations of VOCs would be excavated and disposed of off-site. Following removal of the VOC source, a monitored natural attenuation (MNA) approach would be implemented. MNA was assumed to occur for a project life of 30 years in the VOC plume area; however, the duration of MNA may be longer or shorter (BEI 2006).

Under this alternative, long-term groundwater monitoring would be conducted over an assumed project life of 30 years to address groundwater in the FWBZ outside the VOC plume area and the SWBZ area. ICs would be implemented to require buildings constructed on Site 1 have a subslab passive venting system and vapor barrier system to prevent possible accumulation of landfill gas and migration into enclosed buildings (BEI 2006). Also, ICs would protect groundwater monitoring equipment and apply site-wide for both the FWBZ and SWBZ (BEI 2006).

9.2.3 Alternative GW-3 – *In-Situ* Chemical Oxidation, Monitored Natural Attenuation, Groundwater Monitoring, and Institutional Controls

Under Alternative GW-3, an initial investigation as described in Alternative GW2 would be performed to assess the current location of the VOC plume. Groundwater in the VOC plume area with chemical concentrations above remediation goals would be remediated *in situ* by chemical oxidation or other similar treatment processes. The intent of this approach is to reduce concentrations of VOCs. Bench-scale testing and pilot-scale testing would likely be required before full-scale treatment is implemented. It is expected that *in-situ* chemical oxidation (ISCO) or a similar treatment process would significantly reduce the contaminant mass; however, it is likely some chemical concentration would remain in groundwater at concentrations above remediation goals. These residual chemical concentrations would be monitored as part of the MNA program to confirm chemical concentrations are permanently reduced below remediation goals.

Groundwater monitoring would be conducted to demonstrate the effectiveness of the corrective action and to demonstrate that remediation goals are met. The Navy will also monitor potential contaminant migration into the San Francisco bay and will develop a plan in the remedial design in the event that metals or other chemicals are detected in perimeter monitoring wells at unacceptable concentrations. ICs for Alternative GW-3 are the same as those described for

Alternative GW-2, and would include protection of remediation equipment. ICs will remain in effect to uphold and achieve the RAOs.

9.2.4 Alternative GW-4 – *In-Situ* Bioremediation, Monitored Natural Attenuation, Monitoring, and Institutional Controls

Under Alternative GW-4, an initial investigation, as described in Alternative GW-2, would be performed to assess the current location of the VOC plume. Following the initial investigation, groundwater in the VOC plume area with chemical concentrations above remediation goals would be remediated *in situ* by using enhanced anaerobic and aerobic bioremediation. For the first phase of *in-situ* bioremediation (ISB), anaerobic bioremediation, it is assumed a semisolid electron donor compound would be injected into the area of the VOC plume where concentrations exceed remediation goals. The compound would be injected using direct-push methods to initiate rapid reductive de-chlorination. This phase is assumed to last for 1 year. After the first phase is completed, aerobic amendments may be injected where needed to address any remaining chemicals by enhancing natural attenuation processes. The MNA, monitoring, and IC components of Alternative GW-4 are identical to Alternative GW-3.

9.2.5 Alternative GW-5a – Zero-Valent Iron Powder Injection, Monitored Natural Attenuation, Monitoring, and Institutional Controls

Under Alternative GW-5a, an initial investigation as described in Alternative GW-2 would be performed to assess the current location of the VOC plume. Following the initial investigation, a highly reactive zero-valent iron (ZVI) powder would be injected into the subsurface in the VOC plume area to reduce chemical concentrations that are above remediation goals. To enhance ZVI dispersion, nitrogen gas would be pulsed into the subsurface in the VOC plume area. Bench-scale testing and pilot-scale testing would likely be required prior to full-scale implementation. The MNA, monitoring, and IC components of Alternative GW-5a are identical to Alternative GW-3.

9.2.6 Alternative GW-5b – Source Removal, Zero-Valent Iron Powder Injection, Monitored Natural Attenuation, Monitoring, and Institutional Controls

All of the components for Alternative GW-5b are the same as those for Alternative GW-5a, with the addition of excavation and off-site disposal of the suspected source of contamination as presented in Alternative GW-2. This alternative was included to evaluate the effect of source removal on the cost of active treatment in the plume area.

10.0 COMPARATIVE ANALYSIS OF ALTERNATIVES

This section summarizes the comparative analysis that was conducted to evaluate the relative performance of each soil and groundwater remedial alternative in relation to the nine criteria outlined in CERCLA § 121 (b), as amended. The purpose of the comparative analysis is to identify the relative advantages and disadvantages of each alternative. The evaluation criteria are based on requirements promulgated in the NCP. As stated in the NCP (40 CFR §300.430[f]), the evaluation criteria are arranged in a hierarchical manner that is then used to select a remedy for the site based on the following categories:

- Threshold criteria
  - Overall protection of human health and the environment
  - Compliance with ARARs
- Primary balancing criteria
  - Long-term effectiveness and permanence
  - Reduction of toxicity, mobility, or volume through treatment
  - Short-term effectiveness
  - Implementability
  - Cost-effectiveness
- Modifying criteria
  - State acceptance
  - Community acceptance

The sections below present comparative analysis of remedial alternatives for each soil area, followed by the alternatives for the site-wide radiologically-impacted waste and groundwater. The comparative analysis was originally presented in the FS Report (BEI 2006) and is summarized below.

10.1 REMEDIAL ALTERNATIVES FOR SOIL

This section presents a comparative analysis of the soil remedial alternatives for each soil area and the site-wide radiologically-impacted waste.

10.1.1 Comparative Analysis of Soil Alternatives for Area 1

This section presents a comparative analysis of the remedial alternatives identified for soil in Area 1, former waste disposal area (see Section 9.1.1). Overall, Alternative S1-2 was judged to be the most effective in the short-term, most implementable, and least costly among the Area 1 remedial alternatives (except for Alternative S1-1). Alternative S1-4a rated next highest in

satisfying the balancing criteria. It was judged to be slightly less implementable and more costly than Alternative S1-2. Alternatives S1-1 and S1-3 rated next highest among the balancing criteria. Alternative S1-1 does not meet the threshold criterion of protection of human health and the environment. Alternative S1-4b rated next highest in the balancing criteria because it was less implementable and more costly than Alternative S1-4a. Alternative S1-5 rated lowest in satisfying the balancing criteria based on low short-term effectiveness, low implementability, and had the greatest cost. Table 10-1 summarizes the comparative analysis of Area 1 alternatives by the primary balancing criteria. Table 10-2 presents the comparison of costs for the Area 1 alternatives.

10.1.1.1 Overall Protection of Human Health and the Environment

Alternative S1-1, No Action, would not be fully protective of human health and the environment because exposure to soil chemicals and radiological anomalies could occur and ICs would not be implemented. Alternatives S1-2, S1-3, S1-4a, S1-4b, and S1-5 meet the threshold criterion for overall protection of human health and the environment.

10.1.1.2 Compliance with Applicable or Relevant and Appropriate Requirements

ARARs are not applicable to Alternative S1-1, No Action. Alternatives S1-2, S1-3, S1-4a, S1-4b, and S1-5 meet the threshold criteria of compliance with ARARs (see Section 13.2).

10.1.1.3 Long-Term Effectiveness and Permanence

Alternative S1-5 rated high in long-term effectiveness because residual risks would be lowest after complete removal. Alternatives S1-2, S1-3, S1-4a, and S1-4b rated medium in long-term effectiveness and permanence. Each of these alternatives requires ICs and long-term maintenance of the protective soil cover or cap. Alternatives S1-2 and S1-4a would not require as much continuing repair and maintenance as Alternatives S1-3 and S1-4b. Alternative S1-1 rated low in long-term effectiveness and permanence because chemicals would remain in soil under the no-action alternative.

10.1.1.4 Reduction of Toxicity, Mobility, or Volume through Treatment

Alternative S1-5 rated medium in reduction of toxicity, mobility, or volume through treatment. Alternative S1-5 assumes complete removal of soil in Area 1, and all soil would be disposed of off-site. Before soil is disposed of off-site, hazardous wastes would be treated to meet land disposal restrictions. Nonhazardous wastes would not be treated. Alternatives S1-2, S1-3, S1-4a, and S1-4b all rated low in reduction of toxicity, mobility, or volume through treatment because most (Alternatives S1-4a and S1-4b) or all (Alternatives S1-2 and S1-3) contaminated soil would remain in place under a protective cover or cap. Soil from Area 1b would be excavated and disposed of off-site under Alternatives S1-4a and S1-4b. Alternative S1-1 also rated low in this criterion because no protection would be accomplished by the no-action alternative.

10.1.1.5 Short-Term Effectiveness

Alternatives S1-2 and S1-4a rated high in short-term effectiveness because a soil cover can be implemented faster than an engineered alternative cap or complete removal activities.

Alternatives S1-3 and S1-4b rated medium in short-term effectiveness because the engineered alternative cap would take longer to design than the soil cover. Installation of the cap would likely be postponed until intrusive groundwater remedial activities are complete.

Alternative S1-5 rated low in short-term effectiveness. Complete excavation and off-site disposal of soil from Area 1 would likely take a long time to implement, and the quantity of soil and waste to be removed would result in a significant number of truck trips through the community. The unknown contents of the buried waste pose a potential concern to worker safety. Alternative S1-1 also rated low in short-term effectiveness.

10.1.1.6 Implementability

Alternative S1-1 rated high in implementability because no action would be taken. Alternative S1-2 also rated high in implementability because the soil cover would be easy to design and construct. Alternative S1-4a rated medium in implementability because, although the protective soil cover would be readily implementable, the source removal component would involve large-scale excavation and dewatering elements. Alternative S1-3 also rated medium in implementability. The engineered alternative cap would be more difficult to design and construct than the soil cover in Alternative S1-2. Should future remedial actions be necessary, removal or repair of the cap would be significantly more difficult and expensive than for the soil cover in Alternative S1-2. Alternatives S1-4b and S1-5 rated low in implementability because of the difficulty of the large-scale excavation and dewatering elements, and the contents of the buried waste are unknown. The cap associated with Alternative S1-4b is less implementable than the soil cover in Alternative S1-4a.

10.1.1.7 Cost

Alternative S1-1 rated high in the cost comparison because no costs are incurred. Alternative S1-2 rated high in the cost comparison because it would cost less than the other active remedial alternatives for Area 1. Alternatives S1-3 and S1-4a rated medium in the cost comparison. Alternative S1-5 rated low in the cost comparison because it is significantly more expensive than Alternatives S1-2, S1-3, S1-4a, and S1-4b.

10.1.1.8 State Acceptance

The State of California concurs with the Navy's selected remedial alternative for soil in Area 1 (Alternative S1-4a).

10.1.1.9 Community Acceptance

The Proposed Plan was presented to the community and discussed in a public meeting (Navy 2006a). The responsiveness summary portion of this ROD addresses the public's comments and concerns about the selected remedial alternative for soil in Area 1 (Alternative S1-4a).

10.1.2 Comparative Analysis of Soil Alternatives for Area 2

Overall, Alternative S2-3 rated high in meeting the balancing criteria overall. Alternative S2-3 was judged to be the most effective in the short-term, most implementable, and least costly among the Area 2 active remedial alternatives. Alternatives S2-4 is significantly more expensive and less implementable than Alternative S2-3. Alternative S2-1 does not meet the threshold criterion of protection of human health and the environment. Table 10-3 summarizes the comparative analysis of Area 2 alternatives by the primary balancing criteria. Table 10-4 presents the comparison of costs for the Area 2 alternatives.

10.1.2.1 Overall Protection of Human Health and the Environment

Alternative S2-1 (no action) would not be fully protective of human health and the environment because of the potential for paved surfaces to deteriorate over time and result in human and terrestrial ecological exposure to potential soil chemicals. ICs would not be implemented. Alternatives S2-3 and S2-4 meet the threshold criterion for overall protection of human health and the environment.

10.1.2.2 Compliance with ARARs

ARARs are not applicable to Alternative S2-1. Alternatives S2-3 and S2-4 meet the threshold criterion of compliance with ARARs (see Section 13.2).

10.1.2.3 Long-Term Effectiveness and Permanence

Alternative S2-4 would result in the lowest residual risk; therefore, it rated high in long-term effectiveness and permanence. Alternative S2-3 rated medium in long-term effectiveness and permanence. Alternative S2-1 scored low in long-term effectiveness and permanence.

10.1.2.4 Reduction of Toxicity, Mobility, or Volume through Treatment

Alternative S2-4 rated medium in reduction of toxicity, mobility, or volume through treatment because some soil containing concentrations of chemicals above remediation goals would be removed. Alternatives S2-1 and S2-3 rated low in reduction of toxicity, mobility, or volume through treatment because no active treatment processes would be included, although under Alternative S2-3 waste would remain beneath a soil cover and the existing pavement, which prevents exposure of potential contaminants in soil to human or ecological receptors.

10.1.2.5 Short-Term Effectiveness

Alternative S2-3 rated high in short-term effectiveness because a soil cover can be implemented faster than complete removal activities. The duration of remedial activity would not be extensive, and risks to workers and potential effects on the community from truck trips are less than for Alternative S2-4. Alternative S2-4 rated medium in short-term effectiveness. Alternative S2-1 rated low in short-term effectiveness.

10.1.2.6 Implementability

Alternative S2-1 rated high in implementability because no action would be taken. Alternative S2-3 also rated high in implementability because the soil cover would be easy to design and construct. Alternative S2-4 rated low in implementability because the structurally reinforced concrete runways would be difficult to demolish. The extent of soil underlying the paved areas with COC concentrations that exceed remediation goals would need to be determined. This determination could be time-consuming and costly.

10.1.2.7 Cost

Alternative S2-1 rated high in the cost comparison because no costs are incurred. Alternative S2-3 rated medium in the cost comparison because it would cost significantly less than Alternative S2-4. Alternative S2-4 rated low in the cost comparison.

10.1.2.8 State Acceptance

The State of California concurs with the Navy's selected remedial alternative, Alternative S2-3, for soil in Area 2.

10.1.2.9 Community Acceptance

The Proposed Plan was presented to the community and discussed in a public meeting. The responsiveness summary portion of this ROD addresses the public's comments and concerns about the selected remedial alternative for soil in Area 2 (Alternative S2-3).

10.1.3 Comparative Analysis of Soil Alternatives for Area 4

This section presents a comparative analysis of the remedial alternatives identified for Area 4 (see Section 9.1.4). Overall, Alternative S4-4 was the only alternative rated high in long-term effectiveness and permanence. Alternative S4-4 was rated medium in the reduction of toxicity, mobility, or volume, and was deemed more effective than Alternative S4-2. Alternative S4-2 was judged to be the most effective in the short-term, most implementable, and least costly among the Area 4 active remedial alternatives. Alternative S4-3 was rated medium in all the balancing criteria. Alternative S4-1 does not meet the threshold criterion of protection of human health and the environment. Table 10-5 summarizes the comparative analysis of Area 4

alternatives by the primary balancing criteria. Table 10-6 presents the comparison of costs for the Area 4 alternatives.

10.1.3.1 Overall Protection of Human Health and the Environment

Alternative S4-1 would not be fully protective of human health and the environment because no action would be taken to prevent receptors from being exposed to firing-range berm soil and associated MPPEH, and ICs would not be implemented. Alternatives S4-2, S4-3, and S4-4 meet the threshold criterion of overall protection of human health and the environment.

10.1.3.2 Compliance with Applicable or Relevant and Appropriate Requirements

ARARs are not applicable to Alternative S4-1. Alternatives S4-2, S4-3, and S4-4 meet the threshold criterion of compliance with ARARs (see Section 13.2).

10.1.3.3 Long-Term Effectiveness and Permanence

Alternative S4-4 rated high in long-term effectiveness and permanence because the proposed remedial activities would result in low residual risk. Alternative S4-3 rated medium in long-term effectiveness and permanence because a portion of the firing-range soil would remain on site, although relocated under a protective soil cover. Some soil would be disposed of off-site, which would reduce residual risk. Alternative S4-2 rated low in long-term effectiveness and permanence because it would rely on long-term management of the soil cover in Area 1 (the relocation destination of the excavated soil). Alternative S4-1 rated low in long-term effectiveness and permanence.

10.1.3.4 Reduction of Toxicity, Mobility, or Volume through Treatment

Alternatives S4-3 and S4-4 rated medium in reduction of toxicity, mobility, or volume through treatment. Although some excavated soil could require off-site treatment to meet land disposal restrictions, it is estimated that the volume of soil treated would not be significant. Alternatives S4-1 and S4-2 rated low in reduction of toxicity, mobility or volume through treatment.

10.1.3.5 Short-Term Effectiveness

Alternative S4-2 rated high in short-term effectiveness because there would be no short-term risk to the community from relocating the soil. Alternative S4-3 rated medium in short-term effectiveness because some soil classified as hazardous would be transported through the community for off-site disposal. Alternative S4-4 rated low in short-term effectiveness because significantly more contaminated soil would be transported through the community than for Alternative S4-3. Alternative S4-1 rated low in short-term effectiveness.

10.1.3.6 Implementability

Alternative S4-1 rated high in implementability. Alternative S4-2 also rated high in implementability because there would be no need to characterize the soil for off-site disposal. Alternative S4-3 rated medium in implementability because the soil would need to be characterized and segregated based on its characteristics, and hazardous soil would be transported off-site for disposal. Alternative S4-4 rated low in implementability because, in addition to characterizing and segregating the soil, a large volume of soil would require off-site disposal, which could pose logistical challenges relative to transport through the community.

10.1.3.7 Cost

Alternative S4-1 rated high in the cost comparison because no costs would be incurred. Alternative S4-2 rated high because it would cost significantly less than Alternatives S4-3 or S4-4. Alternative S4-3 rated medium in the cost comparison because it would be significantly more expensive than Alternative S4-2. Alternative S4-4 rated low in the cost comparison because it would be significantly more expensive than Alternative S4-2, although only slightly more expensive than Alternative S4-3.

10.1.3.8 State Acceptance

The State of California concurs with the Navy's selected remedial alternative for soil, Alternative S4-4, in Area 4.

10.1.3.9 Community Acceptance

The Proposed Plan was presented to the community and discussed in a public meeting. The responsiveness summary portion of this ROD addresses the public's comments and concerns about the selected remedial alternative for soil in Area 4 (Alternative S4-4).

10.1.4 Comparative Analysis of Soil Alternatives for Area 5

This section presents a comparative analysis of the remedial alternatives identified for soil at Area 5 (see Section 9.1.5). Overall, Alternative S5-3 was rated the most effective in the short-term, the most implementable, and the least costly. Alternative S5-4 was considered more effective in the short-term and more implementable than Alternatives S5-5 and S5-6 and was also lower in cost. Alternatives S5-5 and S5-6 rated low in satisfying the balancing criteria. Alternative S5-1 also rated low because it does not meet the threshold criterion of protection of human health and the environment. Table 10-7 summarizes the comparative analysis of Area 5 alternatives by the primary balancing criteria. Table 10-8 presents the comparison of costs for the Area 5 alternatives.

10.1.4.1 Overall Protection of Human Health and the Environment

Alternative S5-1 would not be fully protective of human health and the environment because humans could be exposed to soil with chemical concentrations exceeding remediation goals and ICs would not be implemented. Alternatives S5-3, S5-4, S5-5, and S5-6 meet the threshold criterion for overall protection of human health and the environment.

10.1.4.2 Compliance with ARARs

ARARs are not applicable to Alternative S5-1. Alternatives S5-3, S5-4, S5-5, and S5-6 meet the threshold criterion of compliance with ARARs (see Section 13.2).

10.1.4.3 Long-Term Effectiveness and Permanence

Alternative S5-6 rated high in long-term effectiveness and permanence because contaminated soil and debris identified during the proposed sampling would be removed, thus residual risk would be lower than for the other alternatives. Alternative S5-5 rated medium because relocation of debris and soil to inland portions of Area 1 would reduce residual risk along the shoreline. Alternatives S5-1, S5-3, and S5-4 rated low in long-term effectiveness and permanence because none of these alternatives would involve excavation of shoreline debris.

10.1.4.4 Reduction of Toxicity, Mobility, or Volume through Treatment

Alternative S5-6 rated medium in reduction of toxicity, mobility or volume through treatment. Although some excavated soil could require off-site treatment to meet land disposal restrictions, it is estimated that the volume of soil treated would not be significant because the shoreline areas are believed to be outside of the former waste disposal areas. Alternatives S5-1, S5-3, S5-4, and S5-5 rated low in reduction of toxicity, mobility or volume through treatment because no active treatment processes would be included. Alternatives S5-4 and S5-5 involve relocation of contaminated soil or buried waste, but these alternatives do not involve treatment.

10.1.4.5 Short-Term Effectiveness

Alternative S5-3 rated high in short-term effectiveness because there would be no short-term risks to the community or significant environmental effects. Alternative S5-4 rated medium in short-term effectiveness. Relocation of contaminated soil and placement of additional riprap would pose some short-term risk to workers, and short-term risks to the community would increase due to trucking of riprap material. Alternative S5-5 rated medium in short-term effectiveness. Excavation of debris along the shoreline would pose a potential for environmental effects to the bay; however, no contaminated soil would be transported through the community. Alternative S5-6 rated low in short-term effectiveness. Excavation of debris along the shoreline would pose a potential for environmental effects to the bay and a potentially large volume of contaminated soil and debris would be transported through the community. Alternative S5-1 also rated low in short-term effectiveness.

10.1.4.6 Implementability

Alternative S5-1 rated high in implementability. Alternative S5-3 also rated high in implementability because only sampling and analysis would be involved. Alternative S5-4 rated medium in implementability because although Area 5 addresses the shoreline, it does not involve excavation of buried waste from the shoreline in Area 1b; it would be more easily implemented than Alternatives S5-5 and S5-6. Alternatives S5-5 and S5-6 rated low in implementability. Characterizing the shoreline debris through excavation of test pits would be difficult and excavation of the buried waste near the shoreline would pose logistical challenges.

10.1.4.7 Cost

Alternative S5-1 rated high in the cost comparison because no costs would be incurred. Alternatives S5-3 and S5-4 also rated high in the cost comparison because they would cost significantly less than Alternatives S5-5 or S5-6. Alternative S5-5 rated medium. Alternative S5-6 rated low in the cost comparison because it would be significantly more expensive than all other alternatives.

10.1.4.8 State Acceptance

The State of California concurs with the Navy's selected remedial alternative for soil, Alternative S5-4, in Area 5.

10.1.4.9 Community Acceptance

The Proposed Plan was presented to the community and discussed in a public meeting. The responsiveness summary portion of this ROD addresses the public's comments and concerns about the selected remedial alternative for soil in Area 5 (Alternative S5-4).

10.1.5 Comparative Analysis of Alternatives for Site-Wide Radiologically-Impacted Waste

This section presents a comparative analysis of the soil remedial alternatives identified for radiologically-impacted waste at Site 1 (see Section 9.1.5). Overall, Alternative S6-4 rated high in satisfying the balancing criteria overall. Alternative S6-4 was judged to be the most effective in the short term, the most implementable, and the least costly among the active remedial alternatives for site-wide radiologically-impacted waste. Alternative S6-5 rated medium in satisfying the balancing criteria, although the cost was significantly higher than Alternative S6-4. Alternative S6-1 rated low because it does not meet the threshold criterion of protection of human health and the environment. Table 10-9 summarizes the comparative analysis of radiologically-impacted waste alternatives by the primary balancing criteria. Table 10-10 presents the comparison of costs for radiologically-impacted waste alternatives.

10.1.5.1 Overall Protection of Human Health and the Environment

Alternative S6-1 would not be fully protective of human health and the environment because potential receptors could be exposed to radiological anomalies and ICs would not be implemented. Alternatives S6-4 and S6-5 meet the threshold criterion of overall protection of human health and the environment.

10.1.5.2 Compliance with ARARs

ARARs are not applicable to Alternative S6-1. Alternatives S6-4 and S6-5 meet the threshold criterion of compliance with ARARs (see Section 13.2).

10.1.5.3 Long-Term Effectiveness and Permanence

Alternative S6-5 rated high in long-term effectiveness and permanence because removal of all radiological waste would minimize residual risk and there would be no need for long-term maintenance of the soil cover. Alternative S6-4 rated medium in long-term effectiveness and permanence. Removal of surface radiological waste in Site 1 would reduce residual risk; although, there would be a need for long-term maintenance of the cover/cap.

10.1.5.4 Reduction of Toxicity, Mobility, or Volume through Treatment

Alternative S6-5 rated high in reduction of toxicity, mobility, or volume through treatment because it involves complete excavation of all radiologically-impacted soil. Alternative S6-4 rated medium in reduction of toxicity, mobility, or volume through treatment. Although some excavated soil may require off-site treatment to meet waste disposal requirements, it is anticipated that the volume of soil treated would be less than Alternative S6-5. Alternative S6-1 rated low in reduction of toxicity, mobility or volume through treatment, since no active treatment processes would be included.

10.1.5.5 Short-Term Effectiveness

Alternative S6-4 rated high in short-term effectiveness because it could be implemented quickly and the volume of radiologically-impacted waste transported through the community would be less compared with Alternative S6-5. Alternative S6-5 rated low in short-term effectiveness. This alternative would take a considerable amount of time to implement. The potential for worker exposure to the radiologically-impacted waste would be more significant than for Alternative S6-4. A potentially large volume of radiologically-impacted waste would be transported through the community for off-site disposal. Alternative S6-1 rated low in short-term effectiveness.

10.1.5.6 Implementability

Alternative S6-1 rated high in implementability. Alternative S6-4 rated medium in implementability because the transportation of the radiologically-impacted waste through the

community could pose potential logistical problems. Alternative S6-5 rated low in implementability. Complete removal of the radiologically-impacted waste in Area 1 would be logistically complex and difficult.

10.1.5.7 Cost

Alternative S6-1 rated high in the cost comparison because no costs would be incurred. Alternative S6-4 rated medium in the cost comparison because it would cost less than Alternative S6-5. Alternative S6-5 rated low in the cost comparison because it would be more expensive than Alternative S6-4.

10.1.5.8 State Acceptance

The State of California concurs with the Navy's selected remedial alternative for site-wide radiologically-impacted waste (Alternative S6-4).

10.1.5.9 Community Acceptance

The Proposed Plan was presented to the community and discussed in a public meeting. The responsiveness summary portion of this ROD addresses the public's comments and concerns about the selected remedial alternative for site-wide radiologically-impacted waste (Alternative S6-4).

10.2 REMEDIAL ALTERNATIVES FOR GROUNDWATER

This section presents a comparative analysis of the remedial alternatives for groundwater at Site 1. Each of the remedial alternatives identified for groundwater are discussed in detail in Section 9.2. Overall, Alternatives GW-3 and GW-4 scored high in satisfying the balancing criteria. Alternative GW-3 offers the most rapid treatment process and addresses a wider range of COCs than Alternatives GW-4 and GW-5. Alternative GW-4 appears to be the most implementable. Alternative GW-1, GW-5a, and GW-5b were rated medium, although Alternative GW-1 did not satisfy the threshold criterion of overall protection of human health and the environment. Alternative GW-5b was highest in cost and did not appear to offer a significant advantage among the remaining balancing criteria. Alternatives GW-4 and GW-5a rely on desorption of suspected dense nonaqueous-phase liquid for complete treatment, which could require an extended time frame. Table 10-11 summarizes the comparative analysis of groundwater alternatives by the primary balancing criteria. Table 10-12 presents the comparison of costs for the groundwater alternatives.

10.2.1 Overall Protection of Human Health and the Environment

Alternative GW-1 would not be fully protective of human health and the environment because stability of the VOC plume would not be verified and ICs would not be implemented.

Alternatives GW-2, GW-3, GW-4, GW-5a, and GW-5b meet the threshold criterion of overall protection of human health and the environment.

10.2.2 Compliance with ARARs

ARARs are not applicable to Alternative GW-1. Alternatives GW-2, GW-3, GW-4, GW-5a, and GW-5b meet the threshold criterion of compliance with ARARs (see Section 13.2).

10.2.3 Long-Term Effectiveness and Permanence

Although concentrations of VOCs in groundwater suggest the possibility of DNAPL in the groundwater at Site 1, concentrations are not indicative of the presence of DNAPL. In addition, DNAPL has not been directly observed, see Section 5.3.2. So, the alternatives evaluated in the FS, except for Alternative GW-1, are expected to be capable of achieving a permanent reduction of VOCs (BEI 2006). Alternatives GW-3, GW-4, GW-5a, and GW-5b were rated high in long-term effectiveness and permanence because *in-situ* treatment of the source area (VOC plume) should reduce the need for long-term management of chemicals. Alternative GW-2 received a rating of medium in long-term effectiveness and permanence. Removal of the suspected source area should reduce VOC concentrations in groundwater, but the anticipated duration of MNA is longer than other active alternatives. Alternative GW-1 received a rating of low because the effectiveness of natural attenuation processes would not be verified and plume migration patterns would not be monitored to demonstrate protectiveness.

10.2.4 Reduction of Toxicity, Mobility, or Volume through Treatment

Alternatives GW-3 and GW-5b received a high rating in reduction of toxicity, mobility, or volume through active treatment. The ISCO or similar process treatment for Alternative GW-3 would be expected to treat a wider range of chemicals than would be treated under Alternatives GW-4, GW-5a, or GW-5b. Alternatives GW-4 and GW-5a received a medium rating in meeting this criterion. Chemical reactions occurring within the aquifer would remove chlorinated VOCs from groundwater, and VOCs such as PCE and TCE would be degraded to nontoxic, inert compounds by the ISB and ZVI reactions, although the processes by which these reactions occur differ. Anaerobic ISB and ZVI powder injection would not remediate SVOCs or metals concentrations in groundwater, and ZVI powder injection might mobilize metals in the subsurface and increase iron concentrations in groundwater. Alternative GW-2 also rated medium under this criterion. Excavated material would be treated off-site by the disposal facility, as required to meet land disposal restrictions. Natural attenuation processes would then gradually degrade the remaining VOCs in groundwater. Alternative GW-1 rated lowest in reduction of toxicity, mobility, or volume through treatment, since no active treatment is provided.

10.2.5 Short-Term Effectiveness

Alternative GW-4 rated medium in short-term effectiveness. This alternative poses little risk to the community and there is a minimal potential for effects on workers during implementation.

Alternatives GW-5a and GW-5b also rated medium in short-term effectiveness because transporting the nitrogen gas used for ZVI injection to the site would pose some short-term risks to the community and the use of nitrogen gas might pose some hazards to workers during implementation. Off-site disposal of excavated contaminated soil for Alternative GW-5b would be transported through the community. Alternative GW-3 also rated medium in short-term effectiveness. Although the treatment process would likely reduce the chemical mass more quickly than Alternatives GW-4 and GW-5, transporting the hydrogen peroxide and sulfuric acid used for the ISCO process would pose some short-term risks to the community, and the use of these reagents would pose some hazards to workers during implementation. Alternative GW-2 received a rating of low in short-term effectiveness. Alternative GW-1 received a rating of low in short-term effectiveness.

10.2.6 Implementability

Although concentrations of VOCs in groundwater suggest the possibility of DNAPL in the groundwater at Site 1, concentrations are not indicative of the presence of DNAPL. In addition, DNAPL has not been directly observed, see Section 5.3.2. So, the alternatives evaluated in the FS, except for Alternative GW-1, are expected to be technically feasible. Alternative GW-1 rated high in implementability; however, there would be no means provided for monitoring effectiveness. Alternative GW-4 rated medium in implementability. Injection of the electron donor compound in the subsurface is easily accomplished with direct-push technology. Alternative GW-2 also rated medium in implementability because excavation of the source area and related dewatering could potentially pose challenges. Alternatives GW-3, GW-5a, and GW-5b rated low in implementability. The shallow depth to groundwater and relatively thin treatment zone could pose challenges using the ISCO and ZVI injection processes.

10.2.7 Cost

Alternative GW-1 rated highest in the cost comparison because no costs are incurred. Alternatives GW-2, GW-3, and GW-4 received a rating of medium in the cost comparison. Alternatives GW-5a and GW-5b received a rating of low in the cost comparison because they are significantly more expensive than the other active remedial alternatives.

10.2.8 State Acceptance

The State of California concurs with the Navy's selected remedial alternative for groundwater (Alternative GW-3).

10.2.9 Community Acceptance

The proposed plan was presented to the community and discussed in a public meeting. The responsiveness summary portion of this ROD addresses the public's comments and concerns about the selected remedial alternative for groundwater (Alternative GW-3).

TABLES

TABLE 10-1: COMPARATIVE ANALYSIS OF SOIL AREA 1 REMEDIAL ALTERNATIVES BY BALANCING CRITERIA
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Alternative	Long-Term Effectiveness and Permanence	Reduction in Toxicity, Mobility, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost*
	Parameters considered: • The expected long-term reduction in risk posed by the site • The level of effort needed to maintain the remedy and monitor the area for changes in site conditions • The compatibility of the remedy with planned future use of the site • Adequacy and reliability, including reliance on land disposal, potential need to replace, and risks posed should components need replacement	Parameters considered: • Treatment processes used • The amount of hazardous materials destroyed, recycled, or treated • The degree of expected reduction in toxicity, mobility, or volume and the inherent hazard posed by principal threats at the site • The degree to which the benefits of the remedial alternative are irreversible • The types, quantities, persistence, toxicity, and propensity to bioaccumulate treatment residuals that remain following treatment	Parameters considered: • Protection of the community during the remedial alternative • Protection of workers during the remedial alternative • Environmental impacts during remediation • Time required to achieve protection	Parameters considered: • Technical and administrative feasibility • Availability of required resources • Operational reliability • Ability to monitor the effectiveness of the remedial action	Parameters considered: • Capital costs • Operations and maintenance costs • Costs for long-term monitoring • Costs for developing and maintaining institutional controls • Net present value
S1-1 – No Action	Low	Low	Low	High	High
	Under this alternative, there would be no method of addressing long-term effectiveness and permanence.	No treatment is performed. No means are available to assess reduction of toxicity, mobility, or volume.	There would be no short-term risks to the community or potential effects to workers under this alternative. No action would be taken, so there would be no short-term	Easy to implement; however, no ability to monitor effectiveness.	No costs occurred.

TABLE 10-1: COMPARATIVE ANALYSIS OF SOIL AREA 1 REMEDIAL ALTERNATIVES BY BALANCING CRITERIA (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Alternative	Long-Term Effectiveness and Permanence	Reduction in Toxicity, Mobility, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost*
			environmental effects. However, the alternative does not include methods to monitor environmental effects of taking no action.		
S1-2 – Soil Cover, WMP, and ICs	Medium	Low	High	High	High
	Alternative S1-2 would require ICs and long-term management of chemicals. However, the simplicity of the design minimizes the need to replace components; therefore, continuing repair or maintenance needs should be minimal. Should differential settlement or seismic forces damage the cover, it should be easy to repair by regrading.	No active treatment processes are implemented that would reduce the mobility or toxicity of the chemicals in affected soils.	Alternative S1-2 would involve importing a significant amount of soil to Area 1 to create the soil cover. Seasonal wetlands would be covered, requiring mitigation. This alternative could be implemented quickly, with no scheduling implications relative to potential groundwater remediation activities.	Alternative S1-2 would be readily implemented with no significant difficulties regarding technical feasibility or reliability. Clean cover soil is readily available from sources in the Bay Area. The soil cover would be relatively easy to design and construct. This alternative would enable future remedial options (such as groundwater remediation) to be accomplished easily, because drilling through the soil cover could occur without compromising its function.	The present value cost associated with this alternative is estimated to be $3,260,000.

TABLE 10-1: COMPARATIVE ANALYSIS OF SOIL AREA 1 REMEDIAL ALTERNATIVES BY BALANCING CRITERIA (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Alternative	Long-Term Effectiveness and Permanence	Reduction in Toxicity, Mobility, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost*
S1-3 – Engineered Alternative Cap, WMP, and ICs	Medium	Low	Medium	Medium	Medium
	Alternative S1-3 would require ICs and long-term management of chemicals. Should differential settlement or seismic forces damage the cap, repair or maintenance needs could be extensive.	No active treatment processes are implemented that would reduce the mobility or toxicity of the chemicals in affected soils.	As with Alternative S1-2, this alternative would involve importing a significant amount of soil to Area 1 to create the soil cover. The installation of the low-permeability cap and associated drainage system would increase the time required to construct the cap. Additional truck trips would be required under this alternative for the import of the LLDPE and drainage system materials, compared to Alternative S1-2. Approximately 2.1 acres of seasonal wetlands would be covered, requiring mitigation. Should active groundwater remediation be required, installation of the cap would likely be deferred until intrusive activities are complete to avoid breaching the liner and extensive repairs.	Alternative S1-3 would be moderately implementable. Design and construction of a low-permeability cap and the associated drainage system are complex. Monitoring of the low-permeability liner would be required. Drainage of accumulating surface water requires long-term O&M of pumps, piping, and design grades of the low-permeability cap. This alternative could limit the ability to implement future remedial actions (such as groundwater remediation), because penetrating the cap would damage the liner, necessitating expensive repairs.	The present value cost associated with this alternative is estimated to be $15,145,000.
S1-4a – Excavation and Off-Site Disposal of Soil, Soil Cover,	Medium	Low	High	Medium	Medium
	Buried debris in approximately 15 percent of Area 1b would be removed	Buried debris in approximately 15 percent of Area 1b would be removed under this	As with Alternative S1-2, this alternative would involve importing a significant amount of soil to	As with Alternative S1-2, this alternative would involve importing a significant amount of	The present value cost associated with this alternative is estimated to be $18,087,000.

TABLE 10-1: COMPARATIVE ANALYSIS OF SOIL AREA 1 REMEDIAL ALTERNATIVES BY BALANCING CRITERIA (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Alternative	Long-Term Effectiveness and Permanence	Reduction in Toxicity, Mobility, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost*
Radiological Screening and MPPEH Sweep, WMP, and ICs	under this alternative. Alternative S1-4a would require ICs and long-term management of chemicals. ICs would be implemented to restrict land use and activities that could impair the cover. Soil cover protectiveness is the same as described for Alternative S1-2.	alternative. Any required treatment to meet land disposal restrictions would be performed at the disposal facility before disposal. This treatment would reduce the toxicity and mobility of chemicals in hazardous soil before disposal. Excavated soil not requiring treatment to meet land disposal restrictions would not be treated, so contamination in soil would not be reduced in toxicity, mobility, or volume. No active treatment processes would be implemented that reduce the mobility or toxicity of the chemicals in affected soils under the soil cover.	Area 1 to create the soil cover. Seasonal wetlands would be covered, requiring mitigation. This alternative could be implemented quickly, with no scheduling implications relative to potential groundwater remediation activities.	soil to Area 1 to create the soil cover. Excavation, transportation, and off-site disposal of contaminated soil and waste would be required for Area 1b soil. Excavation in Area 1b may extend below the water table, which might affect excavation stability and compaction of backfill. Dewatering of the excavations also would be needed. These activities are routinely performed at hazardous waste sites in the United States. This alternative could be implemented quickly, with no scheduling implications relative to potential groundwater remediation activities.	

TABLE 10-1: COMPARATIVE ANALYSIS OF SOIL AREA 1 REMEDIAL ALTERNATIVES BY BALANCING CRITERIA (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Alternative	Long-Term Effectiveness and Permanence	Reduction in Toxicity, Mobility, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost*
S1-4b – Excavation and Off-Site Disposal of Soil, Engineered Alternative Cap, Radiological Screening and MPPEH Sweep, WMP, and ICs	Medium	Low	Medium	Low	Low
	As with Alternative S1-4a, buried debris in approximately 15 percent of Area 1 would be removed under this alternative. Alternative S1-4b would require ICs and long-term management of chemicals, although ICs would not be necessary in Area 1b after waste removal. Protectiveness of the engineered alternative cap is the same as that described for Alternative S1-3.	Buried debris in approximately 15 percent of Area 1 would be removed under this alternative. Any required treatment to meet land disposal restrictions would be performed at the disposal facility before disposal. This treatment would reduce the toxicity and mobility of chemicals in hazardous soil before disposal. Excavated soil not requiring treatment to meet land disposal restrictions would not be treated, so contamination in soil would not be reduced in toxicity, mobility, or volume. No active treatment processes would be implemented that reduce the mobility or toxicity of the chemicals in affected soils.	As with Alternative S1-3, Alternative S1-4b would involve importing a significant amount of soil to Area 1 to create the engineered alternative cap. Installation of the low-permeability cap and associated drainage system would increase the time required to construct the alternative cap compared with a soil cover. Additional truck trips would be required under this alternative to import LLDPE and drainage system materials, compared with Alternative S1-4a. Approximately 2.1 acres of seasonal wetlands would be covered, requiring mitigation. Should active groundwater remediation be required, installation of the cap would likely have to be deferred until intrusive activities are complete to avoid breaching the liner and performing extensive repairs.	As with Alternative S1-3, this alternative would involve importing a significant volume of soil to Area 1. Excavation issues are the same as for Alternative S1-4a. Design and construction of a low-permeability cap and the associated drainage system are complex. Monitoring of the low-permeability liner would be required. Drainage of accumulating surface water requires long-term O&M of pumps, piping, and design grades of the low-permeability cap. This alternative could limit the ability to implement future remedial actions (such as groundwater remediation), because penetrating the cap would damage the liner, necessitating expensive repairs.	The present value cost associated with this alternative is estimated to be $24,009,000.

TABLE 10-1: COMPARATIVE ANALYSIS OF SOIL AREA 1 REMEDIAL ALTERNATIVES BY BALANCING CRITERIA (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Alternative	Long-Term Effectiveness and Permanence	Reduction in Toxicity, Mobility, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost*
S1-5 – Complete Removal, Radiological Screening, and MPPEH Sweep	High	Medium	Low	Low	Low
	Under Alternative S1-5, all buried waste would be removed from Area 1. These activities require extensive radiological and munitions surveys for worker protection and to meet waste disposal requirements. Requires standard dust control measures necessary to protect site workers, the community, and the environment. This alternative is considered to be the most effective and permanent over the long term, achieving complete removal of contaminated soil.	Alternative S1-5 would require that all excavated buried waste from Area 1 be transported to an appropriate waste disposal facility. Any required treatment to meet land disposal restrictions would be performed at the disposal facility before disposal. This treatment would reduce the toxicity and mobility of chemicals in hazardous soil before disposal. Excavated soil not requiring treatment to meet land disposal restrictions would not be treated, so contamination in this soil would not be reduced in toxicity, mobility, or volume.	Alternative S1-5 would involve excavation and off-site disposal of contaminated soil and backfilling of the excavations. This alternative has the potential to create contaminated dust and to track contaminated soil off site. These hazards can be minimized using proper planning and engineering controls such as dust-control and equipment decontamination techniques. Significantly more truck trips would be required through the community for Alternative S1-5 than for any other Area 1 alternative. Traffic effects of Alternative S1-5 would be significant, with up to 30,000 truck trips required for disposal of soil and import of clean fill. Wetlands would be disturbed during the excavation and would be reconstructed as part of the backfilling and site restoration process. The potential for	Excavation, transportation, and off-site disposal of contaminated soil and waste are routinely performed at hazardous waste sites in the United States. However, Alternative S1-5 also requires demolition and removal of Runway 13 and extensive radiological and munitions surveys during area-wide excavation. Would require extensive excavation below water table to remove buried waste, which might affect excavation stability and compaction of backfill. Dewatering of the excavations also would be needed. The buried barges could also be encountered and impede the excavation activities.	The present value cost associated with this alternative is estimated to be $91,903,000.

TABLE 10-1: COMPARATIVE ANALYSIS OF SOIL AREA 1 REMEDIAL ALTERNATIVES BY BALANCING CRITERIA (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Alternative	Long-Term Effectiveness and Permanence	Reduction in Toxicity, Mobility, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost*
			environmental effects to the San Francisco Bay and wetlands in adjacent areas (Area 3) is significant.		

Note: The information in this table was originally presented in the Site 1 Feasibility Study Report (Bechtel Environmental, Inc. 2006).
* Based on net present value (2005 dollars)
IC Institutional control
LLDPE Linear low-density polyethylene
MPPEH Materials potentially presenting an explosive hazard
O&M Operation and maintenance
WMP Wetlands mitigation plan

TABLE 10-2: SOIL AREA 1 REMEDIAL ALTERNATIVES AND COST COMPARISON
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area
Alameda Point, Alameda, California

	Remedial Alternatives	Estimated Cost*
S1-1	No Action	$0
S1-2	Soil Cover, WMP, and ICs	$3,260,000
S1-3	Engineered Alternative Cap, WMP, and ICs	$15,145,000
S1-4a	Excavation and Off-Site Disposal of Soil, Soil Cover, Radiological Screening and MPPEH Sweep, WMP, and ICs	$18,087,000
S1-4b	Excavation and Off-Site Disposal of Soil, Engineered Alternative Cap, Radiological Screening and MPPEH Sweep, WMP, and ICs	$24,009,000
S1-5	Complete Removal, Radiological Screening, and MPPEH Sweep	$91,903,000

Notes: The information in this table was originally presented in the Site 1 Feasibility Study Report (Bechtel Environmental Inc., 2006).

* Net present value (2005 dollars)

IC Institutional control

MPPEH Materials potentially presenting an explosive hazard

WMP Wetlands mitigation plan

TABLE 10-3: COMPARATIVE ANALYSIS OF SOIL AREA 2 REMEDIAL ALTERNATIVES BY BALANCING CRITERIA
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Alternative	Long-Term Effectiveness and Permanence	Reduction in Toxicity, Mobility, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost*
	Parameters considered: • The expected long-term reduction in risk posed by the site • The level of effort needed to maintain the remedy and monitor the area for changes in site conditions • The compatibility of the remedy with planned future use of the site • Adequacy and reliability, including reliance on land disposal, potential need to replace, and risks posed should components need replacement	Parameters considered: • Treatment processes used • The amount of hazardous materials destroyed, recycled, or treated • The degree of expected reduction in toxicity, mobility, or volume and the inherent hazard posed by principal threats at the site • The degree to which the benefits of the remedial alternative are irreversible • The types, quantities, persistence, toxicity, and propensity to bioaccumulate treatment residuals that remain following treatment	Parameters considered: • Protection of the community during the remedial alternative • Protection of workers during the remedial alternative • Environmental impacts during remediation • Time required to achieve protection	Parameters considered: • Technical and administrative feasibility • Availability of required resources • Operational reliability • Ability to monitor the effectiveness of the remedial action	Parameters considered: • Capital costs • Operations and maintenance costs • Costs for long-term monitoring • Costs for developing and maintaining institutional controls • Net present value
S2-1 – No Action	Low	Low	Low	High	High
	Under this alternative, there would be no method of addressing long-term effectiveness and permanence.	No treatment is performed; as a result, no means are available to assess reduction of toxicity, mobility, or volume.	There would be no short-term risks to the community or potential effects to workers under this alternative. No action would be taken, so	Easy to implement; however, no ability to monitor effectiveness.	No costs occurred.

TABLE 10-3: COMPARATIVE ANALYSIS OF SOIL AREA 2 REMEDIAL ALTERNATIVES BY BALANCING CRITERIA (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Alternative	Long-Term Effectiveness and Permanence	Reduction in Toxicity, Mobility, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost*
			there would be no short-term environmental effects. However, the alternative does not include methods to monitor environmental effects of taking no action.		
S2-3 –Soil Cover and ICs	Medium	Low	High	High	High
	There is no information to indicate the COCs or ROCs in the subsurface under paved areas pose a risk; however, if risk does exist, this alternative would be effective in the long-term because the soil cover would act as a barrier to prevent exposure to potential contaminants. The soil cover will be maintained to ensure it remains intact and protective of human and ecological receptors. ICs would be implemented to restrict land use and activities that could impair the cover. Repair and maintenance should be easily accomplished.	No treatment processes would be implemented to reduce the mobility, toxicity, or volume of COCs or ROCs in soil beneath the cover to the extent such contamination exists.	Periodic cover maintenance activities associated with Alternative S2-3 should not have any adverse effects on the surrounding community or the environment.	Alternative S2-3 would be readily implemented with no significant difficulties regarding technical feasibility or reliability. This alternative includes a long-term O&M component.	The present value cost associated with this alternative is estimated to be $287,000.

TABLE 10-3: COMPARATIVE ANALYSIS OF SOIL AREA 2 REMEDIAL ALTERNATIVES BY BALANCING CRITERIA (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Alternative	Long-Term Effectiveness and Permanence	Reduction in Toxicity, Mobility, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost*
S2-4 – Pavement Demolition, Excavation and Off-Site Disposal of Soil, Radiological Screening and MPPEH Sweep, Removal of Soil Hot Spots, and ICs	High	Medium	Medium	Low	Low
	Existing pavement would be demolished and any underlying soil with chemical concentrations exceeding remediation goals would be removed. Therefore, this alternative would minimize residual risk at completion. However, ICs would nevertheless be required to establish future soil management requirements.	Alternative S2-4 would require that all soil in Area 2 with COC concentrations exceeding human and ecological remediation goals would be excavated and disposed of off site. Any required treatment to meet land disposal restrictions would be performed at the disposal facility before disposal. This off-site treatment would reduce the toxicity and mobility of hazardous chemicals in soil before disposal, to the extent such chemicals exist and would require treatment. Excavated nonhazardous soil would not be treated to meet land disposal restrictions, thus would not realize a reduction in toxicity, mobility, or volume.	Alternative S2-4 has the potential to create contaminated dust and to track contaminated soil off site. These hazards can be minimized using planning and engineering controls such as dust control and equipment decontamination techniques. The demolished pavement would be trucked off site for recycling. Significantly more truck trips would be required through the community for Alternative S2-4 than for any other Area 2 alternative.	The demolition of pavement in Area 2 will be difficult because the runways are concrete and at least 4 feet thick. Potential soil chemicals under the concrete have not been defined, so the volume of contaminated soil is unknown. After demolition, the sampling and hot spot removal activities have the potential to affect adjacent seasonal wetlands.	The present value cost associated with this alternative is estimated to be $4,691,000.

Notes: The information in this table was originally presented in the Site 1 Feasibility Study Report (Bechtel Environmental, Inc. 2006).

* Based on net present value (2005 dollars)
COC Chemical of concern
IC Institutional control
O&M Operation and maintenance
MPPEH Materials potentially presenting an explosive hazard

TABLE 10-4: SOIL AREA 2 REMEDIAL ALTERNATIVES AND COST COMPARISON
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area
Alameda Point, Alameda, California

	Remedial Alternatives	Estimated Cost*
S2-1	No Action	$0
S2-3	Soil cover and ICs	$287,000
S2-4	Pavement Demolition, Excavation and Off-Site Disposal of Soil, Radiological Screening and MPPEH Sweep, Removal of Soil Hot Spots, and ICs	$4,691,000

Note: The information in this table was originally presented in the Site 1 Feasibility Study Report (Bechtel Environmental, Inc. 2006).

* Net present value (2005 dollars)

IC Institutional control

MPPEH Materials potentially presenting an explosive hazard

TABLE 10-5: COMPARATIVE ANALYSIS OF SOIL AREA 4 REMEDIAL ALTERNATIVES BY BALANCING CRITERIA
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Alternative	Long-Term Effectiveness and Permanence	Reduction in Toxicity, Mobility, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost*
	Parameters considered: • The expected long-term reduction in risk posed by the site • The level of effort needed to maintain the remedy and monitor the area for changes in site conditions • The compatibility of the remedy with planned future use of the site • Adequacy and reliability, including reliance on land disposal, potential need to replace, and risks posed should components need replacement	Parameters considered: • Treatment processes used • The amount of hazardous materials destroyed, recycled, or treated • The degree of expected reduction in toxicity, mobility, or volume and the inherent hazard posed by principal threats at the site • The degree to which the benefits of the remedial alternative are irreversible • The types, quantities, persistence, toxicity, and propensity to bioaccumulate treatment residuals that remain following treatment	Parameters considered: • Protection of the community during the remedial alternative • Protection of workers during the remedial alternative • Environmental impacts during remediation • Time required to achieve protection	Parameters considered: • Technical and administrative feasibility • Availability of required resources • Operational reliability • Ability to monitor the effectiveness of the remedial action	Parameters considered: • Capital costs • Operations and maintenance costs • Costs for long-term monitoring • Costs for developing and maintaining institutional controls • Net present value
S4-1 – No Action	Low	Low	Low	High	High
	Under this alternative, there would be no method of addressing long-term effectiveness and permanence.	No treatment is performed. No means are available to assess reduction of toxicity, mobility, or volume.	There would be no short-term risks to the community or potential effects to workers under this alternative. No action would be taken, so there	Easy to implement; however, no ability to monitor effectiveness.	No costs occurred.

TABLE 10-5: COMPARATIVE ANALYSIS OF SOIL AREA 4 REMEDIAL ALTERNATIVES BY BALANCING CRITERIA (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Alternative	Long-Term Effectiveness and Permanence	Reduction in Toxicity, Mobility, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost*
			would be no short-term environmental effects. However, the alternative does not include methods to monitor environmental effects of taking no action.		
S4-2 – Removal, Screening, and Relocation of Soil	Low	Low	High	High	High
	Long-term management of remaining chemicals under the Area 1 soil cover or engineered alternative cap would be required. ICs would be required.	This alternative includes no active treatment processes that would reduce the toxicity, mobility, or volume of the affected soils through treatment.	No soil would be disposed of off site; therefore, no truck trips through the community are anticipated. This alternative has the potential to create contaminated dust, which would need to be minimized using proper dust control techniques. This alternative could be implemented quickly.	Alternative S4-2 would be readily implemented with no significant difficulties regarding technical feasibility or reliability. An unexploded ordnance survey crew would be present throughout excavation and screening of firing-range berm soil to address potential live ammunition associated with the former firing range. ICs would be implemented in Area 1 to prevent exposure to soil placed under the cover or cap. After the soil is screened for bullets and casing, it would be characterized for lead and then relocated underneath the soil cover in Area 1	The present value cost associated with this alternative is estimated to be $342,000.

TABLE 10-5: COMPARATIVE ANALYSIS OF SOIL AREA 4 REMEDIAL ALTERNATIVES BY BALANCING CRITERIA (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Alternative	Long-Term Effectiveness and Permanence	Reduction in Toxicity, Mobility, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost*
S4-3 – Removal, Screening, Relocation, and Off-Site Disposal of Soil	Medium	Medium	Medium	Medium	Medium
	This alternative involves off-site disposal of the hazardous portion of the firing-range berm soil. Therefore, residual risk should be lower than for Alternative S4-2. ICs would be required in Area 1 to prevent exposure to soil placed under the soil cover or cap. The ICs would prevent activities that could damage the cover or cap.	Under Alternative S4-3, hazardous soil would be disposed of off site. Any required treatment to meet land disposal restrictions would be performed at the disposal facility before disposal. This treatment would reduce the toxicity and mobility of chemicals in hazardous soil before disposal.	The off-site disposal of hazardous soil from the firing-range berm would result in short-term traffic effects, including up to 120 truck trips through the local community. Standard dust control measures would be used as necessary to protect site workers, the community and the environment. Standard equipment decontamination techniques would also be used. A munitions survey crew would be present throughout excavation and screening of firing-range berm soil.	Alternative S4-3 would be readily implemented with no significant difficulties related to technical feasibility or reliability anticipated. However, hazardous waste identification and management procedures would need to be used to segregate and dispose of the excavated soil.	The present value cost associated with this alternative is estimated to be $1,359,000.
S4-4 – Removal, Screening, and Off-Site Disposal of Soil, and ICs	High	Medium	Low	Low	Low
	This alternative involves removing Area 4 soil for off-site disposal. ICs would be implemented to restrict land use and prevent activities that could damage or reduce the effectiveness of the remedy. This alternative is considered to be the most effective and	Under Alternative S4-4, hazardous soil would be disposed of off site. Any required treatment to meet land disposal restrictions would be performed at the disposal facility before disposal. This treatment would reduce the toxicity and mobility of hazardous	This alternative has the potential to create contaminated dust and to track contaminated soil off site. Requires standard dust control measures necessary to protect site workers, the community, and the environment. Standard equipment	Alternative S4-4 would be readily implemented with no significant difficulties related to technical feasibility or reliability. However, hazardous waste identification and management procedures would need to be used to segregate and dispose of the excavated soil. The	The present value cost associated with this alternative is estimated to be $1,916,000.

TABLE 10-5: COMPARATIVE ANALYSIS OF SOIL AREA 4 REMEDIAL ALTERNATIVES BY BALANCING CRITERIA (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Alternative	Long-Term Effectiveness and Permanence	Reduction in Toxicity, Mobility, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost*
	permanent over the long term.	chemicals in soil before disposal.	decontamination techniques would also be required. Significantly more truck trips would be required through the community for Alternative S4-4 than for any other Area 4 alternative. Up to 240 truck trips for soil disposal would be required.	volume of soil requiring off-site disposal would pose logistical challenges related to transport through the community.	

Notes: The information in this table was originally presented in the Site 1 Feasibility Study Report (Bechtel Environmental, Inc. 2006).

* Based on net present value (2005 dollars)

IC Institutional control

MPPEH Materials potentially presenting an explosive hazard

TABLE 10-6: SOIL AREA 4 REMEDIAL ALTERNATIVES AND COST COMPARISON
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area
Alameda Point, Alameda, California

	Remedial Alternatives	Estimated Cost*
S4-1	No Action	$0
S4-2	Removal, Screening, MPPEH Sweep, and Relocation of Soil	$342,000
S4-3	Removal, Screening, Relocation, and Off-Site Disposal of Soil	$1,359,000
S4-4	Removal, Screening, and Off-Site Disposal of Soil, and ICs	$1,916,000

Notes: The information in this table was originally presented in the Site 1 Feasibility Study Report (Bechtel Environmental, Inc. 2006).

* Net present value (2005 dollars)

IC Institutional control
MPPEH Materials potentially presenting an explosive hazard

TABLE 10-7: COMPARATIVE ANALYSIS OF SOIL AREA 5 REMEDIAL ALTERNATIVES BY BALANCING CRITERIA
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Alternative	Long-Term Effectiveness and Permanence	Reduction in Toxicity, Mobility, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost*
	Parameters considered: • The expected long-term reduction in risk posed by the site • The level of effort needed to maintain the remedy and monitor the area for changes in site conditions • The compatibility of the remedy with planned future use of the site • Adequacy and reliability, including reliance on land disposal, potential need to replace, and risks posed should components need replacement	Parameters considered: • Treatment processes used • The amount of hazardous materials destroyed, recycled, or treated • The degree of expected reduction in toxicity, mobility, or volume and the inherent hazard posed by principal threats at the site • The degree to which the benefits of the remedial alternative are irreversible • The types, quantities, persistence, toxicity, and propensity to bioaccumulate treatment residuals that remain following treatment	Parameters considered: • Protection of the community during the remedial alternative • Protection of workers during the remedial alternative • Environmental impacts during remediation • Time required to achieve protection	Parameters considered: • Technical and administrative feasibility • Availability of required resources • Operational reliability • Ability to monitor the effectiveness of the remedial action	Parameters considered: • Capital costs • Operations and maintenance costs • Costs for long-term monitoring • Costs for developing and maintaining institutional controls • Net present value
S5-1 – No Action	Low	Low	Low	High	High
	Under this alternative, there would be no method of addressing long-term effectiveness and permanence.	No treatment is performed; as a result, no means are available to assess reduction of toxicity, mobility, or	There would be no short-term risks to the community or potential effects to workers under this alternative. No	Easy to implement; however, no ability to monitor effectiveness.	No costs occurred.

TABLE 10-7: COMPARATIVE ANALYSIS OF SOIL AREA 5 REMEDIAL ALTERNATIVES BY BALANCING CRITERIA (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Alternative	Long-Term Effectiveness and Permanence	Reduction in Toxicity, Mobility, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost*
		volume.	action would be taken, so there would be no short-term environmental effects. However, the alternative does not include methods to monitor environmental effects of taking no action.		
S5-3 – Confirmation Sampling and ICs	Low	Low	High	High	High
	Under this alternative, soil contamination in shoreline areas is presumed not to be significant enough to warrant remedial action. Soil would stay in place. ICs would be implemented to establish requirements for management of excavated soil.	This alternative includes no active treatment processes that would reduce the toxicity of contaminated soils.	Alternative S5-3 would involve intrusive sampling activities. There would be no significant adverse effects to the surrounding community from these sampling activities. The effects to the shoreline would be minimal. This alternative presumes that confirmation sampling results will indicate no significant environmental effects.	Confirmation sampling and ICs are readily implementable at Alameda Point.	The present value cost associated with this alternative is estimated to be $395,000.

TABLE 10-7: COMPARATIVE ANALYSIS OF SOIL AREA 5 REMEDIAL ALTERNATIVES BY BALANCING CRITERIA (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Alternative	Long-Term Effectiveness and Permanence	Reduction in Toxicity, Mobility, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost*
S5-4 – Confirmation Sampling, Hot Spot Relocation, Placement of Riprap Cover, and ICs	Low	Low	Medium	Medium	High
	This alternative presumes that confirmation sampling results indicate risk to human health or the environment from COCs in the exposed beach areas of Area 5. Long-term management of residual contaminants would be required. ICs would be implemented to restrict land use and activities that could impair the riprap cover and to require maintenance of the riprap cover.	This alternative includes no active treatment processes that would reduce the toxicity of contaminated soils.	Alternative S5-4 would involve excavating approximately 5,000 cubic yards of soil from Area 5. Up to 375 truckloads of clean fill soil would be trucked through the community. Additional riprap would also have to be trucked in. This alternative has the potential to create contaminated dust, which would need to be minimized using proper dust control techniques.	Confirmation sampling, excavation, placement of a riprap cover, and ICs are readily implementable at Alameda Point.	The present value cost associated with this alternative is estimated to be $1,373,000.
S5-5 – Confirmation Sampling, Hot Spot Relocation, Shoreline Debris Relocation, and ICs	Medium	Low	Medium	Low	Medium
	This alternative is similar to Alternative S5-4, with the addition of debris relocation from Area 1b. Removal of soil exceeding remediation goals, and debris from shoreline areas would reduce the risk of a release of buried waste to the San Francisco Bay during an	This alternative includes no active treatment processes that would reduce the toxicity of contaminated soils.	Alternative S5-5 would involve excavating up to 12,000 cubic yards of soil and debris from Areas 5 and 1. No soil would be disposed of off site, but up to 900 truckloads of clean fill soil would be trucked through the community. This alternative has the potential to create contaminated dust, which	Alternative S5-5 would involve excavating up to 12,000 cubic yards of soil and debris from Areas 5 and 1. No soil would be disposed of off site, but up to 900 truckloads of clean fill soil would be trucked through the community. This alternative has the potential to create contaminated dust, which	The present value cost associated with this alternative is estimated to be $2,182,000.

TABLE 10-7: COMPARATIVE ANALYSIS OF SOIL AREA 5 REMEDIAL ALTERNATIVES BY BALANCING CRITERIA (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Alternative	Long-Term Effectiveness and Permanence	Reduction in Toxicity, Mobility, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost*
	earthquake. Long-term management of residual chemicals would be required. ICs would be implemented to establish requirements for management of excavated soil.		would need to be minimized using proper dust control techniques.	would need to be minimized using proper dust control techniques.	
S5-6 – Confirmation Sampling, Hot Spot Removal, Shoreline Debris Removal, and ICs	High	Medium	Low	Low	Low
	Removal and off-site disposal of soil exceeding remediation goals and debris from shoreline areas would reduce environmental effects and reduce the risk of a release of buried waste to the San Francisco Bay during an earthquake. This alternative is considered to be the most effective and permanent over the long term, achieving complete removal for Area 5.	Alternative S5-6 would require that all soil exceeding remediation goals and debris from the shoreline areas would be transported to an appropriate waste disposal facility. Any required treatment to meet land disposal restrictions would be performed at the disposal facility before disposal. This treatment would reduce the toxicity and mobility of hazardous chemicals in soil before disposal. Excavated soil not requiring treatment to meet land disposal restrictions would not be treated, thus it would not realize a reduction in toxicity.	Alternative S5-6 would involve excavating up to 12,000 cubic yards of soil and debris from Areas 5 and 1b. Soil and debris would be disposed of off site, and clean fill soil would be used as backfill. These activities would result in up to 1,800 truckloads of fill soil and contaminated soil being trucked through the community. This alternative has the potential to create contaminated dust, which would need to be minimized using proper dust control techniques.	Confirmation sampling and ICs are readily implementable. The excavation and off-site disposal of waste is also implementable. Because contaminated soil is removed from the site for off-site disposal, no ICs or long-term operation and maintenance of a protective barrier are required for this alternative. Debris excavation would likely extend below the water table and low-tide lines along the bay.	The present value cost associated with this alternative is estimated to be $5,866,000.

TABLE 10-7: COMPARATIVE ANALYSIS OF SOIL AREA 5 REMEDIAL ALTERNATIVES BY BALANCING CRITERIA (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Notes: The information in this table was originally presented in the Site 1 Feasibility Study Report (Bechtel Environmental, Inc. 2006).

* Based on net present value (2005 dollars)

COC Chemical of concern
IC Institutional control

TABLE 10-8: SOIL AREA 5 REMEDIAL ALTERNATIVES AND COST COMPARISON
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area
Alameda Point, Alameda, California

	Remedial Alternatives	Estimated Cost*
S5-1	No Action	$0
S5-3	Confirmation Sampling and ICs	$395,000
S5-4	Confirmation Sampling, Hot Spot Relocation, Placement of Riprap Cover, and ICs	$1,373,000
S5-5	Confirmation Sampling, Hot Spot Relocation, Shoreline Debris Relocation, and ICs	$2,182,000
S5-6	Confirmation Sampling, Hot Spot Removal, Shoreline Debris Removal, and ICs	$5,866,000

Notes: The information in this table was originally presented in the Site 1 Feasibility Study Report (Bechtel Environmental, Inc. 2006).

* Net present value (2005 dollars)

IC Institutional control

TABLE 10-9: COMPARATIVE ANALYSIS OF SITE-WIDE RADIOLOGICALLY-IMPACTED WASTE REMEDIAL ALTERNATIVES BY BALANCING CRITERIA
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Alternative	Long-Term Effectiveness and Permanence	Reduction in Toxicity, Mobility, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost*
	Parameters considered: • The expected long-term reduction in risk posed by the site • The level of effort needed to maintain the remedy and monitor the area for changes in site conditions • The compatibility of the remedy with planned future use of the site • Adequacy and reliability, including reliance on land disposal, potential need to replace, and risks posed should components need replacement	Parameters considered: • Treatment processes used • The amount of hazardous materials destroyed, recycled, or treated • The degree of expected reduction in toxicity, mobility, or volume and the inherent hazard posed by principal threats at the site • The degree to which the benefits of the remedial alternative are irreversible • The types, quantities, persistence, toxicity, and propensity to bioaccumulate treatment residuals that remain following treatment	Parameters considered: • Protection of the community during the remedial alternative • Protection of workers during the remedial alternative • Environmental impacts during remediation • Time required to achieve protection	Parameters considered: • Technical and administrative feasibility • Availability of required resources • Operational reliability • Ability to monitor the effectiveness of the remedial action	Parameters considered: • Capital costs • Operations and maintenance costs • Costs for long-term monitoring • Costs for developing and maintaining institutional controls • Net present value
S6-1 – No Action	Low	Low	Low	High	High
	Under this alternative, there would be no method of addressing long-term effectiveness and permanence.	No treatment is performed. No means are available to assess reduction of toxicity, mobility, or volume.	There would be no short-term risks to the community or potential effects to workers under this alternative. No action would be taken, so there	Easy to implement; however, no ability to monitor effectiveness.	No costs occurred.

TABLE 10-09: COMPARATIVE ANALYSIS OF SITE-WIDE RADIOLOGICALLY-IMPACTED WASTE REMEDIAL ALTERNATIVES BY BALANCING CRITERIA (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Alternative	Long-Term Effectiveness and Permanence	Reduction in Toxicity, Mobility, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost*
			would be no short-term environmental effects. However, the alternative does not include methods to monitor environmental effects of taking no action.		
S6-4 – Removal of Radiologically-Impacted Waste at Site 1 and Cover or Cap Remaining Radiologically-Impacted Waste in Site 1	Medium	Medium	High	Medium	Medium
	Radiologically-impacted hot spots (defined as material exhibiting gamma radiation readings approximately 2 times background)in the surface soil at Site 1 would be excavated to a depth of one foot and disposed of off-site prior to placing any cover (whether soil or riprap). Other radiologically - impacted waste in Site 1 would be covered or capped (whether with a soil cover or riprap).	Excavated soil containing radiologically -impacted hot spots would be hauled off site for disposal at approved facilities, and may require treatment at the disposal facility to meet land disposal requirements.	Alternative S6-4 would involve excavation and off-site disposal of radiologically -impacted hot spots in surface soil to a depth of one foot. This alternative has the potential to create contaminated dust and track contaminated soil off site. These hazards can be minimized using proper planning and engineering controls such as dust control and equipment decontamination techniques. An estimated 10 truckloads of radiologically - impacted waste would be trucked through the community. This alternative could be implemented relatively quickly.	This alternative is implementable; however, transportation and off-site disposal of LLRW is not straightforward. Excavated radiologically - impacted waste would be transported through local streets.	The present value cost associated with this alternative is estimated to be $2,068,000.

TABLE 10-09: COMPARATIVE ANALYSIS OF SITE-WIDE RADIOLOGICALLY-IMPACTED WASTE REMEDIAL ALTERNATIVES BY BALANCING CRITERIA (CONTINUED)

Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Alternative	Long-Term Effectiveness and Permanence	Reduction in Toxicity, Mobility, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost*
S6-5 – Removal of All Radiologically - Impacted Soil and Items and WMP	High	High	Low	Low	Low
	Removal of all significant radiologically -impacted waste would minimize residual risk at completion. ICs would not be required for radiological anomalies.	Soil containing radiologically -impacted waste would be hauled off site for disposal at approved facilities, and may require treatment at the disposal facility to meet land disposal requirements.	Alternative S6-5 would involve excavation and off-site disposal of all radiologically-impacted waste. This alternative has the potential to create significant contaminated dust and to track contaminated soil off site. These hazards can be minimized using proper planning and engineering controls such as dust control and equipment decontamination techniques. An estimated 100 truck trips would be required to transport radiologically-impacted waste through the community for Alternative S6-5, significantly more than other alternatives. A portion of the seasonal wetlands in Area 3 would be affected temporarily, and wetlands in Area 1 would be destroyed during the excavation.	This alternative would be difficult to implement. It must be implemented in conjunction with Alternative S1-4 (complete removal of soil in Area 1). Based on radiological survey data, an estimated 100 truckloads of radiological waste would be transported through local streets. Material to be removed would need to be screened for radiological material.	The present value cost associated with this alternative is estimated to be $14,668,000.

Notes: The information in this table was originally presented in the Site 1 Feasibility Study Report (Bechtel Environmental, Inc. 2006).

* Based on net present value (2005 dollars)

IC Institutional control LLRW Low-level radioactive waste

TABLE 10-10: SITE-WIDE RADIOLOGICALLY-IMPACTED WASTE REMEDIAL ALTERNATIVES AND COST COMPARISON

Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area
Alameda Point, Alameda, California

	Remedial Alternatives	Estimated Cost*
S6-1	No Action	$0
S6-4	Removal of Radiologically-Impacted Waste at Site 1, and Cover or Cap Remaining Radiologically-Impacted Waste in Site 1	$2,068,000
S6-5	Removal of all Radiologically-Impacted Soil and Items and WMP	$14,668,000

Notes: The information in this table was originally presented in the Site 1 Feasibility Study Report (Bechtel Environmental, Inc. 2006).

* Net Present Value (2005 dollars)

TABLE 10-11: COMPARATIVE ANALYSIS OF GROUNDWATER REMEDIAL ALTERNATIVES BY BALANCING CRITERIA
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Alternative	Long-Term Effectiveness and Permanence	Reduction in Toxicity, Mobility, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost*
	Parameters considered: • The expected long-term reduction in risk posed by the site • The level of effort needed to maintain the remedy and monitor the area for changes in site conditions • The compatibility of the remedy with planned future use of the site • Adequacy and reliability, including reliance on land disposal, potential need to replace, and risks posed should components need replacement	Parameters considered: • Treatment processes used • The amount of hazardous materials destroyed, recycled, or treated • The degree of expected reduction in toxicity, mobility, or volume and the inherent hazard posed by principal threats at the site • The degree to which the benefits of the remedial alternative are irreversible • The types, quantities, persistence, toxicity, and propensity to bioaccumulate treatment residuals that remain following treatment	Parameters considered: • Protection of the community during the remedial alternative • Protection of workers during the remedial alternative • Environmental impacts during remediation • Time required to achieve protection	Parameters considered: • Technical and administrative feasibility • Availability of required resources • Operational reliability • Ability to monitor the effectiveness of the remedial action	Parameters considered: • Capital costs • Operations and maintenance costs • Costs for long-term monitoring • Costs for developing and maintaining institutional controls • Net present value
GW1 – No Action	Low	Low	Low	High	High
	Under this alternative, there would be no method of addressing long-term effectiveness and permanence.	No treatment is performed; as a result, no means are available to assess reduction of toxicity, mobility, or volume.	There would be no short-term risks to the community or potential effects to workers under this alternative. No action would be taken, so there would be no short-term environmental effects. However, the	Easy to implement; however, no ability to monitor effectiveness.	No costs occurred.

TABLE 10-11: COMPARATIVE ANALYSIS OF GROUNDWATER REMEDIAL ALTERNATIVES BY BALANCING CRITERIA (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Alternative	Long-Term Effectiveness and Permanence	Reduction in Toxicity, Mobility, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost*
			alternative does not include methods to monitor environmental effects of taking no action.		
GW2 – Source Removal, MNA, Monitoring, and ICs	Medium	Medium	Low	Medium	Medium
	Removal of the suspected source area should reduce metals, VOCs, and SVOCs in groundwater in the source area. Removal should significantly reduce the time for MNA to reduce concentrations of VOCs in the plume area. MNA would not reduce metals or SVOC concentrations.	Dewatering and subsequent treatment during excavation will reduce mobility and volume of the contaminated groundwater. The excavated material would be transported to an appropriate waste disposal facility. Any required treatment to meet land disposal restrictions would be performed at the disposal facility before disposal. This treatment would reduce the toxicity and mobility of chemicals in hazardous soil before disposal. The remaining contamination will continue to be degraded through natural attenuation processes. However, these processes could produce vinyl chloride, which is more toxic than DCE.	Soil excavation would pose a minimal risk to workers. Off-site disposal would pose a slight risk to the community. Removal of contaminated soil may affect some seasonal wetlands in Area 1. Efforts would be made to minimize disturbance to the environment during excavation. Removal of the source to groundwater would reduce the duration of MNA; however, the overall time to achieve remediation goals in the plume area is expected to be longer for this alternative than for the others.	Excavation of the source of contamination would provide some challenges because the source area is expected to be located in saturated soil. Dewatering and the associated treatment and permitting for disposal of the water can be accomplished but may prove to be difficult. The follow-on treatment of MNA should be easily implementable.	The present value cost of this alternative is $7,193,000, which is higher than Alternatives GW3 and GW4 and less than Alternatives GW5a and GW5b.
GW3 – ISCO, MNA, Long-Term Monitoring, and ICs	High	High	Medium	Low	Medium
	In-situ treatment of the source area should reduce the need for long-term monitoring of	The ISCO or similar treatment process should permanently destroy a significant mass of VOCs within weeks under	The ISCO or similar treatment process would result in rapid mass destruction of VOCs;	Design of the ISCO or similar treatment process would require pilot-scale testing.	The present value cost of this alternative is $5,981,000, which is competitive with

TABLE 10-11: COMPARATIVE ANALYSIS OF GROUNDWATER REMEDIAL ALTERNATIVES BY BALANCING CRITERIA (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Alternative	Long-Term Effectiveness and Permanence	Reduction in Toxicity, Mobility, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost*
	VOCs. This alternative relies on MNA to complete the remediation of residual contamination in the VOC plume area. MNA would not treat metals or SVOCs.	favorable conditions, resulting in harmless end products. The ISCO or similar treatment process may increase concentrations of dissolved metals in treatment area.	however, it poses some risk to site workers. Hazardous reagents must be transported through the community.	Regulatory agency representatives have expressed concerns on the mobilization of metals in groundwater. The shallow depth to groundwater and relatively thin saturated thickness of the treatment zone could pose challenges.	Alternative GW4.
GW4 – ISB, MNA, Monitoring, and ICs	High	Medium	Medium	Medium	Medium
	In-situ treatment of the source area should reduce the need for long-term monitoring of chemicals. This alternative relies on MNA to complete the remediation of residual contamination in the VOC plume area.	The ISB process should permanently destroy a significant mass of chlorinated VOCs within months under favorable conditions; however, the process does not address petroleum hydrocarbons or 2,4-DMP. Anaerobic ISB would not treat metals. Aerobic ISB could be effective at treating arsenic.	The ISB process should significantly reduce concentrations of VOCs in the first few years, thereby reducing the time for MNA to confirm VOC concentrations meet remediation goals. The ISB reagents are relatively inert and should not pose significant risk to site workers or the community.	Design of the ISB process would require pilot-scale testing. It is uncertain if the indigenous subsurface bacteria are capable of complete dechlorination of the chlorinated VOCs.	The present value cost of this alternative is $6,046,000, which is competitive with Alternative GW3.
GW5a – ZVI Powder Injection, MNA, Monitoring, and ICs	High	Medium	Medium	Low	Low
	In-situ treatment of the source area should reduce the need for long-term monitoring of chemicals. This alternative relies on MNA to complete the remediation of residual contamination in the	The ZVI process should permanently destroy a significant mass of chlorinated VOCs within months under favorable conditions, resulting in harmless end products; however, the process does not address petroleum hydrocarbons or 2,4-DMP. The ZVI process	The ZVI process should reduce concentrations significantly in the first few years, thereby reducing the time for MNA to confirm VOC concentrations meet remediation goals. The ZVI is relatively inert;	Design of the ZVI process would require pilot-scale testing; however, a prior funnel and-gate demonstration proved that abiotic destruction of VOCs in site groundwater was technically feasible.	The present value cost of this alternative is $8,791,000, which is significantly higher than the costs for Alternatives GW2, GW3, and GW4.

TABLE 10-11: COMPARATIVE ANALYSIS OF GROUNDWATER REMEDIAL ALTERNATIVES BY BALANCING CRITERIA (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Alternative	Long-Term Effectiveness and Permanence	Reduction in Toxicity, Mobility, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost*
	VOC plume area.	would not treat metals and might cause increases in arsenic and manganese concentrations in groundwater.	however, compressed nitrogen gas must be transported through the community.	The shallow depth to groundwater and relatively thin saturated thickness of the treatment zone could pose challenges to the ZVI process.	
GW5b – Source Removal, ZVI Powder Injection, MNA, Monitoring, and ICs	High	High	Medium	Low	Low
	In-situ treatment of the source area should reduce the need for long-term monitoring of chemicals. This alternative relies on MNA to complete the remediation of residual contamination in the VOC plume area.	Dewatering and subsequent treatment during excavation would reduce mobility and volume of the contaminated groundwater. The excavated material would be transported to an appropriate waste disposal facility. Any required treatment to meet land disposal restrictions would be performed at the disposal facility before disposal. This treatment would reduce the toxicity and mobility of chemicals in hazardous soil before disposal. The ZVI process should permanently destroy a significant mass of chlorinated VOCs within months under favorable conditions, resulting in harmless end products. However, the ZVI process would not treat metals and might cause increases in arsenic and manganese concentrations in groundwater.	Soil excavation would pose a minimal risk to workers. Off-site disposal would pose a slight risk to the community because hazardous material would be transported through the community. Source removal would affect some seasonal wetlands. Efforts would be made to minimize disturbance to the environment during excavation. Source removal and the ZVI process should reduce concentrations significantly in the first few years, thereby reducing the time for MNA to confirm VOC concentrations meet remediation goals. The ZVI is relatively inert; however, compressed nitrogen gas must be	Although source removal would be ranked medium in implementability, design of the ZVI process would require pilot-scale testing. The shallow depth to groundwater and relatively thin saturated thickness of the treatment zone could pose challenges to the ZVI process. Injection pressure used in shallow groundwater would need to be minimized to avoid surfacing of the material. This increases the number of necessary injection points because the radius of influence decreases.	The present value cost of this alternative is $8,674,000, which is significantly higher than the costs for Alternatives GW2, GW3, and GW4.

TABLE 10-11: COMPARATIVE ANALYSIS OF GROUNDWATER REMEDIAL ALTERNATIVES BY BALANCING CRITERIA (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Alternative	Long-Term Effectiveness and Permanence	Reduction in Toxicity, Mobility, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost*
			transported through the community.		

Notes: The information in this table was originally presented in the Site 1 Feasibility Study Report (Bechtel Environmental, Inc. 2006).

* Based on net present value (2005 dollars)

DCE Dichloroethene
DMP Dimethylphenol
IC Institutional control
ISB *In-situ* bioremediation
ISCO *In-situ* chemical oxidation
MNA Monitored natural attenuation
SVOC Semivolatile organic compound
VOC Volatile organic compound
ZVI Zero-valent iron

TABLE 10-12: GROUNDWATER REMEDIAL ALTERNATIVES AND COST COMPARISON
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area
Alameda Point, Alameda, California

	Remedial Alternatives	Estimated Cost*
GW1	No Action	$0
GW2	Source Removal, MNA, Monitoring, and ICs	$7,193,000
GW3	ISCO, MNA, Long-Term Monitoring, and ICs	$5,981,000
GW4	ISB, MNA, Monitoring, and ICs	$6,046,000
GW5a	ZVI Powder Injection, MNA, Monitoring, and ICs	$8,791,000
GW5b	Source Removal, ZVI Powder Injection, MNA, Monitoring, and ICs	$8,674,000

Notes: The information in this table was originally presented in the Site 1 Feasibility Study Report (Bechtel Environmental, Inc. 2006).

* Net present value (2005 dollars)

IC Institutional control
ISB *In-situ* bioremediation
ISCO *In-situ* chemical oxidation
MNA Monitored natural attenuation
ZVI Zero-valent iron

11.0 PRINCIPAL THREAT WASTE

Principal threat waste are those source materials considered to be highly toxic or highly mobile that generally cannot be reliably contained or would present a significant risk to human health or the environment should exposure occur (EPA 1991c). There are no source materials that constitute a principal threat waste in soil at Site 1 Areas 1a, 1b, 2b, 4, 5a, and 5b. No threshold level of risk has been established to equate to principal threat waste; however, where potential risk is 10^{-3} or greater, treatment alternatives generally should be evaluated (EPA 1991c). HHRAs completed for Site 1 did not find a risk equal to or greater than 10^{-3} (Tetra Tech 1999c; BEI 2006). In addition, as agreed by the FFA signatories, the Navy completed a test pit investigation of the waste materials within the former disposal cells. The investigation focused on characterizing the condition of buried drums and increasing the accuracy of the waste volume estimate by excavating (a) two 25-foot-long pits in each of the five waste cells outside the runway and (b) one 25-foot-long test pit in the waste cell partially covered by the runway. The results of the test pit investigation indicated that no intact drums were present in the areas investigated (Tetra Tech EC, Inc. 2008).

Contaminated groundwater is generally not considered source material, with the possible exception of the presence of non-aqueous phase liquids (EPA 1991c). It is possible that non-aqueous phase liquids may be present in Site 1 groundwater; however, none have been noted. The Navy does not consider the Site 1 groundwater to be principal threat waste, but has selected treatment as the remedy for groundwater.

12.0 SELECTED REMEDY

The selected remedy described below has changed significantly from the descriptions of the preferred alternatives in the Proposed Plan the Navy released to the public in 2006. These changes are based on new information made available in the TCRA Post-Construction Report for IR Sites 1, 2, and 32 (Tetra Tech EC, Inc. 2009). These changed are discussed in more detail in Section 14.0.

The components of the selected remedy for soil are discussed in Section 12.2.1 and the components of the selected remedy for groundwater are discussed in Section 12.2.2.

12.1 SUMMARY OF THE RATIONALE FOR THE SELECTED REMEDY

The Navy has determined that soil and groundwater at Site 1 pose a potential risk to human health and the environment. Soil poses a potential risk to human health based on exposures through ingestion, inhalation of particulates, direct exposure to radiological materials, or dermal contact of an occupational or recreational receptor to COCs in the soil. The potential discharge of contaminated groundwater to surface water is the primary pathway for risk to the environment for groundwater near the shoreline. The 1999 ERA and groundwater monitoring indicates that there is no risk to aquatic receptors from the discharge of groundwater outside the VOC plume to surface water (Tetra Tech 1999c). Groundwater monitoring indicates that arsenic in groundwater inside the VOC plume is the only chemical that poses a potential risk to aquatic receptors in surface water. The Navy has evaluated and selected remedial alternatives that will address these soil and groundwater risks.

Area 1. Soil Alternative S1-4a was selected as the preferred alternative for soil in Area 1. This alternative will provide excellent immediate (short-term) protection of human and ecological receptors by permanently removing contamination in Area 1b and preventing further migration of and exposure to remaining contamination in Area 1a by removing the exposure pathway and implementing ICs.

Area 2b. Soil Alternative S2-3 was selected as the preferred alternative for soil in Area 2b. This alternative will provide excellent immediate (short-term) protection of human health and the environment by disrupting the pathway between human or ecological contact and the underlying soil, and implementing ICs.

Area 4. Components of Alternative S4-4, removal, screening, and off-site disposal of the former firing range berm and MPPEH, were completed in a TCRA (Tetra Tech EC, Inc. 2009). As part of the remedy selected in this ROD, the Navy will implement ICs to protect the cover that will be implement in Area 4 as part of Alternative S6-4.

Area 5. Soil Alternative S5-4 was selected as the preferred alternative for soil in Area 5. This alternative provides excellent short- and long-term protection of human and ecological receptors

by permanently removing contamination, preventing further migration of remaining contamination by removing the exposure pathway, and implementing ICs.

Site-Wide Radiologically-Impacted Soil. Alternative S6-4 was selected as the preferred alternative for site-wide radiologically-impacted soil because it provides good short-term and long-term protection of human health and the environment by constructing covers across Site 1 that are capable of preventing exposure to ROCs and meeting radiological remediation goals.

Site-Wide Groundwater. Groundwater Alternative GW-3 was selected as the preferred alternative for site-wide groundwater because the VOC groundwater plume will be actively treated using an ISCO, or similar process treatment, and MNA program until remediation goals are achieved. This alternative provides long-term protection of human health and ecological receptors by significantly reducing concentrations of VOCs and their associated risk and by reducing the mobility, toxicity, and volume of VOCs by implementing an expedient and aggressive treatment strategy. In addition to monitoring the cleanup at the VOC plume, a detection monitoring program will be established to monitor potential contaminant migration to the Bay and ensure protection of ecological receptors.

12.2 DESCRIPTION OF THE SELECTED REMEDY

The Navy has selected preferred remedial alternatives for soil and groundwater at Site 1. The sections below briefly describe each alternative selected by the Navy.

12.2.1 Soil Areas

The components of the soil remedy are discussed below.

12.2.1.1 Soil Area 1: Alternative S1-4a - Excavation and Off-Site Disposal of Soil, Soil Cover, Radiological Screening and Materials Presenting a Potential Explosive Hazard Sweep, Wetlands Mitigation Plan, and Institutional Controls

Alternative S1-4a includes excavation, placement of a soil cover, radiological screening, a sweep for MPPEH, wetlands mitigation, and ICs.

Excavation

Alternative S1-4a for Area 1 includes excavation to remove the burn layer in Area 1b. The Navy will excavate Area 1b laterally to remove the visible burn layer. In areas where visible burn waste is removed, excavations will continue vertically to meet the remediation goals presented in Table 8-1, Table 8-2, and Table 8-3, even if the contamination extends below the water table. If the lateral extent of the visible burn layer is less than the approximate 3.7 acre boundary defined by historical photos, confirmation samples will be taken throughout the remaining 3.7 acre area of Area 1b to evaluate whether chemicals or radionuclides that exceed remediation goals are

present in the soils above the water table. If sampling results indicate that concentrations in soils above the water table are above remediation goals, the Area 1b excavation will continue but will not extend below the water table. However, if the radiological disposal trench is encountered, excavation will continue vertically beneath it to meet remediation goals, even if contamination extends below the water table. No excavations will extend past the 3.7 acre boundary depicted in Figure 12-3. Excavated waste and soil that exceeds chemical or radiological remediation goals or contains MPPEH will be disposed of off-site. Excavated soil that is free of MPPEH and is below chemical or radiological remediation goals may be placed back into the Area 1b excavation if it meets design requirements or may be used as foundation material for the cover. If additional soil is needed to fill the excavations, the Navy will import clean backfill. The surface of Area 1b will be graded to match the surrounding Area 1a cover.

Before design activities and site work begin in Area 1, test pits and soil borings will be installed to completely identify the spatial limits of contaminated soil. In addition, soil samples will be collected from the excavation area in Area 1b for analysis to assess potential disposal options.

Soil Cover

The 4-foot-thick seismically stable soil cover will be placed over the waste in Area 1a to prevent exposure to contaminants above remediation goals. This cover will likely extend into other Areas of Site 1 to accommodate an appropriate design requirements, seismic considerations, appropriate setback distances, and ARAR requirements. The Navy will determine the exact location of the cover in the remedial design. The soil cover will be seeded with indigenous plant species as an erosion control measure. Soil gas samples will be taken to determine whether methane exists at levels of potential concern. The Navy will also implement ICs, as described below that prohibit land disturbing activity, including construction of buildings, unless conducted pursuant to a soil management plan. This will address any potential risk from landfill gas.

Radiological Screening

At Area 1a the Navy will scan the surface using gamma radiation field screening instruments. Radiological hot spots will be identified and removed to a depth of one foot prior to placing the soil cover or rip rap. The surface scan will be conducted using field screening instruments, which provide measurement results in cpm. For the purpose of this remedial action, the Navy will identify hot spots as material exhibiting gamma radiation readings approximately 2 times background, while recognizing that background radiation readings typically vary depending on whether the source material is soil, gravel, or concrete (all of which are present at Site 1), and that different field instruments will also influence the selected screening value. The final numerical screening values (in cpm) will be determined in the remedial design after field instrumentation has been selected. The remedial design will also describe the screening and removal procedures.

Materials Presenting a Potential Explosive Hazard Sweep

In both Area 1a and 1b, MPPEH sweeps will be conducted ahead of any investigation or excavation. MPPEH sweep methods will conform to the Naval Ordnance Safety Activity Section 8090.15. A qualified UXO technician will sweep the area prior to excavation with appropriate detection instrumentation. Any anomalies will be flagged and personnel will be moved to a safe distance until the MPPEH is identified and removed.

Wetlands Mitigation Plan (WMP)

This selected alternative includes development and implementation of a WMP for seasonal wetlands. Approximately 2.1 acres of Area 1a designated as seasonal wetlands will be disturbed in the installation of the soil cover. The wetlands mitigation ratio for Site 1 will be determined during the remedial design phase of the project. During the remedial design, an evaluation of the functions, values, and extent of wetlands in Site 1 will be conducted for mitigation planning purposes. Any permanent impacts to wetlands will be mitigated at a close proximity to IR Site 1 within Alameda Point. The final mitigation ratio and amount of mitigation will also be determined at that time based on the location and type of wetlands.

If wetland filling occurs during the breeding season, which occurs 1 March to 30 September, an experienced biologist will survey the area to determine the presence of migratory birds and to locate any active nests. The survey will be performed within 72 hours of the start of any ground disturbance activities. If nests are found, the birds will be allowed to fledge before the cover is placed. If this is not possible, the eggs/chicks will be taken to a licensed wildlife rehabilitator for captive rearing. The Navy will consult with the California Department of Fish and Game before disturbing any eggs and/or chicks or relocating them off-site. However, approval from the California Department of Fish and Game is not required before proceeding with a CERCLA remedy.

Institutional Controls

ICs are legal and administrative mechanisms used to implement land use restrictions that are used to limit the exposure to hazardous substances of future landowner(s) and user(s) of the property and to maintain the integrity of the remedial action. ICs are required on a property where the selected remedial clean-up levels result in contamination remaining at the property above levels that allow for unlimited use and unrestricted exposure. ICs will be maintained until the concentrations of hazardous substances in soil and groundwater are at such levels to allow for unrestricted use and exposure. Implementation of ICs includes requirements for monitoring and inspections, and reporting to ensure compliance with land use or activity restrictions.

The Navy has determined that it will rely upon proprietary controls in the form of lease restrictions contained in the "Lease in Furtherance of Conveyance (LIFOC) Between the United States of America and the Alameda Reuse and Redevelopment Authority for the Former Naval Air Station Alameda" (Navy and Alameda Reuse and Redevelopment Authority 2001) until the property containing Site 1 is conveyed.

More specifically, the land use restrictions contained in the LIFOC will serve as interim ICs between the time the ROD is signed and the date upon which the Navy transfers the property. Through the LIFOC, the Navy will maintain conditions at Site 1 that are consistent with the IC objectives for the chosen remedial alternative. The LIFOC contains provisions that the Navy can use to prevent the following:

- Changes in land use by requiring the lessee and sublessee(s) to get written consent of the Navy before beginning excavation, construction, alteration, or repairs of leased property (Section 8.1 of the LIFOC)

- The lessee from conducting operations that interfere with environmental restoration activities by the Navy, EPA, state regulators, or their contractors by requiring written approval for any work by lessee or sublessee in proximity to the site (Section 11 of the LIFOC)

- The lessee or sublessee from any excavation, digging, drilling or other disturbance of the subsurface without written approval of the Navy (Section 13.11 of the LIFOC)

The Navy has determined that when the property is transferred to a non-federal entity it will rely upon proprietary controls in the form of environmental restrictive covenants as provided in the "Memorandum of Agreement Between the United States Department of the Navy and the California Department of Toxic Substances Control" and attached covenant models (Navy and DTSC 2000) (hereinafter referred to as the "Navy/DTSC memorandum of agreement [MOA]"). More specifically, land use and activity restrictions will be incorporated into two separate legal IC instruments at the time of transfer as provided in the Navy/DTSC MOA:

- Restrictive covenants included in one or more Quitclaim Deeds from the Navy to the property recipient

- Restrictive covenants included in one or more "Covenant to Restrict Use of Property" entered into by the Navy and DTSC as provided in the Navy/DTSC MOA and consistent with the substantive provisions of *California Code of Regulations* (Cal. Code Regs.) Title (tit.) 22, § 67391.1.

The "Covenant to Restrict Use of Property" will incorporate the ICs into environmental restrictive covenants that run with the land and that are enforceable by DTSC and any other signatory state entity against future transferees. The Quitclaim Deed(s) will include the identical land use and activity restrictions in environmental restrictive covenants that run with the land and that will be enforceable by the Navy against future transferees.

ICs will be applied to the property in the area requiring institutional controls (ARIC) (see Figure 12-1) and included in findings of suitability to transfer, findings of suitability for early transfer, "Covenant to Restrict Use of Property" ("the Covenant(s)") between the Navy and DTSC, and any Quitclaim Deeds ("the Deed(s)") conveying real property containing Site 1.

The following sections describe the IC objectives to be achieved through land use and activity restrictions within the ARIC:

Land Use Restrictions:

Site 1 shall be restricted to open space and recreational uses. In addition, the following land uses are specifically prohibited within the boundaries of the Site 1 ARIC:

a. A residence, including any mobile home or factory built housing, constructed or installed for use as human habitation,

b. A hospital for humans,

c. A school for persons under 21 years of age,

d. A day care facility for children, or

e. Any permanently occupied human habitation including those used for commercial or industrial purposes.

Activity Restrictions:

The following activities are restricted within the boundaries of the Site 1 ARIC and must be approved by the Navy and FFA Signatories and California Department of Public Health (CDPH) prior to conducting them:

a. Land disturbing activity is prohibited unless conducted pursuant to an approved soil management plan. "Land disturbing activity" includes but is not limited to (1) excavation of soil and disturbance of the soil cover; (2) construction of roads, utilities, permanently occupied buildings, facilities, structures, and appurtenances of any kind; (3) demolition or removal of paved areas; (4) actions that may impair the soil cover or other exposure prevention barriers; (5) excavation and/or disturbance of soil or riprap areas; and (6) any other activity that involves movement of soil to the surface from below the surface of the land.

b. Alteration, disturbance, or removal of any component of a response or cleanup action.

c. Extraction of groundwater and installation of new groundwater wells.

d. Removal of or damage to security features (for example, locks on monitoring wells, survey monuments, fencing, signs, or monitoring equipment and associated pipelines and appurtenances).

ICs will be maintained until the concentrations of hazardous substances in the soil and groundwater are at such levels to allow for unrestricted use and exposure.

Additional Land Use Restrictions Related to Radionuclides at IR Site 1

Excavation within the Site 1 ARIC is strictly prohibited unless approved in writing by the FFA signatories and CDPH. Any proposed excavation below a depth of 2 feet shall be required to be described in a soil management plan that will include but not be limited to a radiological work plan, the identification of a radiological safety specialist, soil sampling and analysis requirements, and a plan for off-site disposal of any excavated radionuclides by the transferee in accordance with federal and state law. This work plan must be submitted to and approved in writing by the FFA signatories and CDPH in accordance with procedures that will be set forth in the Covenant(s), the Deed(s), Site 1 Operation and Maintenance Plan, and/or LUC RD report. The integrity of the cover/cap must be restored upon completion of the excavation as provided in the Site 1 Operation and Maintenance Plan, LUC RD report, or similar document. A completion report describing the details of the implementation of the soil management plan, the sampling and analysis, the off-site disposal, and the restoration of the integrity of the cover/cap must be submitted to and approved in writing by the FFA signatories and CDPH in accordance with procedures and timeframes that will be set forth in the Covenant(s), the Deed(s), the Site 1 Operation and Maintenance Plan, and/or LUC RD.

Access

The Deed(s) and Covenant(s) shall provide that the Navy and FFA signatories and their authorized agents, employees, contractors, and subcontractors shall have the right to enter upon Site 1 Alameda Point to conduct investigations, tests, or surveys; inspect field activities; or construct, operate, and maintain any response or remedial action as required or necessary under the cleanup program, including but not limited to monitoring wells, pumping wells, treatment facilities, and landfill cap/containment systems.

Implementation

The Navy shall address IC implementation and maintenance actions, including but not limited to frequency and requirements for periodic inspections during development and post development, monitoring, and reporting in the preliminary and final Land Use Control Remedial Design (LUC RD) reports to be developed and submitted to the FFA signatories for review pursuant to the FFA (see "Navy Principles and Procedures for Specifying, Monitoring and Enforcement of Land Use Controls and Other Post-ROD Actions" attached to the Department of Defense (2004), memorandum titled "Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Record of Decision (ROD) and Post-ROD Policy", dated January 16, 2004. The preliminary and final LUC RD reports are primary documents as provided in Section 10.3 of the FFA.

The preliminary and final remedial design reports will include a "Land Use Control Remedial Design" section to describe IC implementation actions, including the following:

- Requirements for CERCLA 5-year remedy review
- Frequency and requirements for periodic monitoring and/or visual inspections

- Reporting for monitoring and inspections
- Notification procedures to the regulators for planned property conveyance, changes, and/or corrective action required for the remedy
- Development of wording for land use restrictions and parties to be provided copies of the deed language once executed
- Identification of responsibilities for the FFA signatories, other government agencies, and the new property owner for implementation, monitoring, reporting, and enforcement of ICs
- Provision of a list of ICs with the expected duration
- Maps identifying where ICs are to be implemented

The Navy will be responsible for implementing, inspecting, reporting, maintaining, and enforcing the ICs described in the ROD in accordance with the approved LUC RD reports. Although the Navy may later transfer these procedural responsibilities to another party by contract, property transfer agreement, or other means, the Navy shall retain ultimate responsibility for remedy integrity. Should any of the ICs fail, the Navy shall ensure that appropriate actions are taken to reestablish protectiveness of the remedy and may initiate legal action to either compel action by a third party(ies) and/or recover the Navy's costs for mitigating any discovered IC violation(s).

12.2.1.2 Soil Area 2b: Alternative S2-3 – Soil Cover and Institutional Controls

Alternative S2-3 includes placement of a soil cover over the paved area that comprises Area 2b and implementing ICs.

Soil Cover

The 2-foot-thick seismically stable soil cover will be placed over the pavement in Area 2b. If the pavement in Area 2b is excavated to accommodate seismic design requirements, then 4 feet of clean soil will be placed over the Area 2b soil area. The soil cover will be seeded with indigenous plant species as an erosion control measure. ICs, as described below, will be implemented to maintain the integrity of the 2-foot-thick soil cover.

Institutional Controls

ICs will be implemented for Area 2b to prohibit residential uses, land disturbing activities, and activities that could interfere with the protectiveness of the remedy; these ICs are described in Section 12.2.1.1. The ICs will be implemented in accordance with the procedures and requirements outlined in Section 12.2.1.1.

12.2.1.3 Soil Area 4: Alternative S4-4 – Removal, Screening, and Off-Site Disposal of Soil, and Institutional Controls

The removal, screening, off-site disposal of soil, and MPPEH sweep evaluated in Alternative S4-4 were implemented in a TCRA that was completed in 2008. The firing range berm was excavated to the existing ground surface in 2008 and soil and debris were disposed of off-site (Tetra Tech EC, Inc. 2009). Even though approximately 4,200 cubic yards of soil, rock and debris were removed from the berm during the TCRA, there is a potential for buried waste in the subsurface. Therefore, Alternative S6-4 will implement a soil cover to prevent potential exposure to buried waste within Area 4. As part of the remedy in this ROD, the Navy will implement ICs under this alternative, which will prohibit residential use and land disturbing activities that may reduce the effectiveness of the remedy.

Institutional Controls

ICs, which prohibit residential uses and land disturbing activities that could interfere with the protectiveness of the remedy, will be implemented for Area 4; these ICs are described in Section 12.2.1.1. The ICs will also be implemented in accordance with the procedures and requirements outlined in Section 12.2.1.1.

12.2.1.4 Soil Area 5: Alternative S5-4 – Confirmation Sampling, Hot Spot Relocation, Placement of Riprap Cover, and Institutional Controls

Soil Alternative S5-4 for the exposed beach areas of Area 5 involves sampling, excavation and relocation of chemically-contaminated soil under the Area 1a cover, off-site disposal of radiologically-contaminated soil, riprap placement, and ICs. Following hot spot removal of chemical and radiological contamination, exposed areas on the beach side of Area 5 will be covered with additional riprap brought in from off-site. The riprap will stabilize the beach areas and prevent exposure to potential contamination greater than two feet bgs. A soil cover will be placed over the inland areas of Area 5 as part of Alternative S6-4. The Navy will also implement ICs to prohibit residential land uses and land disturbing activities that may reduce the effectiveness of the remedy.

Confirmation Sampling and Hot Spot Relocation of Contaminated Soil

To further characterize the area, the Navy will collect and analyze soil samples along portions of Area 5 that are not covered with riprap. In soil where concentrations of metals, PAHs, pesticides, PCBs, or ROCs exceed remediation goals presented in Table 8-1, Table 8-2, and Table 8-3 the Navy will excavate a maximum of 2 feet of soil and will backfill the excavations with clean soil. Concentrations of radionuclides in soil which exceed remediation goals within the exposed beach areas will be excavated to a depth of 2 feet and backfilled with clean soil. Based on the recreational reuse scenario for Site 1 and the ICs implemented as part of the remedy for this area, no complete exposure pathway to contamination deeper than 2 feet is expected. In the inland areas of Area 5 that will be covered with the 4 foot soil cover, radionuclide hotspots, which are defined as material exhibiting gamma radiation readings of approximately 2 times background,

will be excavated down to 1 foot and backfilled with clean soil. The sampling program will comply with cultural resource ARARs (such as no disturbance or penetration of the training wall). Field activities will be performed in a manner that minimizes damage to the Alameda Training Wall; the remedial design will be prepared or reviewed by a registered civil engineer with training in the preservation of historic structures. Neither removal of riprap nor sampling under the riprap slopes will be performed. If the sampling results indicate that chemicals and radionuclides in soil do not exceed the soil remediation goals presented in Table 8-1, Table 8-2, and Table 8-3, then no excavation is warranted under this alternative. Relocation of chemically-contaminated soil beneath the 4-foot-thick soil cover in Site 1a will be performed in accordance with guidance from EPA (1996).

Prior to any excavation occurring during the breeding season (1 March to 30 September), an experienced biologist will survey the area to determine the presence of migratory birds and to locate any active nests. The survey will be performed within 72 hours of the start of any ground disturbance activities. If nests are found, the birds will be allowed to fledge before excavation. If this is not possible, the eggs/chicks will be taken to a licensed wildlife rehabilitator for captive rearing. The Navy will consult with the California Department of Fish and Game before disturbing any eggs and/or chicks or relocating them off-site. However, approval from the California Department of Fish and Game is not required before proceeding with a CERCLA remedy.

Post excavation samples will be collected and analyzed to confirm that soil with chemical and radiological concentrations exceeding the remediation goals has been removed from the exposed beach areas.

Placement of Riprap Cover

Following sampling and hot spot relocation (both chemical and radiological) within Area 5, additional shoreline riprap revetment will be placed in exposed beach areas from above the high tide line to approximately 2 feet below mean sea level. The riprap will stabilize the beach areas and prevent exposure to contaminants that may be present below the excavation depth (soil below 2 feet). Riprap placement will be designed to form a transition from the soil cover to the Bay.

Institutional Controls

ICs to prohibit residential uses, land disturbing activities, and activities that could interfere with the protectiveness of the remedy will be implemented for Area 5; these ICs are described in Section 12.2.1.1. The ICs will also be implemented in accordance with the procedures and requirements outlined in Section 12.2.1.1.

12.2.1.5 Site-Wide Radiologically-Impacted Soil: Alternative S6-4 – Removal of Radiologically-Impacted Waste at Site 1 and Cover or Cap Remaining Radiologically-Impacted Waste in Site 1.

The removal, screening, off-site disposal of soil, and MPPEH sweep evaluated in Alternative S6-4 were intended to be implemented in a TCRA that was completed in 2008. However, the Navy was unable to address all potential radiological contamination at Site 1 during the TCRA, and this ROD selects a remedy to address remaining potential radiological contamination across Site 1.

Removal of Radiologically-Impacted Waste

At Area 1a, Area 2b, Area 4, and the inland areas of Area 5, the Navy will scan the surface using gamma radiation field screening instruments. Radiological hot spots will be identified and removed to a depth of one foot prior to placing the soil cover. The surface scan will be conducted using field screening instruments, which provide measurement results in cpm. For the purpose of this remedial action, the Navy will identify hot spots as material exhibiting gamma radiation readings approximately 2 times background, while recognizing that background radiation readings typically vary depending on whether the source material is soil, gravel, or concrete (all of which are present at Site 1), and that different field instruments will also influence the selected screening value. The final numerical screening values (in cpm) will be determined in the remedial design after field instrumentation has been selected. The remedial design will also describe the screening and removal procedures.

Most accessible radiological contamination at the surface was identified and removed during the TCRA, and residual contamination will be addressed by the soil cover and institutional controls. However, contamination is not homogeneous, and there will be some grading to prepare a foundation for the soil cover. The purpose of surface screening and removal of hot spots is to prevent the spread of potential contamination and ensure worker health and safety during construction of the cover. Radiological remedial action objectives are met by the proposed cover, which prevents direct exposure to waste material and exposure to ROCs above the remediation goals. Durable ICs will be used to restrict future use including potential future land disturbing activities, thereby ensuring that the cover remains protective and ensure that the public is not exposed to radiological contaminants.

Cover or Cap Remaining Radiologically-Impacted Waste in Site 1

Remaining potential exposure to radiological contamination within Areas 4 and 5 will be addressed by extending the soil cover described for Area 1 over Area 4 and to the existing riprap in Area 5.

The Navy will use the MARSSIM (Nuclear Regulatory Commission [NRC] 2000) guidelines to survey the surface prior to placement of the covers to obtain data to conduct a dose assessment. There will be a follow on MARSSIM survey after placement of the covers to ensure the radiological RAO presented in Section 8.3 has been met.

12.2.2 Groundwater: Alternative GW-3 – In-Situ Chemical Oxidation, Monitored Natural Attenuation, Groundwater Monitoring, and Institutional Controls

The components of the groundwater remedy are discussed below.

12.2.2.1 Investigation of the VOC Plume Area

Additional investigation of the VOC plume area will be conducted during the remedial design to verify the configuration of the VOC plume, including any extension toward the shoreline, and to provide design parameters for ISCO, or similar process treatment, and MNA. The Navy may also investigate the potential for the existing funnel and gate system to function as a hydraulic barrier to the migration of COCs.

12.2.2.2 In-Situ Chemical Oxidation inside the VOC Plume Area

The Navy will implement a chemical oxidation or similar process treatment to produce a reaction that will reduce VOC chemical concentrations in the VOC plume area. A pilot test will be performed to verify the effectiveness of this aggressive approach. Although concentrations of VOCs in groundwater suggest the possibility of DNAPL in the groundwater, concentrations are not indicative of the presence of DNAPL, and DNAPL has not been directly observed (see Section 5.3.2). Therefore, the remedy selected in this ROD is expected to be technically feasible and to result in a permanent reduction of VOCs.

The Navy will implement a corrective action groundwater monitoring program during the ISCO or similar process treatment component of the groundwater remedy. The purpose of the corrective action program will be to determine the effectiveness of the treatment, if natural attenuation is a viable final step in treating the VOCs to meet the remediation goals in Table 8-1, and when the remediation goals are met. The Navy will monitor the groundwater for all ROCs identified in Table 8-3 as a part of this corrective action groundwater monitoring program. Implementation of the soil remedy will result in the destruction of the existing groundwater wells; therefore, the Navy will construct new groundwater wells for this corrective action program. The number, location, and design of the new wells will be determined in the remedial design.

The details of the pilot-scale testing, full-scale implementation (such as the number of observation wells, injection points, and sampling frequency), sample parameters, and new groundwater well locations will be determined during the remedial design phase.

12.2.2.3 Monitored Natural Attenuation inside the VOC Plume Area

Following the active treatment, the Navy will implement MNA when and where concentrations of COCs are approaching the remediation goals to address any residual groundwater VOC contamination that exceeds the remediation goals in Table 8-1. MNA will continue until remediation goals are achieved or MNA is no longer effective. The Navy will continue to

implement corrective action groundwater monitoring during MNA. Once remediation goals are met, the Navy will continue corrective groundwater monitoring for one year. Thereafter, the Navy will implement a detection monitoring program to demonstrate continued compliance with the remediation goals. Both the corrective action and detection monitoring programs inside the VOC plume area will monitor the potential for arsenic-contaminated groundwater to discharge to surface water at concentrations above the remediation goal presented in Table 8-2.

12.2.2.4 Groundwater Monitoring Outside the VOC Plume Area

The Navy has agreed to implement a detection monitoring program to monitor the potential for arsenic and zinc in groundwater to migrate into surface water at concentrations above the CTR, NTR, and Basin Plan values and to monitor the potential for copper, mercury, nickel, and silver in groundwater to migrate into surface water at concentrations above background values. The Navy will also monitor the groundwater outside the VOC plume area for all ROCs identified in Table 8-3. The details of groundwater detection monitoring outside the VOC plume area, including the specific analytes, sampling locations, and sampling parameters, will be established in the remedial design.

12.2.2.5 Institutional Controls

ICs for groundwater will be implemented in accordance with the procedures and requirements outlined in Section 12.2.1.1. Based on contamination in the groundwater, the following activities are prohibited unless conducted in accordance with the "Covenant(s) to Restrict Use of Property," Quitclaim Deed(s), or otherwise approved by the FFA Signatories:

a. Any surface or subsurface activity that causes or could cause the preferential movement of contaminated groundwater

b. Extraction of groundwater and installation of new groundwater wells

c. Alteration, disturbance, or removal of any component of the groundwater response or cleanup action, including groundwater monitoring wells, groundwater extraction wells, treatment facilities, and associated equipment

d. Removal of or damage to security features (for example, locks on monitoring wells, survey monuments, fencing, signs, or monitoring equipment and associated pipelines and appurtenances)

e. Construction of buildings above the VOC plume (as identified in Section 12.2.1.1) or for any other purposes.

ICs will be maintained until the concentrations of hazardous substances in the groundwater are at such levels to allow for unrestricted use and exposure.

12.3 ESTIMATED COSTS

The net value in 2005 dollars of the costs associated with the selected remedies for soil is estimated to be $ 19,747,000, groundwater is estimated to be $ 5,981,000 for a total estimate of $ 25,727,000 This cost is based on the best available information on the anticipated scope of the remedy, includes capital and operation and maintenance costs, and is based on present costs. A summary of the estimated costs for soil and groundwater are presented in Tables 12-1 and 12-2. A detailed cost estimate is presented in the FS Report (BEI 2006). Costs may change as a result of new information and data collected during implementation of the selected remedies. Significant changes may be documented in a memorandum to the administrative record, explanation of significant differences, or as an amendment to this ROD (EPA 1999a).

12.4 EXPECTED OUTCOMES OF THE SELECTED REMEDIES

The expected outcome of the selected soil, groundwater, and radiologically-impacted waste remedies is to achieve the anticipated future uses of Site 1, which are described in Section 6.0 of this ROD. The expected outcomes for soil and groundwater are contingent on meeting the RAOs, as described in Section 8.0 of this ROD. To achieve the RAOs, performance objectives must be established to track the effectiveness of each preferred alternatives that was identified in Section 12.2 above as it is being implemented. This section presents only the main performance objectives that will be used to implement the remedy for Site 1, and that the remedial design will contain additional performance objectives and the criteria that will be used to determine when each performance objective has been met. The following subsections address the main performance objectives for soil and groundwater, respectively.

12.4.1 Soil

The expected outcome of the selected remedies for Site 1 soil is to allow the future use of the site surface soils by a recreational or occupational receptor, while ensuring that soil does not pose a threat to human health or the environment.

Performance objectives will be established during the remedial design for the selected remedies for soil, and will incorporate elements associated with each remedy, such as confirmation sampling, inspection programs, 5-year reviews, and ICs. These performance objectives will ensure that each remedy is operated and optimized as necessary to meet the RAOs that are presented in this ROD.

In addition to the performance objectives, the Navy will collaborate with the regulatory agencies during the remedial design phase to establish detailed performance criteria, which will allow all parties to determine if each of the performance objectives (including the RAOs) is being met. In addition, the Navy and regulatory agencies will agree on the types and frequencies of reports that will be prepared during and following implementation of the remedies to document the application of the performance criteria for each remedy. The reports will provide critical information such as inspection results, maintenance records, confirmation sampling results,

descriptions of hot spot excavation and relocation activities, and support for area-specific remedial action closeouts.

12.4.2 Groundwater

The expected outcome of the selected remedy for groundwater is to allow the future use of the site by a recreational or occupational receptor while ensuring that groundwater does not pose a threat to human health or the environment. Figure 12-2 illustrates the decision logic for implementing the selected remedy for groundwater.

The remedy involves active treatment followed by MNA, which will be supplemented by ICs. The treatment operations will be optimized as necessary to meet performance objectives that are based on the RAOs that are presented in this ROD. In addition, the performance objectives will include detailed criteria, to be developed during the remedial design, to allow for periodic evaluations of each treatment system to determine whether the system is operating effectively or whether operation of the system should be discontinued. During implementation of the selected remedial alternative, the Navy will periodically report the system evaluation results to the regulatory agencies. The performance objectives for the selected remedy include the following:

- **Mass reduction of each COC** – Reductions in the mass of each COC will be estimated based on the chemical concentrations measured in groundwater at monitoring wells and the aerial extent of the COC in groundwater. The mass for a comparison baseline will be calculated using the remediation goal concentration for each COC and the appropriate aerial extent. In addition, fate and transport modeling may be used to evaluate the threat to human health.

- **Achieve asymptotic mass removal –** Evaluate the continued efficiency of operating any active remedial component of the selected remedy. Asymptotic conditions will be achieved when the slope of the cumulative mass removed curve approaches zero over time. In addition, rebound of COC concentrations will be evaluated during temporary shutdown periods.

- **Cost effectiveness** – The operation of any phase of active remediation will continue as long as it is cost-effective. Cost-effectiveness for a treatment alternative is based on the operating costs for the treatment and the mass of removed contaminants.

Detailed performance criteria will be established during the remedial design phase in collaboration with the regulatory agencies to allow the Navy to determine if the above-listed performance objectives are being met. The Navy will collect additional information during the design phase to finalize the development of the groundwater monitoring network and design the treatment systems. The information collected during remedial design might include details of pilot-scale testing and full-scale implementation, potential for the aquifer to support MNA, temporal trends in concentrations of COCs, estimates of mass for each COC in groundwater, as well as lateral and vertical extent of VOC plume.

The Navy will coordinate the planning and collection of information during remedial design with the regulatory agencies.

During remedial design, the existing groundwater monitoring network will be evaluated to ensure its adequacy to monitor plume migration and effectiveness of the selected remedy. Necessary changes will be recommended at that time. Finally, the objectives of the ICs for the selected remedy will be achieved through lease restrictions in the existing LIFOC (discussed previously) while Site 1 is still under Navy management. Land use restrictions contained in the LIFOC will serve as interim ICs between the time the ROD is signed and the date upon which the Navy transfers the property. Once the property is transferred, the land use restrictions will be implemented through restrictive covenants. These covenants will be incorporated into the Quitclaim Deed and the Covenant to Restrict Use of Property, which are enforceable by DTSC and the Navy against future transferees.

ICs will be maintained until the concentrations of hazardous substances in the soil and groundwater are at such levels to allow for unrestricted use and exposure.

The selected remedy proposes to use ISCO or a similar process treatment, followed by MNA and groundwater monitoring. The transition from active remediation to MNA will be based on decisions that will follow active treatment. Following active treatment an appropriate amount of time will be allowed for the groundwater to reach a steady-state. The concentrations of COCs obtained during performance monitoring will be used to evaluate the operation of the cleanup.

The evaluation will determine if performance objectives have been achieved, whether there is significant rebound in COC concentrations, if asymptotic rates of removal have been achieved, and if it is cost-effective to continue active treatment.

As the cumulative removal of COC mass over time approaches an asymptotic state, the cost effectiveness of the active treatment will diminish. Active treatment will be used as long as it is cost effective. During the remedial design, the Navy, in collaboration with the regulatory agencies, will develop the specific details to define allowable rebound, asymptotic rates of removal, and cost effectiveness. A MNA program will be implemented where groundwater concentrations are approaching the remediation goals.

Following implementation of the active treatment phase of the selected remedy and the MNA program, the Navy in collaboration with the regulatory agencies will determine if the performance objectives (including the RAOs) have been achieved. If it is determined that the RAOs have not been achieved and that the system is no longer operating cost effectively, the Navy will analyze the performance of the remedy and the restoration timeframe to evaluate the practicability of continued groundwater restoration. This performance analysis could include:

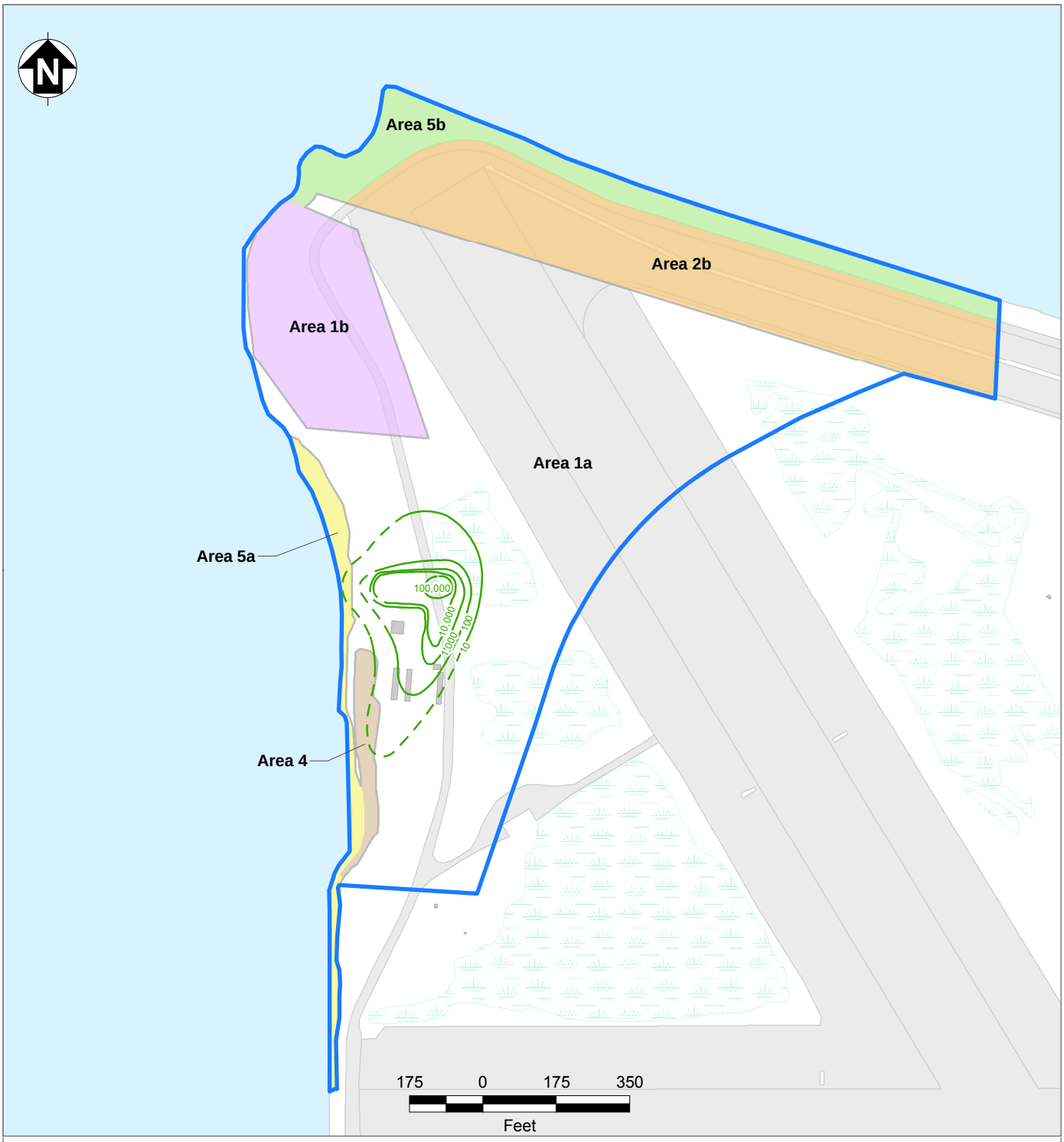
- Data and information on source removal or containment
- Groundwater data collected from sources inside and outside the plume to evaluate mass reduction and plume migration or containment

- Operations history of the treatment system
- A projected timeframe for achieving the remediation goals by continuing active treatment and/or MNA
- Estimates of cost to continue MNA or reinstate active treatment
- Analysis of another alternative that may be more cost-effective
- Identifying if further remedial actions are necessary to protect human health and the environment

The Navy in collaboration with the regulatory agencies will develop an explanation of significant differences or a ROD amendment if the analysis shows it is still practicable to continue groundwater restoration and further remedial actions represent a significant change in the ability of the remedy to achieve mass reduction for Site 1. If it is determined that it is not practicable to continue groundwater restoration, the Navy in collaboration with the regulatory agencies will develop alternative remedial strategies that meet the RAOs. This decision will be made in accordance with EPA's "Guidance for Evaluating the Technical Impracticability of Groundwater Restoration" (EPA 1993d).

The expected outcome of detection monitoring program is a thorough assessment for potential future migration of groundwater contaminants to the Bay at concentrations that are not protective of the environment. The monitoring program will be used to confirm that groundwater conditions are consistent with the data collected as part of the Navy's basewide groundwater monitoring program and that concentrations remain relatively stable over time. Details of the monitoring program, such as monitoring locations, monitoring frequency, and sampling parameters will be provided in the remedial design.

FIGURES



IR Site 1 and Institutional Control Restriction Boundary

VOC Groundwater Concentration Contour in µg/L (dashed where inferred)

Building

Road or Airfield Surface

Water

Soil Area 1a

Soil Area 1b

Soil Area 2b

Soil Area 4

Soil Area 5a

Soil Area 5b

Notes:
ug/L Micrograms per liter
IR Installation Restoration
VOC Volatile Organic Compound

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Alameda Point, Alameda, California
U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE 12-1
SITE 1
INSTITUTIONAL CONTOLS

Record of Decision for Installation Restoration Site 1
1943-1956 Disposal Area

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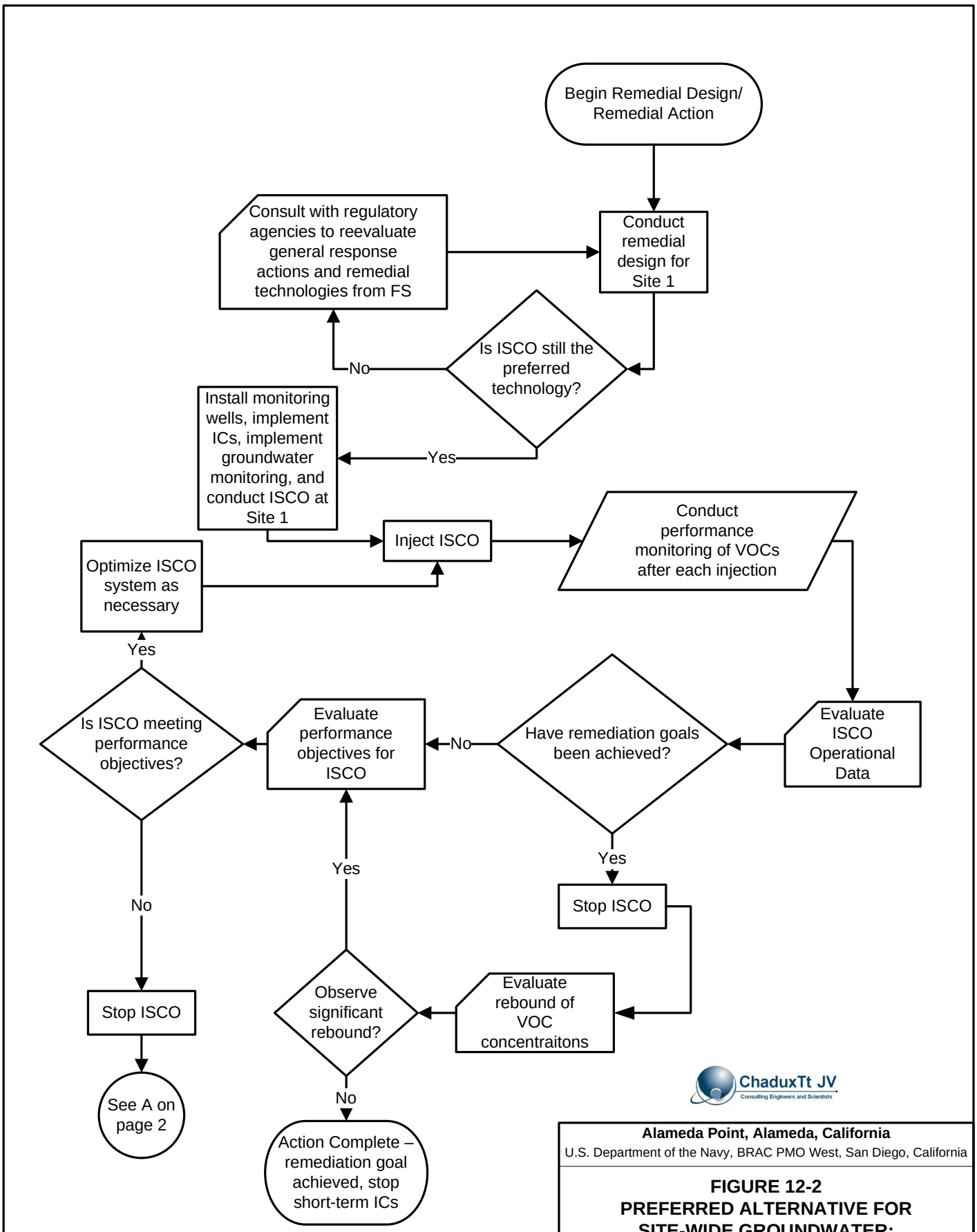

Alameda Point, Alameda, California

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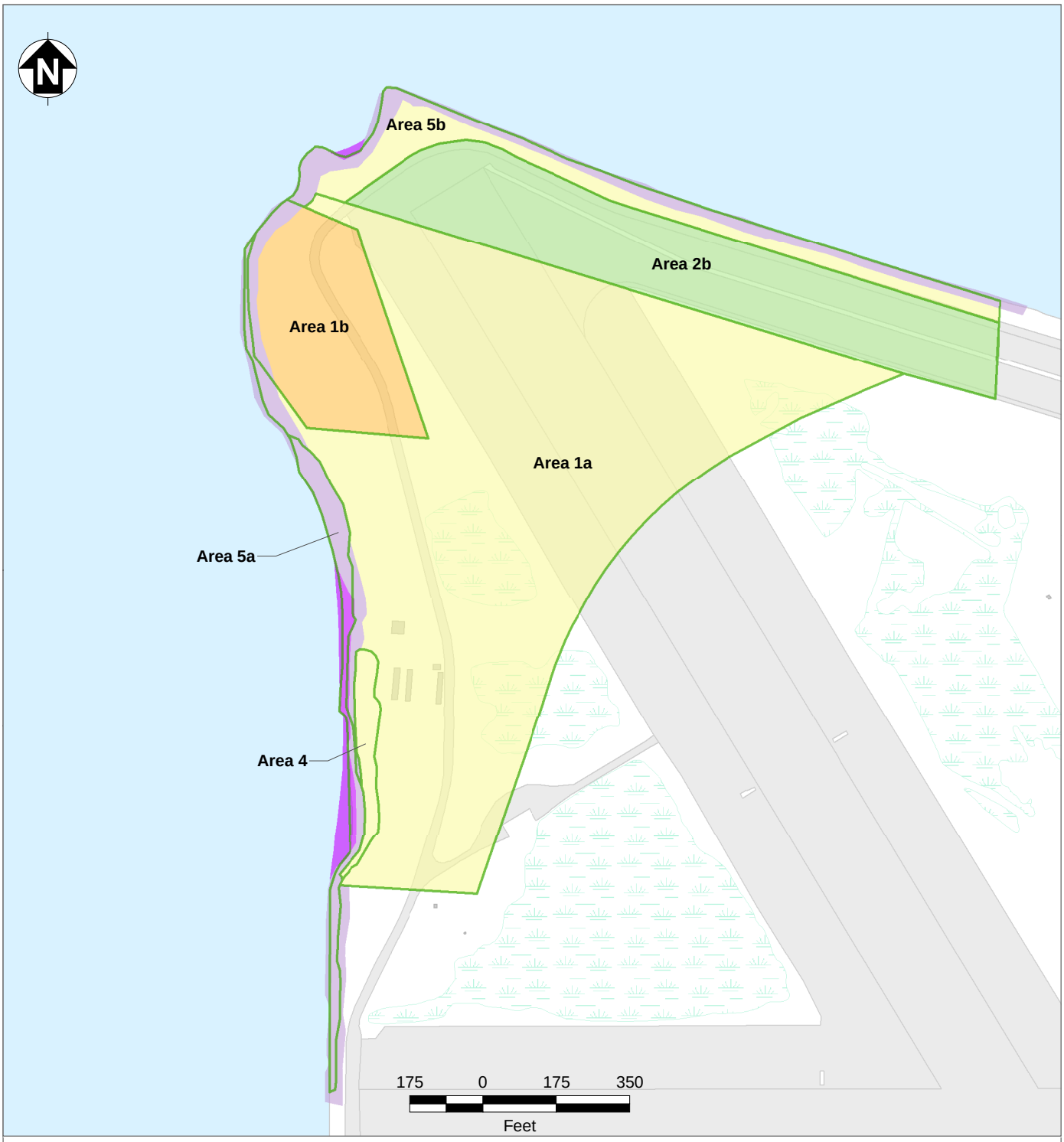
FIGURE 12-2
PREFERRED ALTERNATIVE FOR SITE-WIDE GROUNDWATER: Alternative GW3, ISCO, MNA, Monitoring, and ICs

Record of Decision for Installation Restoration Site 1
1943 - 1956 Disposal Area



Soil Contamination Area

Building

Road or Airfield Surface

Water

Landfill Cover Areas

Area of 2-foot Cover

Area of 4-foot Cover

Approximate Area to be Excavated and Backfilled

Existing Riprap

Additional Riprap Cover Placement

Note:
IR Installation Restoration

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FIGURE 12-3

LANDFILL COVER AREAS

Record of Decision for Installation Restoration Site 1
1943-1956 Disposal Area

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TABLES

TABLE 12-1 COST ESTIMATE FOR SOIL ALTERNATIVES

Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area
Alameda Point, Alameda, California

Description	Selected Remedy[a]		
	Soil Area 1	**Soil Area 2b**	**Soil Area 5**
Remedial Design			
Remedial design	$150,000	$50,000	$30,000
LUC Remedial Design	$40,000	$16,000	
Mitigate wetlands	$800,000		
Confirmation sampling			$310,000
Capital Cost			
Topographic survey before and after	$46,000		
Soil cover	$1,085,000	$300,000	
Landscape site (seeding and watering only)	$67,000		
Site excavation and backfill	$2,310,000		
Dewatering during construction	$233,000		
Off-site disposal	$10,431,000		
Soil confirmation sampling	$136,000		$26,000
MPPEH and radiological survey crew during excavation	$330,000		
Soil exceeding remediation goal relocation			$399,000
Backfill excavated areas			$418,000
Capital Cost Subtotal with Markups	**$15,628,000**	**$366,000**	**$1,183,000**
Operations and Maintenance			
IC implementation	$240,000		
Five-year reviews	$384,000		
Subtotal with markups[b]	**$16,252,000**	**$366,000[c]**	**$1,183,000[c]**
Contingency (20%)	$3,250,400	$73,000	$237,000
Subtotal with markups and contingency	**$19,502,400**	**$439,000**	**$1,420,000**
Escalation (excluded)	$0	$0	$0
TOTAL COST	**$19,502,400**	**$439,000**	**$1,420,000**
Net present value (2005 dollars)	**$18,087,000**	**$287,000**	**$1,373,000**

Notes:

a Specific costs for the site-wide radiological remedy at Site 1 are included in the costs for Area 1, 2b and 5. Specific costs for the IC remedy at Area 4 are included in the IC costs under Area 1.

b Markups include overall project management, overhead, bonds and insurance, taxes, and profit.

c Costs for ICs and 5-year reviews are included in Area 1 costs.

IC Institutional Control
MPPEH Material potentially presenting an explosive hazard

TABLE 12-2 COST ESTIMATE FOR GROUNDWATER ALTERNATIVE

Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area
Alameda Point, Alameda, California

	Selected remedy for groundwater GW-3			
Description	**Capital Cost**	**Annual Cost**	**Every Fifth Year**	**Total Cost**
Remedial Design				
Remedial Design	$150,000			$150,000
IC Implementation Plan	$10,000			$10,000
Remedial Activities				
Initial investigation	$121,000			$121,000
Monitoring well installation	$190,000			$190,000
Pilot-scale testing and process sampling	$285,000			$285,000
Full scale operations and process sampling	$654,000			$654,000
Capital Costs with Markups*				**$1,410,000**
Monitoring				
Effectiveness and MNA program				$684,000
Long-term groundwater monitoring		$130,533		$3,916,000
ICs		$2,000		$60,000
Reporting				
Effectiveness and MNA reporting		$10,000		
Long-term groundwater monitoring reporting		$20,000		
Five-year reviews			$24,000	$144,000
O & M Cost Subtotal with Markups				**$5,434,000**
Subtotal with Markups				**$6,844,000**
Contingency (20%)				$1,369,000
TOTAL COSTS				**$8,213,000**
Net Present Value (2005 dollars)				**$5,981,000**

Notes:

* Markups include overall project management, overhead, bonds and insurance, taxes, and profit.

IC Institutional Control
MNA Monitored natural attenuation
O&M Operations and maintenance

13.0 STATUTORY DETERMINATIONS

CERCLA § 121 establishes five principal requirements for the selection of remedies. Remedies must: (1) protect human health and the environment; (2) comply with ARARs unless a waiver is justified; (3) be cost effective; (4) utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable; and (5) satisfy a preference for treatment as a principal element. The following sections discuss how the amended selected remedy meets these statutory requirements and preferences. Complete discussions are found in the Site 1 FS Report (BEI 2006).

13.1 PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT

The RAOs for Site 1 are designed to allow future uses of the site by a recreational or occupational receptor and to prevent exposures from unintended future uses of the site. The selected remedial action protects human health by removing and/or isolating soil and groundwater contaminants that potentially pose unacceptable risks to recreational and occupational receptors and by imposing ICs to prevent exposures that could otherwise result from unintended site activities. Groundwater is not used for domestic purposes or for irrigation at Site 1.

No short-term risks are associated with the selected remedy that cannot be readily controlled. In addition, no adverse cross-media effects are expected from the remedy.

13.2 COMPLIANCE WITH APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

The selected remedies will comply with the substantive provisions of the federal and state requirements identified as ARARs. The chemical-, location-, and action-specific ARARs for the selected remedies for soil and groundwater at Site 1 are presented in Tables 13-1, 13-2, and 13-3, respectively, and discussed below.

13.2.1 Chemical-Specific Applicable or Relevant and Appropriate Requirements

Chemical-specific ARARs are health- or risk-based numerical values or methodologies that, when applied to site-specific conditions, establish the acceptable amount or concentration of a chemical that may be found in, or discharged to, the ambient environment. Chemical-specific ARARs for the selected alternative are presented in Table 13-1 and described below by medium.

13.2.1.1 Soil

Federal

Chemical Contamination

Performance of the various components of the remedy, such as excavation, will generate waste and investigation derived waste that the Navy will dispose of offsite. The Navy has identified substantive provisions of the following regulations as federal ARARs that require the characterization of waste for proper off-site disposal:

- RCRA regulations defining a hazardous waste at Cal. Code Regs. tit. 22, §§ 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100

For PCB-contaminated soil, the Navy has identified substantive provisions of 40 CFR § 761.61(c) of the Toxic Substances Control Act's PCB remediation waste requirements as federal ARARs.

Radiological Contamination

The Navy has identified the substantive provisions of the following regulations as federal ARARs for radiological contamination remaining on-site at Site 1:

- Uranium Mill Tailings Radiation Control Act (UMTRCA) standards for occupied or habitable buildings at 40 CFR §§ 192.12(b)(1) and (b)(2) and 192.41(b)
- NRC requirements for land disposal of radioactive waste at 10 CFR § 61.41
- NRC requirements for license termination, including requirements for closure of waste disposal sites at 10 CFR § 20.1301

State

Chemical Contamination

The Navy has accepted the substantive provisions of the following regulations as state ARARs for the characterization of waste for proper off-site disposal:

- State of California regulations defining designated waste, nonhazardous solid waste, and inert waste at Cal. Code Regs. tit. 27, §§ 20210, 20220, 20230

- Non-RCRA state-regulated hazardous waste determinations at Cal. Code Regs. tit. 22 § 66261.3(a)(2)(C) or (F), 66261.22(a)(3) and (4), 66261.24(a)(2) to (a)(8), 66261.101(a)(1) and (a)(2)

If the Navy determines that excavated soil meets the regulatory definition of any of the following regulated wastes: (1) RCRA hazardous waste, (2) designated waste, or (3) nonhazardous solid waste—and that it will be disposed of offsite, the Navy will dispose of it in classified waste management units and will comply with all legally applicable requirements for proper off-site disposal, such as packaging, labeling, and placarding. Placement of waste that is consolidated within the "Area of Contamination" for Site 1 will not be subject to the land disposal restrictions set forth at 40 CFR Part 268 and as described in "Land Disposal Restrictions: Summary of Requirements" (EPA 2001).

Radiological Contamination

There are no state ARARs for radiological contamination remaining at Site 1.

13.2.1.2 Groundwater

As described in Sections 5.2 and 6.2, groundwater beneath the central portions of Alameda Point (including Site 1) is not currently used for drinking water, irrigation, or industrial supply. Drinking water is supplied to Alameda Point by the East Bay Municipal Utilities District. The BCT has concluded that groundwater beneath Site 1 is unlikely to be used as a potential drinking water source because (1) the former waste disposal area is located over the aquifer, (2) dermal exposure to groundwater would be limited by restrictions on excavation at Site 1, and (3) high concentrations of TDS in groundwater (or the likelihood of saltwater intrusion if any significant pumping takes place) would require pretreatment, which would not be economical (Tetra Tech 1999c; Tetra Tech 2000a). In a letter dated January 3, 2000, EPA further clarified that groundwater underlying the western region of Alameda Point should not be considered a drinking water source (EPA 2000). In this letter, the EPA stated the following:

> "The NAS Alameda BCT have concluded that the groundwater beneath Sites 1 and 14 is unlikely to be used as a potential drinking water source due to the location of the landfill over the aquifer and the reuse restrictions that will be inherent with turning Site 1 and 14 into a golf course."

The Water Board has also concurred that groundwater beneath Site 1 is not a potential source of drinking water (Water Board 2003).

Because the groundwater is unlikely to be used as drinking water (see Section 5.2 on beneficial use of groundwater), federal maximum contaminant levels are not ARARs for groundwater.

Federal

The substantive provisions of the following requirements are federal chemical-specific ARARs for remediation of groundwater at Site 1:

- RCRA groundwater protection standards in Cal. Code Regs. tit. 22, § 66264.94(a)(1), (a)(3), (b), (c), and (e)

State

The substantive provisions of the following requirements are state chemical-specific ARARs for remediation of groundwater at Site 1:

- Chapters 2 and 3 of the Comprehensive Water Quality Control Plan for the San Francisco Bay (Basin Plan), except for the municipal beneficial use designation (Cal. Water Code, Division 7, §§ 13240, 13241, 13243, 13263(a), 13269, and 13360)

- SWRCB Res. 88-63

Because the groundwater is unlikely to be used as drinking water (see Section 5.2 on beneficial use of groundwater), state maximum contaminant levels are not ARARs for groundwater. In addition, it is the Navy's position that SWRCB Res. 68-16 (Statement of Policy With Respect to Maintaining High Quality of Waters in California) and 92-49 (Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Cal. Water Code § 13304) do not constitute chemical-specific ARARs for this response action because they are state requirements and are not more stringent than federal ARAR provisions of Cal. Code Regs. tit. 22, § 66264.94.

The Navy's Position Regarding SWRCB Resolutions 92-49 and 68-16

The Navy and the state of California have not agreed whether the SWRCB Res. 92-49 and Res. 68-16 are ARARs for the remedial action at Site 1. Therefore, this ROD documents each party's position but does not attempt to resolve the issue.

The Navy recognizes that the key substantive requirements of Cal. Code Regs. tit. 22, § 66264.94 (and the identical requirements of Cal. Code Regs. tit. 23, § 2550.4 and Section III.G of SWRCB Res. 92-49) require cleanup of constituents to background levels unless that is technologically or economically infeasible and an alternative cleanup level will not pose a substantial present or potential hazard to human health or the environment. In addition, the Navy recognizes that these provisions are more stringent than the corresponding provisions of 40 CFR § 264.94 and, although they are federally enforceable under RCRA, they are also independently based on state law to the extent that they are more stringent than the federal regulations.

The Navy has also determined that SWRCB Res. 68-16 is not a chemical-specific ARAR for determining remediation goals, but it is an action-specific ARAR for regulating discharged treated groundwater to surface water. The Navy has determined that further migration of VOCs through groundwater is not a discharge governed by the language in Res. 68-16. More specifically, the language of SWRCB Res. 68-16 indicates that it is prospective in intent, applying to new discharges in order to maintain existing high-quality waters. It is not intended to apply to restoration of waters that are already degraded.

The Navy's position is that SWRCB Res. 68-16 and Res. 92-49 and Cal. Code Regs. tit. 23, § 2550.4 do not constitute chemical-specific ARARs for this remedial action because they are state requirements and are not more stringent than the federal ARAR provisions of Cal. Code Regs. tit. 22, § 66264.94. The NCP set forth in 40 CFR § 300.400(g) provides that only state standards more stringent than federal standards may be ARARs (see also CERCLA § 121[d][2][A][ii]).

The substantive technical standard in the equivalent state requirements (that is, Cal. Code Regs. tit. 23, Division (div.) 3, Chapter (ch.) 15 and SWRCB Res. 92-49 and Res. 68-16) is identical to the substantive technical standard in Cal. Code Regs. tit. 22, § 66264.94. This section of Cal. Code Regs. tit. 22 will likely be applied in a manner consistent with equivalent provisions of other regulations, including SWRCB Res. 92-49 and Res. 68-16.

State of California's Position Regarding SWRCB Resolutions 92-49 and 68-16

The state does not agree with the Navy determination that SWRCB Res. 92-49 and Res. 68-16 and certain provisions Cal. Code Regs. tit. 23, div. 3, ch. 15 are not ARARs for this response action. SWRCB has interpreted the term "discharges" in the California Water Code to include the movement of waste from soils to groundwater and from contaminated to uncontaminated water (SWRCB 1994). However, the state agrees that the proposed action would comply with SWRCB Res. 92-49 and Res. 68-16, and compliance with Cal. Code Regs. tit. 22 provisions should result in compliance with Cal. Code Regs. tit. 23 provisions. The state does not intend to dispute the ROD, but reserves its rights if implementation of the Cal. Code Regs. tit. 22 provisions is not as stringent as state implementation of Cal. Code Regs. tit. 23 provisions. Because the Cal. Code Regs. tit. 22 regulation is part of the state's authorized hazardous waste control program, it is also the state's position that Cal. Code Regs. tit. 22, § 66264.94 is a state ARAR and not a federal ARAR (*United States v. State of Colorado*, 990 F.2d 1565 [1993]).

Whereas the Navy and the state of California have not agreed on whether SWRCB Res. 92-49 and Res. 68-16 and Cal. Code Regs. tit. 23, § 2550.4 are ARARs for this response action, this ROD documents each of the parties' positions on the resolutions but does not attempt to resolve the issue.

13.2.1.3 Surface Water

Federal

The Navy has identified the substantive provisions of CTR and the NTR at 40 CFR § 131.38 and 40 CFR § 131.36(b), respectively, as ARARs for surface water to be met in surface water at the interface of groundwater and surface water.

The Navy has identified the effluent limitations of 33 U.S.C. § 1311(b)(2) as ARARs for the point source discharge of groundwater to surface water associated with dewatering the excavation.

State

The substantive provisions of the following requirements are state chemical-specific ARARs for surface water at Site 1. They will be met at the interface of the groundwater and surface water:

- Chapters 2 and 3 of the Comprehensive Water Quality Control Plan for the San Francisco Bay (Basin Plan), except for the municipal beneficial use designation (Cal. Water Code, Division 7, §§ 13240, 13241, 13243, 13263(a), 13269, and 13360)
- SWRCB Policy for Implementation of Toxic Standards for Inland Surface Waters, Enclosed Bays and Estuaries of California

13.2.1.4 Air

The treatment technologies considered for groundwater include monitoring and injection of chemicals into the groundwater. Neither activity is expected to be a potential source of air emissions. Therefore, no chemical-specific air ARARs are identified for this response action.

13.2.2 Location-Specific Applicable or Relevant and Appropriate Requirements

Location-specific ARARs are restrictions on the concentrations of hazardous substances or on conducting activities solely because they are in specific locations. Specific locations include floodplains, wetlands, historic places, and sensitive ecosystems or habitats. The selected remedies can be implemented to comply with location-specific ARARs. Location-specific ARARs for the selected alternative are presented in Table 13-2. The substantive provisions of the following requirements are the most stringent of the potential federal and state location-specific ARARs for remediation of groundwater at Site 1:

- National Historic Preservation Act of 1966, as amended, at 16 USC § 470-470x-6, its implementing regulations at 36 CFR Part 800, and 40 CFR § 6.301(b) requiring the federal government to minimize harm to properties listed on or eligible for listing on the National Register of Historic Places.

- Executive Order 11990 (40 CFR § 6.302(a)) Protection of Wetlands.

- Clean Water Act § 404 (33 USC § 1344) governs the discharge of dredged and fill material into waters of the United States, including adjacent wetlands.

- Migratory Bird Treaty Act of 1978 at 16 USC § 703 protecting almost all species of native migratory birds in the United States from unregulated takings, which can include poisoning at hazardous waste sites. The substantive provisions of the Migratory Bird Treaty Act cited above are ARARs because migratory birds are present on Alameda Point and may use the Site 1 wetlands for nesting or pass through the site.

- Coastal Zone Management Act at 16 USC § 1456(c) and 15 CFR § 930 requiring activities that affect the coastal zone be conducted in a manner consistent with approved state management programs, including the San Francisco Bay Plan (see state location-specific ARARs below).

- Endangered Species Act 16 USC § 1536(a) and (h)(1)(B) and 16 USC § 1538(a)(1)(B) and (G) requiring federal agency actions not jeopardize the continued existence of any threatened or endangered species or its critical habitat and allowing an exemption from this requirement when reasonable mitigation and enhancement measures are established (Navy and Tetra Tech 1997). The California clapper rail a federal endangered species and is potentially present on Site 1.

The state location-specific ARARs are the relevant and appropriate substantive provisions of the following:

- Cal. Fish and Game Code § 2080. This section prohibits the taking of any state threatened or endangered species. The Navy accepts this section as an ARAR for the threatened or endangered species present on Site1 that are not protected under the Federal Endangered Species Act. The California black rail is a state threatened species that is not protected under the Federal Endangered Species Act and is potentially present on Site 1.

- Cal. Fish and Game Code § 5650(a), (b), and (f): This section prohibits depositing or placing where it can pass into waters of the state any petroleum products, factory refuse, sawdust, shavings, slabs or edgings and any substance deleterious to fish, plant life or bird life.

- Cal. Fish and Game Code § 3511: This section provides that it is unlawful to take or possess listed fully protected birds. The Navy accepts this section as an ARAR for the fully protected birds present on Site 1 that are not protected under the Federal Endangered Species Act. The American peregrine falcon and the California black rail are fully protected birds that are not protected under the Federal Endangered Species Act. The American peregrine falcon and the California black rail are potentially present on Site 1.

- McAteer-Petris Act and the San Francisco Bay Plan. The Coastal Zone Management Act was evaluated and certain substantive provisions were determined to be relevant and appropriate federal requirements because the remedy selected in this ROD contemplates activity within the coastal zone. Coastal Zone Management Act § 1456(c)(1)(A) requires each federal agency activity within or outside the coastal zone that affects any land or water use or natural resource to conduct its activities in a manner that is consistent to the maximum extent practicable with enforceable policies of approved state management policies. The State of California's approved coastal management program includes the McAteer-Petris Act, the authorizing legislation for the San Francisco Bay Plan, developed by the Bay Conservation and Development Commission. Substantive provisions of this statute and plan are state ARARs. The remedial actions selected in this ROD are in compliance with the purposes of the San Francisco Bay Plan.

13.2.3 Action-Specific Applicable or Relevant and Appropriate Requirements

Action-specific ARARs are technology- or activity-based requirements or limitations for remedial activities. These requirements are triggered by the particular remedial activities conducted at the site. Action-specific ARARs for the selected alternative are presented in Table 13-3. The substantive provisions of the following requirements are the most stringent of the potential federal and state action-specific ARARs for remediation of groundwater at Site 1.

13.2.3.1 Soil Area 1: Alternative S1-4a, Excavation and Off-Site Disposal of Soil, Soil Cover, Radiological Screening and Materials Potentially Presenting an Explosive Hazard Sweep, Wetlands Mitigation Plan, and Institutional Controls

Excavation and Off-Site Disposal

For excavation and off-site disposal, substantive provisions of the following requirements are federal ARARs.

- RCRA on-site waste generation, Cal. Code Regs., tit. 22 §§ 66262.10(a), 66262.11 (Person who generates waste shall determine if that waste is a hazardous waste.)

- RCRA on-site waste generation, Cal. Code Regs., tit. 22 §§ 66264.13(a) and (b) (Requirements for analyzing waste for determining whether waste is hazardous.)

- RCRA hazardous waste container storage regulations, Cal. Code Regs. tit. 22, §§ 66264.171–173, 66264.174, 66264.175(a) and (b), 66264.177, 66264.178

- RCRA temporary units and waste pile requirements, Cal. Code Regs. tit. 22, §§ 66264.553(b), (d), (e) and (f); 66264.258(a) and (b) and 40 CFR §§ 264.554(d)(1)(i-ii) and (d)(2), (e), (f), (h), (i), (j), and (k))

- Standards applicable to the transportation, storage, and treatment and disposal of solid waste military munitions, 40 CFR §§ 266.203, 266.205, and 266.206

- Clean Water Act Storm water discharge requirements 40 CFR §§ 122.44(k)(2) and (4)

- Clean Air Act provisions of state implementation plan, 40 USC § 7410; Bay Area Air Quality Management District Regulation 6, Rules 6-301 and 6-302

No state ARARs for excavation and off-site disposal are identified.

Soil Cover

The substantive provisions of the following requirements are federal ARARs for the soil cover:

- RCRA site closure at Cal. Code Regs. tit. 22, §§ 66264.111(a) and (b), 66264.114

- RCRA final cover requirements at Cal. Code Regs. tit. 22, § 66264.310(a)(2) through (5)

- RCRA requirement to maintain the cover, Cal. Code Regs. tit. 22, § 66264.310(b)(1)

- RCRA site security requirements, Cal. Code Regs. tit. 22 § 66264.14(a)

- Clean Water Act Storm water discharge requirements 40 CFR §§ 122.44(k)(2) and (4)

The substantive provisions of the following requirements are state ARARs for the soil cover:

- Landfill gas control, Cal. Code Regs. tit. 27 § 20921(a)(1)-(3)

- Erosion control, Cal. Code Regs. tit. 27 §§ 20365(c) and (d) and 21090(c)(4) and 21150

- Engineered alternatives to final cover, Cal. Code Regs. tit. 27 §§ 20080(b) and (c) and 21090(a)

- Vegetative layer, Cal. Code Regs., tit. 27 § 21090(a)(3)

- Final Grading, Cal. Code Regs., tit. 27 § 21090(b)(1)

Radiological Screening and MPPEH Sweep

The Navy has identified the substantive provisions of the following requirements as federal action-specific ARARs for the temporary storage of radiologically impacted soil (soil with radiological contamination at or above the radiological remediation goals in Table 8-3) prior to off-site disposal:

- Nuclear Regulatory Commission radiological materials storage requirements at 10 CFR § 20.1801

- Nuclear Regulatory Commission radiological requirements for controlling and maintaining constant surveillance at 10 CFR § 20.1802

The Navy has also identified federal chemical-specific ARARs for radiological contamination in Section 13.2.1.1.

Wetland Mitigation

The Navy has identified the substantive provisions of the following requirements as federal action-specific ARARs for the dredging and filling in the wetland on Site 1:

- Clean Water Act discharge of dredged material and filling of wetlands, 33 CFR § 320.4; 40 CFR §§ 230.10, 230.11, 230.20-230.25, 230.31, 230.32, 230.41, 230.42 and 230.53

The Navy has also identified federal ARARs for the dredge and fill of the wetlands located on Site 1 as location-specific ARARs in Section 13.2.2.

Institutional Controls

There are no federal ARARs for the implementation of ICs.

The substantive provisions of the following state statutes have been accepted by Navy as state ARARs for implementing ICs and entering into a Covenant to Restrict Use of Property with DTSC:

- Cal. Civil Code § 1471, environmental restrictions

- Cal. Health and Safety Code Land Use Controls §§ 25202.5, 25222.1, 25232(b)(1)(A)-(E), 25233(c), 25234, and 25355.5(a)(1)(C).

DTSC promulgated a regulation on April 19, 2003 regarding "Requirements for Land-Use Covenants" at Cal. Code Regs. tit. 22, § 67391.1. The substantive provisions of this regulation have been determined to be "relevant and appropriate" state ARARs by the Navy.

The substantive provisions of Cal. Civil Code § 1471 are the following general narrative standard: "… to do or refrain from doing some act on his or her own land … where …: (c) Each such act relates to the use of land and each such act is reasonably necessary to protect present or future human health or safety of the environment as a result of the presence on the land of hazardous materials, as defined in § 25260 of the Health and Safety Code." This narrative standard would be implemented through incorporation of restrictive environmental covenants in the deed at the time of transfer. These covenants would be recorded with the Covenant to Restrict Use of Property and run with the land.

The substantive provision of Cal. Health and Safety Code § 25202.5 is the general narrative standard to restrict "present and future uses of all or part of the land on which the … facility … is located …." This substantive provision will be implemented by incorporation of restrictive environmental covenants in the Covenant to Restrict Use of Property at the time of transfer for purposes of protecting present and future public health and safety.

Cal. Health and Safety Code §§ 25222.1 and Cal. Health and Safety Code § 25355.5(a)(1)(C) provide the authority for the state to enter into voluntary agreements to establish land-use covenants with the owner of property. The substantive requirements of the following Cal. Health and Safety Code § 25222.1 provisions are "relevant and appropriate": (1) the general narrative standard: "restricting specified uses of the property, …" and (2) "… the agreement is irrevocable, and shall be recorded by the owner, … as a hazardous waste easement, covenant, restriction or servitude, or any combination thereof, as appropriate, upon the present and future uses of the land." The substantive requirements of the following Cal. Health and Safety Code § 25355.5(a)(1)(C) provisions are "relevant and appropriate": "… execution and recording of a written instrument that imposes and easement, covenant, restriction, or servitude, or combination thereof, as appropriate, upon the present and future uses of the land."

The Navy will comply with the substantive requirements of Cal. Health and Safety Code §§ 25222.1 and 25355.5 (a)(1)(C) by incorporating CERCLA use restrictions into the Navy's deed of conveyance in the form of restrictive covenants under the authority of Cal. Civil Code § 1471. The substantive provisions of Cal. Health and Safety Code §§ 25222.1 and 25355.5 (a)(1)(C) may be interpreted in a manner that is consistent with the substantive provisions of Cal. Civil Code § 1471. The covenants shall be recorded with the deed and run with the land.

Cal. Health and Safety Code § 25233(c) sets forth "relevant and appropriate" substantive criteria for granting variances from restrictions on prohibited uses set forth in Cal. Health and Safety Code § 25232(b)(1)(A)-(E) based upon specified environmental and health criteria. Cal. Health and Safety Code § 25234 sets forth the following "relevant and appropriate" substantive criteria

for the removal of a land-use restriction on the grounds that "… the waste no longer creates a significant existing or potential hazard to present or future public health or safety."

In addition to being implemented through the Covenant to Restrict Use of Property between the Navy and DTSC, the appropriate and relevant portions of Cal. Health and Safety Code §§ 25202.5, 25222.1, 25232(b), 25233(c), 25234, and 25355.5(a)(1)(C) and Cal. Civil Code § 1471 shall also be implemented through the deed between the Navy and the transferee.

EPA Region 9 considers the following portions of 22 CCR 67391.1 to be relevant and appropriate for this ROD: (a)(1), (a)(2), (b), (d), (e)(1) and (e)(2). DTSC's position is that all of the state statutes and regulations referenced in this section are ARARs.

13.2.3.2 Soil Area 2b: Alternative S1-2, Soil Cover and Institutional Controls

Soil Cover

The ARARs for the soil cover identified in Section 13.2.3.1 are the same ARARs for the soil cover for this remedy.

Institutional Controls

The ARARs for ICs identified in Section 13.2.3.1 are the same ARARs for the ICs for this remedy.

13.2.3.3 Soil Area 4: Alternative S4-4, Removal, Screening, and Off-Site Disposal of Soil and Institutional Controls

Removal, screening, and off-site disposal of soil and MPPEH were implemented under a TCRA completed in 2008. As part of the remedy for this ROD, the Navy will implement ICs to protect the cover that will be placed over Area 4 as part of Alternative S6-4 and to protect against exposure to possible radiological contamination. The action-specific ARARs for identification and management of solid and hazardous wastes for the removal, screening, and off-site disposal of soil under Alternative S4-4 include the RCRA, Clean Water Act, and Clean Air Act requirements identified in Section 13.2.3.1. The chemical-specific ARARs for radiological contamination are presented in Section 13.2.1.1.

Institutional Controls

The ARARs for ICs identified in Section 13.2.3.1 are the same ARARs for the ICs for this remedy.

13.2.3.4 Soil Area 5: Alternative S5-4, Confirmation Sampling, Hot Spot Relocation, Placement of Riprap Cover, and Institutional Controls

Confirmation Sampling

The ARARs for confirmation sampling under Alternative S5-4 include the RCRA requirements for appropriate characterization and handling of waste identified in Section 13.2.3.1.

Hot Spot Relocation

There are no ARARs identified for relocation of soil excavated from Area 5 that is placed under the cover for Area 1a.

Placement of Riprap Cover

The substantive provisions of the following are federal relevant and appropriate ARARs for construction of the riprap cover;

- RCRA benchmark maintenance requirements at Cal. Code Regs. tit. 22, § 66264.310(b)(5)
- Clean Water Act Storm water discharge requirements 40 CFR §§ 122.44(k)(2) and (4)

The substantive provisions of the following state relevant and appropriate requirements are accepted by the Navy as ARARs for the soil cover and for the placement of the riprap cover:

- Erosion control requirements at Cal. Code Regs. tit. 27 §§ 20365(c) and (d) and 21090(c)(4) and 21150

Institutional Controls

The ARARs for ICs identified in Section 13.2.3.1 are the same ARARs for the ICs for this remedy.

13.2.3.5 Site-Wide Radiologically-Impacted Soil: Alternative S6-4, Removal of Radiologically-Impacted Waste at Site 1 and Cover or Cap Remaining Radiologically-Impacted Waste in Site 1

Removal of radiologically-impacted soil in the top two feet within Area 5 and one area in Area 1b was implemented under a TCRA completed in 2008. The action-specific ARARs for identification and management of solid and hazardous wastes for the removal of radiologically-

impacted waste as part of the remedy are identified below. The chemical-specific ARARs for radiologically-impacted soil are identified in Section 13.2.1.1.

Removal of Radiologically-Impacted Waste

For excavation and off-site disposal, substantive provisions of the following requirements are federal ARARs.

- RCRA on-site waste generation, Cal. Code Regs., tit. 22 §§ 66262.10(a), 66262.11 (Person who generates waste shall determine if that waste is a hazardous waste.)
- RCRA on-site waste generation, Cal. Code Regs., tit. 22 §§ 66264.13(a) and (b) (Requirements for analyzing waste for determining whether waste is hazardous.)
- RCRA temporary staging pile requirements, 40 CFR §§ 264.554(d)(1)(i-ii), (d)(2), (e), (f), (h), (i), (j), and (k) and Cal. Code Regs. tit. 22, § 66264.258(a) and (b)
- Clean Water Act Storm water discharge requirements 40 CFR §§ 122.44(k)(2) and (4)
- Nuclear Regulatory Commission radiological materials storage requirements at 10 CFR § 20.1801
- Nuclear Regulatory Commission radiological requirements for controlling and maintaining constant surveillance at 10 CFR § 20.1802

There are also federal chemical-specific ARARs for radiologically-impacted soil presented in Section 13.2.1.1.

There are no state ARARs for excavation and off-site disposal of radiologically-impacted soil.

Soil Cover

The ARARs for the soil cover ARARs identified in Section 13.2.3.1 are the same ARARs for the soil cover for this remedy.

13.2.3.6 Groundwater Alternative 3: In Situ Chemical Oxidation, Monitored Natural Attenuation, Groundwater Monitoring, and Institution Controls

The substantive provisions of the following requirements are action-specific ARARs for the groundwater remedy.

In Situ Chemical Oxidation

No federal or state ARARs are identified for the injection of chemicals into groundwater for *in-situ* chemical treatment.

Monitored Natural Attenuation

Action-specific ARARs for MNA are the groundwater monitoring ARARs identified below.

Groundwater Monitoring

The substantive provisions of the following RCRA corrective action groundwater monitoring requirements are relevant and appropriate federal action-specific ARARs:

- Cal. Code Regs. tit. 22 § 66264.310(b)(3) for postclosure care groundwater monitoring
- Cal. Code Regs. tit. 22 §§ 66264.100(d) to establish and maintain a corrective action program
- Cal. Code Regs. tit. 22, § 66264.100(g)(1) to determine when the corrective action program is complete
- Cal. Code Regs. tit. 22, § 66264.93 to determine COCs
- Cal. Code Regs. tit. 22, §§ 66264.97(b)(1)(A), 66264.97 (b)(1)(D)(1) and (b)(1)(D)(2), 66264.97(b)(2), 66264.97(b)(4) – (7), 66264.97(e)(6), 66264.97(e)(12)(A) and (B), 66264.97(e)(13), 66264.97(e)(15) for general corrective action monitoring requirements

Once the groundwater remediation goals have been met for a period of 1 year, the Navy will continue a groundwater detection monitoring program inside the VOC plume to demonstrate continued compliance with the groundwater remediation goals and monitor the concentrations of the ROCs identified in Table 8-3. If necessary, the Navy will conduct an evaluation monitoring program.

In addition, the Navy has agreed to implement a detection monitoring program to monitor copper, mercury, nickel, silver, and zinc from groundwater to surface water outside the VOC plume. The Navy will also monitor the concentrations of ROCs identified in Table 8-3 in groundwater outside the VOC plume. The substantive provisions of the following RCRA detection and evaluation groundwater monitoring requirements are relevant and appropriate federal action-specific ARARs for these detection monitoring programs:

- Cal. Code Regs. tit. 22, §§ 66264.98(e)(1)-(e)(5), 66264.98(i), 66264.98(j), 66264.98(k)(1)-(k)(3), 66264.98(k)(4)(A), 66264.98(k)(4)(D), 66264.98(k)(5), 66264.98(k)(7)(C) and (D), 66264.98(n)(1), 66264.98(n)(2)(B), and (n)(2)(C) for detection monitoring requirements

- Cal. Code Regs. tit. 22, §§ 66264.99(b), 66264.99(e)(1)-(e)(6), 66264.99(f)(3) and (g) for evaluation monitoring requirements

- Cal. Code Regs. tit. 22, §§ 66264.97(b)(1)(A), (b)(1)(B) and (C), 66264.97(b)(4)-(7), 66264.97(e)(6), 66264.97(e)(12)(A) and (B), 66264.97(e)(13), and 66264.97(e)(15) for general monitoring requirements

- Cal. Code Regs. tit. 22, §§ 66264.90(c)(1) and (c)(2) to determine when detection and evaluation monitoring are no longer required.

The substantive provisions of the following requirements are state ARARs because they are more stringent than the federal requirement of Cal. Code Regs. tit. 22, § 6626.100(g):

- Cal. Code Regs. tit. 27, § 20430(g)(2): Requires eight evenly spaced sampling events to demonstrate compliance with groundwater remediation goals.

Institutional Controls

The IC ARARs identified in Section 13.2.3.1 are the same ARAR for the ICs for this remedy.

13.3 COST-EFFECTIVENESS

The Navy has concluded that the selected remedies would provide overall effectiveness proportional to their costs, thus they are considered cost-effective. All of the technologies included in the selected remedy are readily implementable and have been widely used, and demonstrated to be effective.

13.4 USE OF PERMANENT SOLUTIONS AND ALTERNATIVE TREATMENT TECHNOLOGIES (OR RESOURCE RECOVERY TECHNOLOGIES) TO THE MAXIMUM EXTENT PRACTICABLE

The Navy has determined that the selected remedies represent the maximum extent practicable to which permanent solutions and alternative treatment technologies can be used in a cost-effective manner for Site 1. Of all the alternatives that are protective of human health and the environment and comply with ARARs, the Navy has concluded that the selected remedies would provide the best balance of tradeoffs amongst the short-term effectiveness, long-term effectiveness and permanence, implementability, and cost. The selected remedies are remedy is expected to be permanent and effective over the long-term land use.

13.5 PREFERENCE FOR TREATMENT AS A PRINCIPAL ELEMENT

The selected soil remedy is protective of human health and the environment, complies with Federal and State requirements that are legally applicable or relevant and appropriate to the remedial action, and is cost-effective. It uses permanent solutions and alternative treatment technologies to the maximum extent practicable for this site. The selected remedy for soil does not satisfy the statutory preference for treatment. The Navy evaluated several treatment technologies that were eliminated in the FS Report (BEI 2006). The Navy eliminated in-situ stabilization/solidification from further consideration based on implementability and cost. This technology would be difficult to implement in the heterogeneous fill material in Area 1, which reportedly includes cables, scrap metal, and aircraft engines. The costs of this technology would be significantly higher for the former waste disposal area than other technologies. Phytoremediation was eliminated from further consideration as an in-situ treatment option for soil at Site 1 based on uncertain effectiveness and low implementability. The soil-washing process option was eliminated from further consideration based on its anticipated low effectiveness and implementability and high cost. Ex-situ stabilization/solidification of metals-contaminated soil was eliminated from further consideration because the anticipated volume of soil for placement into Area 1 is not sufficient to make this process cost-effective when compared with off-site disposal.

The selected groundwater remedy satisfies the statutory preference for treatment as a principal element of the remedy; that is, it reduces the toxicity, mobility, or volume of hazardous substances, pollutants, or contaminants as a principal element through treatment.

13.6 5-YEAR REVIEW REQUIREMENTS

A 5-year review pursuant to CERCLA § 121 and the NCP is required if the selected remedies results in hazardous waste or contaminants remaining at the site above levels allowing for unlimited use and unrestricted exposure. A 5-year review will be conducted for Site 1 because contaminants will be left on-site above levels allowing for unlimited use and unrestricted exposure.

TABLES

TABLE 13-1: CHEMICAL-SPECIFIC[a] APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Requirement	Prerequisite	Citation[b]	ARAR Determination	Comments
SOIL				
FEDERAL ARARs FOR CHEMICAL CONTAMINATION				
Resource Conservation and Recovery Act (Title 42 USC, ch. 82, §§ 6901 through 6991[i])[c]				
Defines RCRA hazardous waste. A solid waste is characterized as toxic, based on the TCLP, if the waste exceeds the TCLP maximum concentrations.	Waste	Cal. Code Regs. tit. 22, § 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100	Applicable	Applicable for determining whether waste is hazardous.
Toxic Substances Control Act (15 USC, ch. 53, §§ 2601–2692)[c]				
Regulates storage and disposal of PCB remediation waste. There are three options: (a) self-implementing on-site cleanup and disposal; (b) performance-based disposal using existing approved disposal technologies; and (c) risk-based disposal.	Soils, debris, sludge, or dredged materials contaminated with PCBs at concentrations greater than 50 ppm.	40 CFR § 761.61(c)	Applicable and relevant and appropriate	Substantive provisions of the risk-based disposal option are applicable for soil with PCB concentrations greater than 50 ppm and relevant and appropriate for soil with PCB concentrations less than 50 ppm. The Navy has completed a CERCLA human health risk assessment that identified PCBs in soil as a COC. The Navy then identified risk-based concentrations protective of human health exposure to PCB congeners as remediation goals.

TABLE 13-1: CHEMICAL-SPECIFIC[a] APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Requirement	Prerequisite	Citation[b]	ARAR Determination	Comments
SOIL (Continued)				
FEDERAL ARARs FOR RADIOLOGICAL CONTAMINATION				
Uranium Mill Tailings Radiation Control Act [c]				
In any occupied or habitable building the objective of remedial action shall be, and reasonable effort shall be made to achieve, an annual average (or equivalent) radon decay product concentration (including background) not to exceed 0.02 working level. In any case, the radon decay product concentration (including background) shall not exceed 0.03 working level. Provisions applicable to radon-222 shall also apply to radon-220.	UMTRCA Sites	40 CFR § 192.12(b)(1) and 192.41(b)	Relevant and appropriate	These requirements are not applicable because Site 1 is not an UMTRCA site. The Navy has determined that these requirements are relevant and appropriate because radiological contamination may remain on Site 1. Currently there are no buildings on Site 1 and no buildings are planned in the future. However, because the ICs do not prohibit the construction of all new buildings (ICs prohibit construction of the buildings associated with the prohibited land uses listed in Section 12.2.1.1), these requirements are necessary. If buildings are constructed on Site 1 in the future, the transferee will address these requirements in documents provided to the FFA signatories and CDPH for approval of land disturbing activities.
Concentration limits for cleanup of gamma radiation in buildings at inactive uranium processing sites designated for remedial action. In any occupied or habitable building, the level of gamma radiation shall not exceed the background level by more than 20 microroentgens per hour.	UMTRCA sites	40 CFR § 192.12(b)(2)	Relevant and appropriate	These requirements are not applicable because Site 1 is not an UMTRCA site. The Navy has determined that these requirements are relevant and appropriate because radiological contamination may remain on Site 1. Currently there are no buildings on Site 1 and no buildings are planned in the future. However, because the ICs do not prohibit the construction of all new buildings (ICs prohibit construction of the buildings associated with the prohibited land uses listed in Section 12.2.1.1), these requirements are necessary. If buildings are constructed on Site 1 in the future, the transferee will address these requirements in documents provided to the FFA signatories and CDPH for approval of land disturbing activities.

TABLE 13-1: CHEMICAL-SPECIFIC[a] APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Requirement	Prerequisite	Citation[b]	ARAR Determination	Comments
SOIL (Continued)				
FEDERAL ARARs FOR RADIOLOGICAL CONTAMINATION (Continued)				
Uranium Mill Tailings Radiation Control Act (Continued)[c]				
Standards for cleanup of land and buildings contaminated with radium-226, radium-228, and thorium from inactive uranium processing sites. As a result of residual radiological materials from any designated processing site: (a) The concentration of radium-226 in land averaged over any area of 100 square meters shall not exceed the background level by more than: (1) 5 pCi/g, averaged over the first 15 cm of soil below the surface, and (2) 15 pCi/g, averaged over 15 cm thick layers of soil more than 15 cm below the surface.	UMTRCA Title 1 Sites	40 CFR § 192.12(a), 192.32(b)(2), and 192.41(a)	Not ARARs	These requirements are not ARARs for Site 1. They are not applicable because Site 1 is not an UMTRCA Title 1 site. They are not relevant and appropriate for sites like Site 1 that are remediated based upon restricted reuse. The Navy will place ICs to prohibit residential use of Site 1 because the level of contamination that will remain at Site 1 will be above unrestricted use levels.
NRC Radiological Criteria				
Performance objectives for the land disposal of low level radioactive waste. Concentrations of radioactive material that may be released to the general environment must not result in an annual dose exceeding 25 millirems to the body or any organ of a member of the general public.	Existing NRC-licensed low level radioactive waste disposal site	10 CFR § 61.41	Relevant and appropriate	These requirements are not applicable because Site 1 is not an NRC-regulated site. The Navy has determined that these requirements are relevant and appropriate because radiological contamination may remain on Site 1. Implementation of the remedy selected in this ROD will result in concentrations of released radiological material less than an annual dose of 25 millirems to the body or any organ of a member of the general public. See Table 8-3 for remediation goals for ROCs.

TABLE 13-1: CHEMICAL-SPECIFIC[a] APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Requirement	Prerequisite	Citation[b]	ARAR Determination	Comments
SOIL (Continued)				
FEDERAL ARARs FOR RADIOLOGICAL CONTAMINATION (Continued)				
NRC Radiological Criteria (Continued)				
Requires that the total effective dose equivalent to individual members of the public not exceed 0.1 rem from licensed operation: construction, operation, and decommissioning of commercial reactors and fuel cycle facilities; possession, use, processing, exporting, and certain aspects of transporting nuclear materials and waste; and siting, design, construction, operations, and closure of waste disposal sites.	Existing NRC-licensed site	10 CFR § 20.1301	Relevant and appropriate	These requirements are not applicable because Site 1 is not an NRC-regulated site. The Navy has determined that these requirements are relevant and appropriate because radiological contamination may remain on Site 1.
A site will be considered acceptable for unrestricted use if the residual radioactivity that is distinguishable from background radiation results in total effective does equivalent to an average member of the critical group that does not exceed 25 mrem/yr, including that from groundwater sources of drinking water, and that the residual radioactivity has been reduced to as low as reasonably achievable..	Existing NRC-licensed radiologically-contaminated site.	10 CFR § 20.1402	Not an ARAR	These requirements are not applicable because Site 1 is not an NRC-regulated site. The Navy and EPA have determined that this requirement is not relevant and appropriate because: 1) the regulation addresses circumstances that are not sufficiently similar to the remedial action selected which includes an engineered cover and institutional controls and 2) the Alameda Site 1 remediation goals are more protective.

TABLE 13-1: CHEMICAL-SPECIFIC[a] APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Requirement	Prerequisite	Citation[b]	ARAR Determination	Comments
SOIL (Continued)				
FEDERAL ARARs FOR RADIOLOGICAL CONTAMINATION (Continued)				
NRC Radiological Criteria (Continued)				
As a condition for license termination with restricted site use, the licensee must demonstrate that further reductions in residual radioactivity necessary to comply with the provisions of 10 C.F.R. § 20.1402 would result in net public or environmental harm or were not being made because the residual levels associated with restricted conditions are as low as reasonably achievable.	Existing NRC-licensed radiologically-contaminated site	10 CFR § 20.1403(a)	Not an ARAR	This requirement is not an ARAR for Site 1. This requirement is not applicable because Site 1 is not an NRC-regulated site. This requirement is not relevant and appropriate because the remediation goals for Site 1 are protective of human health and the environment and are more stringent and protective than the criteria in 10 CFR § 20.1403.
As a condition for license termination with restricted site use, the licensee must make provisions for legally enforceable institutional controls that provide reasonable assurance that the total effective dose equivalent from residual radioactivity distinguishable from background to the average member of the critical group will not exceed 25 mrem/yr.	Existing NRC-licensed radiologically contaminated site	10 CFR § 20.1403(b)	Not an ARAR	This requirement is not an ARAR for Site 1. This requirement is not applicable because Site 1 is not an NRC-regulated site. This requirement is not relevant and appropriate because the remediation goals for Site 1 are protective of human health and the environment and are more stringent and protective than the criteria in 10 CFR § 20.1403.

TABLE 13-1: CHEMICAL-SPECIFIC[a] APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Requirement	Prerequisite	Citation[b]	ARAR Determination	Comments
SOIL (Continued)				
STATE ARARs FOR CHEMICAL CONTAMINATION				
Definitions of designated waste, nonhazardous waste, and inert waste.	Waste	Cal. Code Regs. tit. 27, §§ 20210, 20220, and 20230	Applicable	Applicable for classifying waste and determining ARAR status of other requirements.
Definition of non-RCRA hazardous waste.	Waste	Cal. Code Regs. tit. 22, § 66261.3(a)(2)(C) or 66261.3(a)(2)(F), 66261.22(a)(3) and (4), 66261.24(a)(2)–(a)(8), 66261.101(a)(1) and (a)(2)	Applicable	Applicable for determining whether a waste is a non-RCRA hazardous waste.
STATE ARARs FOR RADIOLOGICAL CONTAMINATION				
California Department of Public Health				
This regulation requires each person granted a specific license to do the following: • keep records of information important to the decommissioning of a facility • notify CDPH prior to vacating an installation that may have been contaminated with radioactive material • complete certain activities if the person does not submit a specific license renewal application	A person with a specific license granted pursuant to Group 2 of Title 17, Division 1, Chapter 5, Subchapter 4.	Cal. Code Regs. tit. 17, § 30256	Not an ARAR	*The State Regulation is not Applicable*. CERCLA must comply with promulgated State requirements, which are either "applicable" or "relevant and appropriate." The Navy and EPA assert that the provisions of Cal. Code Regs. tit. 17 § 30256 are not "applicable" requirements because these regulations by their express terms apply to facilities licensed by the State of California that are undergoing a license termination process. The remediation of Site 1 under CERCLA is not part of a decommissioning or license termination

TABLE 13-1: CHEMICAL-SPECIFIC[a] APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Requirement	Prerequisite	Citation[b]	ARAR Determination	Comments
SOIL (Continued)				
STATE ARARs FOR RADIOLOGICAL CONTAMINATION (Continued)				
California Department of Public Health (Continued)				
• submit a decommissioning plan for approval by CDPH, and if approved, complete decommissioning The regulation also provides that if the information submitted does not adequately demonstrate that the premises are suitable for release for unrestricted use, CDPH shall inform the licensee of appropriate further actions and that specific licenses shall be terminated by written notice to the licensee when CDPH determines that: (1) radioactive material has been properly disposed; (2) reasonable effort has been made to eliminate residual radioactive contamination, if present; and (3) a radiation survey has been performed which demonstrates that the premises are suitable for release for unrestricted use; or other information submitted by the licensee is sufficient to demonstrate that the premises are suitable for release for unrestricted use.				procedure nor has any state license ever been issued because California laws and regulations regarding possession of radioactive materials do not apply to land possessed by the federal government. *The State Regulation is not Relevant and Appropriate*. The Navy and EPA also assert that the provisions of this regulation are not "relevant and appropriate" because standards for de-commissioning a licensed facility are not "appropriate" for this Site because they do not address a set of circumstances similar to the remediation of Site 1. The NCP specifies a series of factors to be used to compare the proposed CERCLA action with potential ARARs to determine if a requirement is both relevant and appropriate (40 CFR § 300.400[g][2]). The CDPH regulation can be distinguished from the selected remedial action for Site 1 on a number of basis, including the medium addressed, type of action/activity regulated, and type of place regulated. More specifically, the license termination process described in the regulation appears to be intended to reach the conclusion that the facility is suitable for release for unrestricted use. This requirement is one among a detailed set of requirements for the "cradle to grave" management of licensed radiological material that were never applied to Alameda Point. The

TABLE 13-1: CHEMICAL-SPECIFIC[a] APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Requirement	Prerequisite	Citation[b]	ARAR Determination	Comments
SOIL (Continued)				
STATE ARARs FOR RADIOLOGICAL CONTAMINATION (Continued)				
California Department of Public Health (Continued)				
				radionuclides addressed in Site 1 were not subject to such regulatory controls when they were utilized by the Navy or when they were released into the environment, and, hence, present very different issues, for example, very high volume of potentially impacted soil, low concentrations of radionuclides in soil, high cost of removal, etc. The remedial action selected in this ROD provides for a surface scan of the landfill to identify and address radiological contamination which is accessible and a containment remedy for residual radionuclides consisting of a soil cover and enforceable ICs that will ensure adequate protection of human health and the environment by preventing unauthorized disturbance of the cover and limiting use of the property. Containment remedies for sites potentially containing radionuclides consisting of remedial caps or covers supported by enforceable ICs have been accepted by EPA and DTSC as compliant with CERCLA and the NCP (for example, Marine Corp Air Station El Toro operable unit 2C (Site 3 and 5) ROD and Hunters Point Shipyard Amended Parcel B ROD).

TABLE 13-1: CHEMICAL-SPECIFIC[a] APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Requirement	Prerequisite	Citation[b]	ARAR Determination	Comments
SOIL (Continued)				
STATE ARARs FOR RADIOLOGICAL CONTAMINATION (Continued)				
California Department of Public Health (Continued)				
				The State Regulation is not More Stringent than Federal ARARs or Risk-based Cleanup Levels. To qualify as a state ARAR under CERCLA and the NCP, a state regulation must be more stringent than federal laws and regulations. See 40 CFR §§ 300.400(g)(4) and 300.515(h)(2). The state is responsible for identifying potential state ARARs that it believes are more stringent than federal ARARs or risk-based cleanup levels and for demonstrating why they are more stringent. The remedy for Site 1 is based on a risk-based approach and the State has not demonstrated that the standards under § 30256(k) would be more stringent. The State has asserted that the phrase "eliminate residual radioactive contamination" in subsection 30256(k)(2) established a more stringent standard because CERCLA does not require the elimination of residual radioactive contamination. The suggestion ignores the actual language of the regulation which requires only "reasonable effort to eliminate residual radioactive contamination." This standard is by its terms flexible and cannot be assumed to require a more stringent cleanup than the selected CERCLA remedial action.

TABLE 13-1: CHEMICAL-SPECIFIC[a] APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Requirement	Prerequisite	Citation[b]	ARAR Determination	Comments
SOIL (Continued)				
STATE ARARs FOR RADIOLOGICAL CONTAMINATION (Continued)				
California Department of Public Health (Continued)				
				Subsection (k) neither contains a numerical standard nor describes a narrative standard which would inform the question of whether (or what quantity of) radiological material can remain in the landfill. If there were a means to derive a narrative standard from (k), that standard has not been identified by the state. Without an identified narrative standard, there can be no basis for asserting that the requirement is more stringent than the CERCLA risk-based standards for the landfill. Although general goals can be considered state ARARs if they are directive in intent and enforceable (see NCP preamble at 55 Fed. Reg. 8746, March 8, 1990), CDPH has stated that California laws concerning possession of radioactive materials do not apply to property that remains in the possession of the federal government. Therefore, these laws are not enforceable as required by CERCLA and the NCP.

TABLE 13-1: CHEMICAL-SPECIFIC[a] APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Requirement	Prerequisite	Citation[b]	ARAR Determination	Comments
SOIL (Continued)				
STATE ARARs FOR RADIOLOGICAL CONTAMINATION (Continued)				
California Department of Public Health (Continued)				
				The State Regulation is not Substantive. A state regulation must be substantive rather than procedural to qualify as a state ARAR (See definitions of "applicable" and "relevant and appropriate" in the NCP at 40 CFR § 300.5). CDPH asserts that, in particular, subdivision (k) is a potential ARAR because it contains substantive requirements. Since these three criteria apply to decisions to terminate a specific license, the Navy and EPA interpret them to be procedural and not substantive requirements. In summary, the Navy and EPA have determined that the provisions of Cal. Code Regs. tit. 17 § 30256 do not constitute an ARAR because: (1) they are neither "applicable" nor "relevant and appropriate", (2) they have not been demonstrated by the State to be more stringent than federal ARARs or risk-based cleanup levels, and (3) they are not substantive requirements.

TABLE 13-1: CHEMICAL-SPECIFIC[a] APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Requirement	Prerequisite	Citation[b]	ARAR Determination	Comments
GROUNDWATER				
FEDERAL ARARs				
Owners/operators of RCRA TSD facilities must comply with conditions designated to assure that hazardous constituents entering groundwater from a regulated unit do not exceed concentration limits for chemicals of concern set forth under Cal. Code Regs. tit. 22, § 66264.94 in the uppermost aquifer underlying the waste management area beyond the point of compliance.	Waste	Cal. Code Regs., tit. 22, § 66264.94(a)(1), (a)(3), (b), (c), and (e)	Relevant and Appropriate	Applicable only for regulated TSD facilities. Based on available data, no RCRA-listed hazardous wastes were disposed at Site 1, and groundwater contamination did not result from release of RCRA-regulated waste. However, substantive provisions of these requirements are relevant and appropriate to site circumstances. VOCs in groundwater are similar to those found in RCRA wastes, making this a chemical-specific ARAR for development of site remediation goals.
STATE ARARs				
State and Regional Water Quality Control Boards[c]				
Authorizes the SWRCB and RWQCB to establish in water quality control plans beneficial uses and numerical and narrative standards to protect both surface water and groundwater quality. Authorizes regional water boards to issue permits for discharges to land or surface or groundwater that could affect water quality, including NPDES permits, and to take enforcement action to protect water quality.	Waters of the State	Cal. Water Code, div. 7, §§ 13241, 13243, 13263(a), 13269, and 13360 (Porter-Cologne Act)	Applicable	The Navy accepts the substantive provisions of §§ 13241, 13243, 13263(a), 13269, and 13360 of the Porter-Cologne Act enabling legislation, as implemented through the beneficial uses, WQOs, waste discharge requirements, promulgated policies of the Basin Plan for the San Francisco Bay Region.

TABLE 13-1: CHEMICAL-SPECIFIC[a] APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Requirement	Prerequisite	Citation[b]	ARAR Determination	Comments
GROUNDWATER (Continued)				
STATE ARARs (Continued)				
State and Regional Water Quality Control Boards (Continued)[c]				
Describes the water basins in the San Francisco Bay Region, establishes beneficial uses of groundwater and surface water, establishes water quality objectives, including narrative and numerical standards, and incorporates statewide water quality control plans and policies.	Waters of the State	Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) Chapter 2 and Chapter 3 (Cal. Water Code § 13240)	Applicable	Substantive provisions in Chapters 2 and 3 of the Water Quality Control Plan for the San Francisco Bay are ARARs, except for the municipal beneficial use designation of the Basin Plan. (see Section B2.2.1.2). The beneficial uses for the East Bay subbasin are agricultural supply, industrial service supply, and industrial process supply. These uses also apply to the shallow groundwater system at Alameda Point. The narrative standard requiring that all waters be maintained free of toxic substances in concentrations that are lethal to or that produce other harmful responses in aquatic organisms, and that there shall be no acute toxicity or chronic toxicity in ambient waters is an ARAR for groundwater.
Incorporated into all regional board basin plans. Designates all groundwater and surface waters of the state as drinking water except where the total dissolved solids exceed 3,000 milligrams per liter, and it is not reasonably expected by the Water Board to supply a public water system.	Waters of the State	SWRCB Resolution 88-63 (Sources of Drinking Water Policy)	Applicable	This resolution is an ARAR for the alternatives addressing groundwater.

TABLE 13-1: CHEMICAL-SPECIFIC[a] APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Requirement	Prerequisite	Citation[b]	ARAR Determination	Comments
GROUNDWATER (Continued)				
STATE ARARs (Continued)				
State and Regional Water Quality Control Boards (Continued)[c]				
Establishes the policy that high-quality waters of the state "shall be maintained to the maximum extent possible" consistent with the "maximum benefit to the people of the State." It provides that whenever the existing quality of water is better than that required by applicable water quality policies, such existing high-quality water will be maintained until it has been demonstrated to the state that any change will be consistent with maximum benefit to the people of the state, will not unreasonably affect present and anticipated beneficial use of such water, and will not result in water quality less than that prescribed in the policies. It also states that any activity that produces or may produce a waste or increased volume or concentration of waste and that discharges or proposes to discharge to existing high-quality waters will be required to meet waste-discharge requirements that will result in the best practicable treatment or control of the discharge.	Waters of the State	Statement of Policy With Respect to Maintaining High Quality of Waters in California, SWRCB Resolution 68-16	Not an ARAR	This policy is not a chemical-specific ARAR for determining remediation goals or for addressing any further migration of existing contamination at Site1. The State does not agree. Whereas the Navy and State of California have not agreed on whether this resolution is an ARAR for this response action, this ROD documents each of the parties' positions on the resolution but does not attempt to resolve the issue. See Section 13.2.1.2 of the main text of the ROD for further discussion.

TABLE 13-1: CHEMICAL-SPECIFIC[a] APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Requirement	Prerequisite	Citation[b]	ARAR Determination	Comments
GROUNDWATER (Continued)				
STATE ARARs (Continued)				
State and Regional Water Quality Control Boards (Continued)[c]				
Describes requirements for RWQCB oversight of investigation and cleanup and abatement activities resulting from discharges of hazardous substances. RWQCB may decide on cleanup and abatement goals and objectives for the protection of water quality and beneficial uses of water within each region. Establishes criteria for "containment zones" where cleanup to established water-quality goals is not economically or technically practicable.	Discharge of hazardous substances to waters of the State	Policies and procedures for investigation and cleanup and abatement of discharges under Cal. Water Code § 13304, SWRCB Resolution 92-49	Not an ARAR	This policy is not an ARAR for the groundwater cleanup at Site 1. It is not more stringent than the federal ARAR at Cal. Code Regs. tit. 22, § 66264.94(a)(1), (a)(3), (b), (c), and (e). The State does not agree. Whereas the Navy and state of California have not agreed on whether this resolution is an ARAR for this response action, this ROD documents each of the parties' positions on the resolution but does not attempt to resolve the issue. See Section 13.2.1.2 of the main text of the ROD for further discussion.
SURFACE WATER				
FEDERAL ARARs				
Clean Water Act of 1977, as Amended (33 USC, ch. 26, §§ 1251–1387)[c]				
Water quality standards in the California Toxics Rule	Discharge to waters of the United States	40 CFR § 131.38	Applicable	The substantive numeric standards in the CTR are ARARs for surface water and will be met in the surface water at the interface of the groundwater and the Bay.
Water quality standards in the National Toxics Rule	Discharge to water of the United States	40 CFR § 131.36(b)	Applicable	The substantive numeric standards in the NTR are ARARs for surface water and will be met in the surface water at the interface of the groundwater and the Bay.
Effluent limitations that meet technology-based requirements, including BCPCT and BAT to the extent economically achievable.	Point source discharges to waters of the United States	33 USC, ch. 26, § 1311(b)(2) (CWA § 301[b])	Applicable	Substantive provisions are applicable for point source discharges of groundwater to surface water in the San Francisco Bay associated with dewatering for excavation.

TABLE 13-1: CHEMICAL-SPECIFIC[a] APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Requirement	Prerequisite	Citation[b]	ARAR Determination	Comments
SURFACE WATER (Continued)				
STATE ARARs				
State and Regional Water Quality Control Boards[c]				
Authorizes the SWRCB and RWQCB to establish in water quality control plans beneficial uses and numerical and narrative standards to protect both surface water and groundwater quality. Authorizes regional water boards to issue permits for discharges to land or surface or groundwater that could affect water quality, including NPDES permits, and to take enforcement action to protect water quality.	Waters of the State	Cal. Water Code, div. 7, §§ 13241, 13243, 13263(a), 13269, and 13360 (Porter-Cologne Act)	Applicable	The Navy accepts the substantive provisions of §§ 13241, 13243, 13263(a), 13269, and 13360 of the Porter-Cologne Act enabling legislation, as implemented through the beneficial uses, WQOs, waste discharge requirements, promulgated policies of the Basin Plan for the San Francisco Bay Region.
Describes the water basins in the San Francisco Bay Region, establishes beneficial uses of groundwater and surface water, establishes water quality objectives, including narrative and numerical standards, and incorporates statewide water quality control plans and policies.	Waters of the State	Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) Chapter 2 and Chapter 3 (Cal. Water Code §13240)	Applicable	The substantive numeric standard for arsenic in Table 3-3 of the Basin Plan is an ARAR for surface water and will be met in the surface water at the interface of the groundwater and the Bay.
Requires analysis for each priority pollutant to determine if water-quality-based effluent limitation is required. Provides effluent limitation development methodology.	Discharges of toxic priority pollutants into in land surface waters, bays, or estuaries	Policy for Implementation of Toxic Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (Inland Surface Waters Plan) (SWRCB 2000a), § 1.3 and 1.4	Applicable	The substantive provisions of this Plan are accepted as ARARs for implementing the CTR and the NTR, identified as federal ARARs above, and for the point source discharge of groundwater to surface water that may be necessary in the implementation of the soil remedies.

TABLE 13-1: CHEMICAL-SPECIFIC[a] APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)

Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Notes:

a Chemical-specific concentrations used for feasibility study evaluation may not be ARARs indicated in this table but may be based on other factors, including: human health risk-based concentrations (40 CFR) § 300.430[e][2][i][A][1] and [2]), ecological risk-based concentrations (40 CFR § 300.430 [e][2][i][G]), or practical quantification limits of contaminants (40 CFR § 300.430[e][2][i][A][3]). Many action-specific ARARs contain chemical-specific limitations and are addressed in the action-specific ARAR tables.

b Only the substantive provisions of the requirement(s) cited in this table are ARARs.

c Statutes and policies, and their citations, are provided as headings to identify general categories of ARARs for the convenience of the reader; listing the statutes and policies does not indicate that the Navy accepts the entire statutes or policies as ARARs; specific ARARs are addressed in the table below each general heading; only pertinent substantive requirements of specific citations are considered ARARs.

§	Section
§§	Sections
ALARA	As low as reasonably achievable
ARAR	Applicable or relevant and appropriate requirement
Cal. Code Regs	*California Code of Regulations*
CFR	Code of Federal Regulations
CDPH	California Department of Public Health
Fed. Reg.	Federal Register
MCAS	Marine Corps Air Station
NPDES	National Pollution Discharge Elimination System
NRC	Nuclear Regulatory Commission
OU	Operable unit
PCB	Polychlorinated biphenyl
pCi/g	Picocuries per gram
ppm	Parts per million
RCRA	Resource Conservation and Recovery Act
ROC	Radionuclide of concern
RWQCB	Regional Water Quality Control Board
SWRCB	State Water Resources Control Board
TCLP	Toxic characteristic leaching procedure
TEDE	Total effective dose equivalent
tit.	Title
TSD	Treatment, storage, and disposal
UMTRCA	Uranium Mill Tailings Radiation Control Act
USC	*United States Code*
VOC	Volatile organic compound
Water Board	San Francisco Bay Regional Water Quality Control Board

TABLE 13-2: LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Location	Requirement	Prerequisite	Citation[a]	ARAR Determination	Comments
FEDERAL ARARs					
National Historic Preservation Act of 1966[b], as Amended 16 USC § 470-470x-6					
Historic project owned or controlled by federal agency	Action should preserve historic properties; planning of action should minimize harm to properties listed on or eligible for listing on the National Register of Historic Places.	Property included in or eligible for the National Register of Historic Places	16 USC § 470-470x-6; 36 CFR pt. 800 and 40 CFR § 6.301(b)	Applicable	The historic Alameda Training Wall runs along the entire northern side of Site 1. The Navy has concluded that a portion of the training wall is eligible for inclusion on the National Register of Historic Places. Some of the training wall that is eligible for inclusion on the National Register of Historic Places is located on Site 1. Substantive provisions are ARARs. Remedial actions will be planned and implemented in a manner that would prevent or minimize any damage to the Alameda Training Wall.
Executive Order No. 11990, Protection of Wetlands[b]					
Wetland	Action to minimize the destruction, loss, or degradation of wetlands.	Wetland meeting definition of Section 7	40 CFR § 6.302(a)	Applicable	Seasonal wetlands are located within and adjacent to Site 1. Substantive provisions are ARARs.
Clean Water Act of 1977, as Amended, Section 404 (33 USC § 1344)[b]					
Wetland	Action to prohibit discharge of dredged or fill material into wetland without permit.	Wetland as defined by Exec. Order No. 11990 Section 7	33 U.S.C § 1344	Applicable	Filling of some portions of the seasonal wetlands at Site 1 is a component of some of the remedial alternatives. Substantive provisions are ARARs.
Migratory Bird Treaty Act of 1918 (16 USC § 703-712)[b]					
Migratory bird area	Protects almost all species of native birds in the U.S. from unregulated "take" that can include poisoning at hazardous waste sites.	Presence of migratory birds	16 U.S.C. § 703	Relevant and appropriate	The seasonal wetlands could be used for nesting and foraging by many migratory bird species. Substantive provisions are ARARs.

TABLE 13-2: LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Location	Requirement	Prerequisite	Citation[a]	ARAR Determination	Comments
FEDERAL ARARs (Continued)					
Endangered Species Act of 1973 (16 U.S.C. §§ 1531–1543)[b]					
Habitat upon which endangered species or threatened species depend	Federal agencies may not jeopardize the continued existence of any listed species or cause the destruction or adverse modification of critical habitat. The Endangered Species Committee may grant an exemption for agency action if reasonable mitigation and enhancement measures such as propagation, transplantation, and habitat acquisition and improvement are implemented.	Determination of effect upon endangered or threatened species or its habitat. Critical habitat upon which endangered species or threatened species depend.	16 U.S.C. § 1536(a) and (h)(1)(B); 16 U.S.C. § 1538(a)(1)(B) and (G);	Applicable	The substantive provisions of these requirements are ARARs for Site 1 because the following federal threatened or endangered species is potentially present on Site 1: California clapper rail. The selected remedy will prevent exposure of ecological receptors to contamination at Site 1 and will be conducted in a way that does not result in the taking of the threatened or endangered species or in adversely affecting its habitat. .
Coastal Zone Management Act (16 USC §§ 1451 – 1464)[b]					
Within coastal zone	Conduct activities in a manner consistent with approved state management programs.	Activities affecting the coastal zone, including land under and adjacent to shore land	16 USC § 1456(c) 15 CFR § 930	Relevant and Appropriate	The CZMA specifically excludes federal lands from its jurisdiction; however, because Site 1 is adjacent to the San Francisco Bay, the Navy has identified the CZMA as relevant and appropriate. The selected soil and groundwater remedial actions for Site 1 will not result in filling in the San Francisco Bay and will aid in protecting the beneficial uses of the San Francisco Bay in compliance with the CZMA by and the San Francisco Bay Plan (an approved state management program).

TABLE 13-2: LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Location	Requirement	Prerequisite	Citation[a]	ARAR Determination	Comments
STATE ARARs					
California Fish & Game Code[b]					
State threatened or endangered species	No person shall import, export, take, possess, or sell any endangered or threatened species or part or product thereof.	Threatened or endangered species determination on or before January 1, 1985.	Cal. Fish and Game Code § 2080	Relevant and Appropriate	Cal. Fish and Game Code § 2080 is not applicable because the United States of America has not waived sovereign immunity in the FESA for this State of California requirement. The California clapper rail, which is potentially present on Site 1, is protected under both CESA and FESA. Because the state requirement is not more stringent than the federal ARAR, the Cal. Fish and Game Code § 2080 requirements are not ARARs for these species. The California clapper rail, a federal-listed species will be addressed by the substantive provisions of FESA. In addition, the selected remedy will prevent exposure of ecological receptors to contamination at Site 1.

TABLE 13-2: LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Location	Requirement	Prerequisite	Citation[a]	ARAR Determination	Comments
STATE ARARs (Continued)					
California Fish & Game Code[b] (Continued)					
					The California black rail, which is potentially present at Site 1, is protected under Cal. Fish and Game Code § 2080. The substantive provisions of Cal. Fish and Game Code § 2080 meet the pertinent NCP criteria under 40 CFR § 300.400(g)(2)(viii) and are "relevant and appropriate" because protection of this vulnerable resource allows it to be "used" in the sense that it continues to provide its unique value to the State of California. The Navy is subject to the jurisdiction of the FESA. The substantive requirements of Cal. Fish and Game Code § 2080 that are more stringent than FESA are accepted by the Navy as being relevant and appropriate. Thus, species that are listed under the CESA but not protected under FESA, will be addressed by the substantive provisions of Cal. Fish and Game Code § 2080.

TABLE 13-2: LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Location	Requirement	Prerequisite	Citation[a]	ARAR Determination	Comments
STATE ARARs (Continued)					
California Fish & Game Code[b] (Continued)					
Birds or mammals	It is unlawful to take birds or mammals with any net, pound, cage, trap, set line or wire, or poisonous substance, or to possess birds or mammals so taken, whether taken within or without this state.		Cal. Fish & Game Code § 3005(a) (Statute 1957, c. 456, p. 1353, Section 3005)	Not an ARAR	See June 16, 2009 letter from Department of Navy counsels Rex Callaway and Michael Waters to California Department of Fish and Game counsel Wendy Johnson for a more detailed explanation of the position set forth below. This section is not an environmental or facility siting law and is, therefore, not an ARAR (see CERCLA § 121(d) and 40 CFR § 300.5 of the NCP). The Navy further reviews below whether this requirement would otherwise qualify as a State ARAR if it were deemed to be an environmental requirement. Cal. Fish and Game Code § 3005(a) is not applicable because the United States of America has not waived sovereign immunity in the FESA for this State of California requirement.

TABLE 13-2: LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Location	Requirement	Prerequisite	Citation[a]	ARAR Determination	Comments
STATE ARARs (Continued)					
California Fish & Game Code[b] (Continued)					
					Pursuant to 40 CFR § 300.400(g)(2) of the NCP, the Navy has determined that this requirement is not "relevant and appropriate", because it does not address problems or situations sufficiently similar to the circumstances of the release or CERCLA response action and is not well-suited to the site based upon the pertinent provisions of Subsections 300.400(g)(2)(i) and (iv) of the NCP.[1] CERCLA response actions are intended to respond to releases of hazardous substances in order to protect human health and the environment including environmental receptors such as the species addressed in the statutory provisions and regulations cited by CDFG. In contrast, the purpose of this State requirement is to regulate and set forth conditions for the "taking" of the species addressed by those

[1] Note that there is no requirement in Subsection 300.400(g)(2) of the NCP that the Navy make specific findings for each of the eight factors listed in Subsection 300.400(g)(2)(i) through (viii) for each potential State ARAR). The factors are to be examined "where pertinent," with pertinence "depending, in part, on whether a requirement addresses a chemical, location, or action."

TABLE 13-2: LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Location	Requirement	Prerequisite	Citation[a]	ARAR Determination	Comments
STATE ARARs (Continued)					
California Fish & Game Code[b] (Continued)					
					requirements. Moreover, that purpose is achieved through the regulation of intentional conduct directed at the species as opposed to incidental "take" (or possession, etc.) of species in the course of lawful activity such as CERCLA remedial action. The focus on intentional conduct is not well-suited to the circumstances at CERCLA sites. In summary, the purposes of this State requirement and the actions that it regulates do not include responding to releases of hazardous substances. Therefore, it is not "relevant and appropriate" based upon the pertinent provisions of Subsections 300.400(g)(2)(i) and (iv) of the NCP. The Navy's ecological risk assessment process takes into account representative environmental receptors for the site and final remediation/cleanup goals will ensure that they are adequately protected from exposure to CERCLA hazardous substances that present unacceptable risk.

TABLE 13-2: LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Location	Requirement	Prerequisite	Citation[a]	ARAR Determination	Comments
STATE ARARs (Continued)					
California Fish & Game Code[b] (Continued)					
					In addition, any species that are present and are federal and/or state endangered, threatened, or fully protected species will be addressed by ARARS related to those designations. Although this requirement is not an ARAR, the Navy will coordinate with other natural resource trustees throughout the CERCLA remedial action process.
Bird nest or eggs	It is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto.	Bird nests or eggs on-site.	Cal. Fish & Game Code § 3503 (Added by Statutes 1985, c. 1334, Section 6)	Not an ARAR	See June 16, 2009 letter from Department of Navy counsels Rex Callaway and Michael Waters to California Department of Fish and Game counsel Wendy Johnson for a more detailed explanation of the position set forth below. This section is not an environmental or facility siting law and is, therefore, not an ARAR (see Section 121(d) of CERCLA and 40 CFR Section 300.5 of the NCP). The Navy further reviews below whether this requirement would otherwise qualify as a State ARAR if it were deemed to be an environmental requirement.

TABLE 13-2: LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Location	Requirement	Prerequisite	Citation[a]	ARAR Determination	Comments
STATE ARARs (Continued)					
California Fish & Game Code[b] (Continued)					
					Cal. Fish and Game Code § 3503 is not applicable because the United States of America has not waived sovereign immunity in the FESA for this State of California requirement. Pursuant to 40 CFR § 300.400(g)(2) of the NCP, the Navy has determined that this requirement is not "relevant and appropriate", because it does not address problems or situations sufficiently similar to the circumstances of the release or CERCLA response action and is not well-suited to the site based upon the pertinent provisions of Subsections 300.400(g)(2)(i) and (iv) of the NCP.[2]

[2] Note that there is no requirement in Subsection 300.400(g)(2) of the NCP that the Navy make specific findings for each of the eight factors listed in Subsection 300.400(g)(2)(i) through (viii) for each potential State ARAR). The factors are to be examined "where pertinent," with pertinence "depending, in part, on whether a requirement addresses a chemical, location, or action."

TABLE 13-2: LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Location	Requirement	Prerequisite	Citation[a]	ARAR Determination	Comments
STATE ARARs (Continued)					
California Fish & Game Code[b] (Continued)					
					CERCLA response actions are intended to respond to releases of hazardous substances in order to protect human health and the environment including environmental receptors such as the species addressed in the statutory provisions and regulations cited by CDFG. In contrast, the purpose of this State requirement is to regulate and set forth conditions for the "taking" of the species addressed by those requirements. Moreover, that purpose is achieved through the regulation of intentional conduct directed at the species as opposed to incidental “take” (or possession, etc.) of species in the course of lawful activity such as CERCLA remedial action. The focus on intentional conduct is not well-suited to the circumstances at CERCLA sites.

TABLE 13-2: LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Location	Requirement	Prerequisite	Citation[a]	ARAR Determination	Comments
STATE ARARs (Continued)					
California Fish & Game Code[b] (Continued)					
					In summary, the purposes of this State requirement and the actions that it regulates do not include responding to releases of hazardous substances. Therefore, it is not "relevant and appropriate" based upon the pertinent provisions of Subsections 300.400(g)(2)(i) and (iv) of the NCP. The Navy's ecological risk assessment process takes into account representative environmental receptors for the site and final remediation/cleanup goals will ensure that they are adequately protected from exposure to CERCLA hazardous substances that present unacceptable risk. Although this requirement is not an ARAR, the Navy will coordinate with other natural resource trustees throughout the CERCLA remedial action process.

TABLE 13-2: LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Location	Requirement	Prerequisite	Citation[a]	ARAR Determination	Comments
STATE ARARs (Continued)					
California Fish & Game Code[b] (Continued)					
Falconiformes or Strigiformes	It is unlawful to take, possess, or destroy any birds in the orders *Falconiformes* or *Strigiforms* (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird.	Falconiformes or Strigiformes birds on-site.	Cal. Fish & Game Code § 3503.5 (Added by Statutes 1985, c. 1334, Section 6)	Not an ARAR	See June 16, 2009 letter from Department of Navy counsels Rex Callaway and Michael Waters to California Department of Fish and Game counsel Wendy Johnson for a more detailed explanation of the position set forth below. This section is not an environmental or facility siting law and is, therefore, not an ARAR (see Section 121(d) of CERCLA and 40 CFR Section 300.5 of the NCP). The Navy further reviews below whether this requirement would otherwise qualify as a State ARAR if it were deemed to be an environmental requirement. Cal. Fish and Game Code § 3503.5 is not applicable because the United States of America has not waived sovereign immunity in the FESA for this State of California requirement.

TABLE 13-2: LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Location	Requirement	Prerequisite	Citation[a]	ARAR Determination	Comments
STATE ARARs (Continued)					
California Fish & Game Code[b] (Continued)					
					Pursuant to 40 CFR § 300.400(g)(2) of the NCP, the Navy has determined that this requirement is not "relevant and appropriate", because it does not address problems or situations sufficiently similar to the circumstances of the release or CERCLA response action and is not well-suited to the site based upon the pertinent provisions of Subsections 300.400(g)(2)(i) and (iv) of the NCP.[3] CERCLA response actions are intended to respond to releases of hazardous substances in order to protect human health and the environment including environmental receptors such as the species addressed in the statutory provisions and regulations cited by CDFG. In contrast, the purpose of this State requirement is to regulate and set forth conditions for the "taking" of the species addressed by those requirements.

[3] Note that there is no requirement in Subsection 300.400(g)(2) of the NCP that the Navy make specific findings for each of the eight factors listed in Subsection 300.400(g)(2)(i) through (viii) for each potential State ARAR). The factors are to be examined "where pertinent," with pertinence "depending, in part, on whether a requirement addresses a chemical, location, or action."

TABLE 13-2: LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Location	Requirement	Prerequisite	Citation[a]	ARAR Determination	Comments
STATE ARARs (Continued)					
California Fish & Game Code[b] (Continued)					
					Moreover, that purpose is achieved through the regulation of intentional conduct directed at the species as opposed to incidental "take" (or possession, etc.) of species in the course of lawful activity such as CERCLA remedial action. The focus on intentional conduct is not well-suited to the circumstances at CERCLA sites. In summary, the purposes of this State requirement and the actions that it regulates do not include responding to releases of hazardous substances. Therefore, it is not "relevant and appropriate" based upon the pertinent provisions of Subsections 300.400(g)(2)(i) and (iv) of the NCP. The Navy's ecological risk assessment process takes into account representative environmental receptors for the site and final remediation/cleanup goals will ensure that they are adequately protected from exposure to CERCLA hazardous substances that present unacceptable risk.

TABLE 13-2: LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Location	Requirement	Prerequisite	Citation[a]	ARAR Determination	Comments
STATE ARARs (Continued)					
California Fish & Game Code[b] (Continued)					
					Although this requirement is not an ARAR, the Navy will coordinate with other natural resource trustees throughout the CERCLA remedial action process.
Fully protected bird species/ habitat	Provides that it is unlawful to take or possess listed fully protected birds.	Taking of protected birds	Cal. Fish and Game Code § 3511	Relevant and Appropriate	California Fish and Game Code § 3511 is not applicable because the United States of America has not waived sovereign immunity in the FESA for this State of California requirement. Fully protected birds that are potentially present at Site 1 include: American peregrine falcon, California black rail, and California clapper rail. These species are protected under Cal. Fish and Game Code § 3511. The substantive provisions of Cal. Fish and Game Code § 3511 appear to meet the pertinent criteria under 40 C.F.R. § 300.400(g)(2)(viii) and are "relevant and appropriate" because protection of these vulnerable resources allows them to be "used" in the sense that they continues to provide their unique value to the State of California. The Navy is subject to the jurisdiction of the FESA.

TABLE 13-2: LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Location	Requirement	Prerequisite	Citation[a]	ARAR Determination	Comments
STATE ARARs (Continued)					
California Fish & Game Code[b] (Continued)					
					The substantive requirements of Cal. Fish and Game Code § 3511 that are more stringent than FESA are accepted by the Navy as being relevant and appropriate. The species that are fully protected but are not protected under the FESA are: American peregrine falcon and the California black rail. The species that is fully protected and protected under the FESA is: California clapper rail.
Nongame birds	It is unlawful to take any nongame bird.	All birds occurring naturally in California that are not resident game birds, migratory game birds, or fully protected birds are nongame birds.	Cal. Fish & Game Code § 3800(a) (Added by Statutes 1971, c. 1470, p. 2906, Section 13)	Not an ARAR	See June 16, 2009 letter from Department of Navy counsels Rex Callaway and Michael Waters to California Department of Fish and Game counsel Wendy Johnson for a more detailed explanation of the position set forth below. This section is not an environmental or facility siting law and is, therefore, not an ARAR (see § 121(d) of CERCLA and 40 CFR § 300.5 of the NCP). The Navy further reviews below whether this requirement would otherwise qualify as a State ARAR if it were deemed to be an environmental requirement.

TABLE 13-2: LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Location	Requirement	Prerequisite	Citation[a]	ARAR Determination	Comments
STATE ARARs (Continued)					
California Fish & Game Code[b] (Continued)					
					Cal. Fish and Game Code § 3800(a) is not applicable because the United States of America has not waived sovereign immunity in the FESA for this State of California requirement. Pursuant to 40 CFR § 300.400(g)(2) of the NCP, the Navy has determined that this requirement is not "relevant and appropriate", because it does not address problems or situations sufficiently similar to the circumstances of the release or CERCLA response action and is not well-suited to the site based upon the pertinent provisions of Subsections 300.400(g)(2)(i) and (iv) of the NCP.[4] CERCLA response actions are intended to respond to releases of hazardous substances in order to protect human health and the environment including environmental receptors such as the species addressed in the statutory provisions and regulations cited by CDFG. In contrast, the purpose of this State

[4] Note that there is no requirement in Subsection 300.400(g)(2) of the NCP that the Navy make specific findings for each of the eight factors listed in Subsection 300.400(g)(2)(i) through (viii) for each potential State ARAR). The factors are to be examined "where pertinent," with pertinence "depending, in part, on whether a requirement addresses a chemical, location, or action."

Location	Requirement	Prerequisite	Citation[a]	ARAR Determination	Comments
STATE ARARs (Continued)					
California Fish & Game Code[b] (Continued)					
					requirement is to regulate and set forth conditions for the "taking" of the species addressed by those requirements. Moreover, that purpose is achieved through the regulation of intentional conduct directed at the species as opposed to incidental "take" (or possession, etc.) of species in the course of lawful activity such as CERCLA remedial action. The focus on intentional conduct is not well-suited to the circumstances at CERCLA sites. In summary, the purposes of this State requirement and the actions that it regulates do not include responding to releases of hazardous substances. Therefore, it is not "relevant and appropriate" based upon the pertinent provisions of Subsections 300.400(g)(2)(i) and (iv) of the NCP. The Navy's ecological risk assessment process takes into account representative environmental receptors for the site and final remediation/cleanup goals will ensure that they are adequately protected from exposure to CERCLA hazardous substances that present unacceptable risk.

TABLE 13-2: LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Location	Requirement	Prerequisite	Citation[a]	ARAR Determination	Comments
STATE ARARs (Continued)					
California Fish & Game Code[b] (Continued)					
					Although this requirement is not an ARAR, the Navy will coordinate with other natural resource trustees throughout the CERCLA remedial action process.
Nongame mammals	All mammals occurring naturally in California that are not game mammals, fully protected mammals, or fur-bearing mammals, are nongame mammals. Nongame mammals or parts thereof may not be taken or possessed.	Response action may potentially take a nongame mammal.	Cal. Fish & Game Code § 4150	Not an ARAR	See June 16, 2009 letter from Department of Navy counsels Rex Callaway and Michael Waters to California Department of Fish and Game counsel Wendy Johnson for a more detailed explanation of the position set forth below. This section is not an environmental or facility siting law and is, therefore, not an ARAR (see CERCLA § 121(d) and 40 CFR §300.5 of the NCP). The Navy further reviews below whether this requirement would otherwise qualify as a State ARAR if it were deemed to be an environmental requirement. Cal. Fish and Game Code, § 4150 is not applicable because the United States of America has not waived sovereign immunity in the FESA for this State of California requirement.

TABLE 13-2: LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Location	Requirement	Prerequisite	Citation[a]	ARAR Determination	Comments
STATE ARARs (Continued)					
California Fish & Game Code[b] (Continued)					
					Pursuant to 40 CFR § 300.400(g)(2) of the NCP, the Navy has determined that this requirement is not "relevant and appropriate", because it does not address problems or situations sufficiently similar to the circumstances of the release or CERCLA response action and is not well-suited to the site based upon the pertinent provisions of Subsections 300.400(g)(2)(i) and (iv) of the NCP.[5] CERCLA response actions are intended to respond to releases of hazardous substances in order to protect human health and the environment including environmental receptors such as the species addressed in the statutory provisions and regulations cited by CDFG. In contrast, the purpose of this State requirement is to regulate and set forth conditions for the "taking" of the species addressed by those requirements. Moreover, that purpose is achieved through the regulation of intentional conduct directed at the species as opposed to incidental "take" (or possession, etc.) of species in the course of lawful activity such as

[5] Note that there is no requirement in Subsection 300.400(g)(2) of the NCP that the Navy make specific findings for each of the eight factors listed in Subsection 300.400(g)(2)(i) through (viii) for each potential State ARAR). The factors are to be examined "where pertinent," with pertinence "depending, in part, on whether a requirement addresses a chemical, location, or action."

TABLE 13-2: LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Location	Requirement	Prerequisite	Citation[a]	ARAR Determination	Comments
STATE ARARs (Continued)					
California Fish & Game Code[b] (Continued)					
					CERCLA remedial action. The focus on intentional conduct is not well-suited to the circumstances at CERCLA sites. In summary, the purposes of this State requirement and the actions that it regulates do not include responding to releases of hazardous substances. Therefore, it is not "relevant and appropriate" based upon the pertinent provisions of Subsections 300.400(g)(2)(i) and (iv) of the NCP. The Navy's ecological risk assessment process takes into account representative environmental receptors for the site and final remediation/cleanup goals will ensure that they are adequately protected from exposure to CERCLA hazardous substances that present unacceptable risk. Although this requirement is not an ARAR, the Navy will coordinate with other natural resource trustees throughout the CERCLA remedial action process.

TABLE 13-2: LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Location	Requirement	Prerequisite	Citation[a]	ARAR Determination	Comments
STATE ARARs (Continued)					
California Fish & Game Code[b] (Continued)					
Aquatic habitat	Action must be taken if toxic materials are placed where they can enter the waters of the state	Materials entering the waters of the state	Cal. Fish and Game Code § 5650(a), (b) and (f)	Relevant and Appropriate	California Fish and Game Code § 5650 is not applicable because the United States of America has not waived sovereign immunity in the FESA for this State of California requirement. While no direct deposition of material is expected to enter into or impact waters of the states, the substantive provisions of this standard will be complied with as an ARAR. Any excavation taking place in an area that may impact waters of the state will be conducted in such a way as to ensure that materials dug up will not be released into the water column.
Mollusks, crustaceans, or invertebrates	No mollusks, crustaceans, or other invertebrates may be taken, possessed aboard a boat, or landed for commercial purposes by any person in any tide pool or tidal area, including tide flats or other areas between the high tidemark and 1,000 feet beyond the low tidemark.	The taking and possession of fish for any commercial purpose.	Cal. Fish & Game Code § 8500	Not an ARAR	This is not a potential ARAR since the response action will not take any animals for any commercial purpose. Although this requirement is not an ARAR, the Navy will coordinate with other natural resource trustees throughout the CERCLA remedial action process.

TABLE 13-2: LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Location	Requirement	Prerequisite	Citation[a]	ARAR Determination	Comments
STATE ARARs (Continued)					
California Fish & Game Code[b] (Continued)					
Reptiles and amphibians	It is unlawful to capture, collect, intentionally kill or injure, possess, purchase, propagate, sell, transport, import, or export any native reptile or amphibian, or part thereof.	Potentially affect native reptiles or amphibians.	Cal. Code Regs. tit. 14 § 40	Not an ARAR	See June 16, 2009 letter from Department of Navy counsels Rex Callaway and Michael Waters to California Department of Fish and Game counsel Wendy Johnson for a more detailed explanation of the position set forth below. This section is not an environmental or facility siting law and is, therefore, not an ARAR (see § 121(d) of CERCLA and 40 CFR § 300.5 of the NCP). The Navy further reviews below whether this requirement would otherwise qualify as a State ARAR if it were deemed to be an environmental requirement. Cal. Code Regs. tit. 14, § 40 is not applicable because the United States of America has not waived sovereign immunity in the FESA for this State of California requirement. It is not a relevant and appropriate requirement because none of the pertinent species are present at the site. Although this requirement is not an ARAR, the Navy will coordinate with other natural resource trustees throughout the CERCLA remedial action process.

TABLE 13-2: LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Location	Requirement	Prerequisite	Citation[a]	ARAR Determination	Comments
STATE ARARs (Continued)					
California Fish & Game Code[b] (Continued)					
Nongame birds and mammals	Nongame birds and mammals may not be taken except as provided. (a) The following nongame birds and mammals may be taken at any time of the year and in any number except as prohibited: English sparrow, starling, coyote, weasels, skunks, opossum, moles, and rodents (excluding tree and flying squirrels, and those listed as furbearers, endangered, or threatened species). (b) Fallow, sambar, sika, and axis deer may be taken only concurrently with the general deer season. (c) Aoudad, mouflon, tahr, and feral goats may be taken all year. (d) American crows (*Corvus brachyrhynchos*) may be taken only under the provisions of Section 485 and by landowners or tenants, or by persons authorized in writing by such landowners or tenants, when American crows are committing or about to commit depredations upon ornamental or shade trees, agricultural crops, livestock, or wildlife, or when concentrated in such numbers and manner as to constitute a health hazard or other nuisance.	Taking of nongame birds and mammals.	Cal. Code Regs. tit. 14, § 472	Not an ARAR	See June 16, 2009 letter from Department of Navy counsels Rex Callaway and Michael Waters to California Department of Fish and Game counsel Wendy Johnson for a more detailed explanation of the position set forth below. This section is not an environmental or facility siting law and is, therefore, not an ARAR (see § 121(d) of CERCLA and 40 CFR § 300.5 of the NCP). The Navy further reviews below whether this requirement would otherwise qualify as a State ARAR if it were deemed to be an environmental requirement. Cal. Code Regs. tit. 14, § 472 is not applicable because the United States of America has not waived sovereign immunity in the FESA for this State of California requirement. Pursuant to 40 CFR § 300.400(g)(2) of the NCP, the Navy has determined that this requirement is not "relevant and appropriate", because it does not address problems or situations sufficiently similar to the circumstances

TABLE 13-2: LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Location	Requirement	Prerequisite	Citation[a]	ARAR Determination	Comments
STATE ARARs (Continued)					
California Fish & Game Code[b] (Continued)					
					of the release or CERCLA response action and is not well-suited to the site based upon the pertinent provisions of Subsections 300.400(g)(2)(i) and (iv) of the NCP.[6] CERCLA response actions are intended to respond to releases of hazardous substances in order to protect human health and the environment including environmental receptors such as the species addressed in the statutory provisions and regulations cited by CDFG. In contrast, the purpose of this State requirement is to regulate and set forth conditions for the "taking" of the species addressed by those requirements. Moreover, that purpose is achieved through the regulation of intentional conduct directed at the species as opposed to incidental "take" (or possession, etc.) of species in the course of lawful activity such as CERCLA remedial action. The focus on intentional conduct is not well-suited to the circumstances at CERCLA sites.

[6] Note that there is no requirement in Subsection 300.400(g)(2) of the NCP that the Navy make specific findings for each of the eight factors listed in Subsection 300.400(g)(2)(i) through (viii) for each potential State ARAR). The factors are to be examined "where pertinent," with pertinence "depending, in part, on whether a requirement addresses a chemical, location, or action."

TABLE 13-2: LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Location	Requirement	Prerequisite	Citation[a]	ARAR Determination	Comments
STATE ARARs (Continued)					
California Fish & Game Code[b] (Continued)					
					In summary, the purposes of this State requirement and the actions that it regulates do not include responding to releases of hazardous substances. Therefore, it is not "relevant and appropriate" based upon the pertinent provisions of Subsections 300.400(g)(2)(i) and (iv) of the NCP. The Navy's ecological risk assessment process takes into account representative environmental receptors for the site and final remediation/cleanup goals will ensure that they are adequately protected from exposure to CERCLA hazardous substances that present unacceptable risk. Although this requirement is not an ARAR, the Navy will coordinate with other natural resource trustees throughout the CERCLA remedial action process.
McAteer-Petris Act (California Government Code §§ 66600 through 66661)[b]					
Within the San Francisco Bay coastal zone	Reduce fill and disposal of dredged material in San Francisco Bay, maintain marshes and mudflats to the fullest extent possible to conserve wildlife, abate pollution, and protect the beneficial uses of the bay.	Activities affecting the San Francisco Bay and 100 feet landward of the shoreline.	San Francisco Bay Plan at Cal. Code Regs. tit. 14, §§ 10110 through 11990	Relevant and appropriate	The Navy has determined that the substantive provisions of the CZMA are relevant and appropriate federal location-specific requirements Site 1. The CZMA requires federal agency activity be conducted in a manner consistent with approved state management programs to the maximum extent practicable. The McAteer-Petris Act is enabling

TABLE 13-2: LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Location	Requirement	Prerequisite	Citation[a]	ARAR Determination	Comments
STATE ARARs (Continued)					
California Fish & Game Code[b] (Continued)					
McAteer-Petris Act (California Government Code §§ 66600 through 66661)[b] (Continued)					
					legislation for the San Francisco Bay Plan, an approved state management program for the San Francisco Bay. Substantive provisions of the McAteer-Petris Act and the San Francisco Bay Plan are relevant and appropriate because their authority is derived from the CZMA, a relevant and appropriate federal requirement. The Navy will conduct this remedy in accordance with the substantive provisions of the San Francisco Bay Plan.

Notes:

a Only the substantive provisions of the requirements cited in this table are ARARs.

b Statutes and policies, and their citations, are provided as headings to identify general categories of ARARs for the convenience of the reader; listing the statutes and policies does not indicate that the Navy accepts the entire statutes or policies as ARARs; specific ARARs are addressed in the table below each general heading; only substantive requirements of the specific citations are considered ARARs.

§ Section
§§ Sections
ARAR Applicable or relevant and appropriate requirement

Cal. California
Cal. Code Reg. California Code of Regulations
CFR Code of Federal Regulations
CESA California Endangered Species Act
CZMA Coastal Zone Management Act
FESA Federal Endangered Species Act
tit. Title
USC United States Code

TABLE 13-3: ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Action	Requirement	Prerequisite	Citation	ARAR Determination	Comments
EXCAVATION AND DISPOSAL OF WASTE					
Federal ARARs					
Resource Conservation and Recovery Act (42 USC, Chapter 82, §§ 6901-6991[i]) [a]					
On-site waste generation	Person who generates waste shall determine if that waste is a hazardous waste	Generator of waste	Cal. Code Regs., tit. 22, §§ 66262.10(a), 66262.11	Applicable	Applicable for characterization of waste generated during monitoring and construction of monitoring wells.
	Requirement for analyzing waste to determine whether waste is hazardous.	Generator of waste	Cal. Code Regs., tit. 22, § 66264.13(a) and (b)	Applicable	Applicable for characterization of waste generated during monitoring and construction of monitoring wells.
Container storage	Containers of RCRA hazardous waste must be: • maintained in good condition, • be compatible with hazardous waste to be stored, and • Closed during storage, except to add or remove waste.	Storage in a container of RCRA hazardous waste not meeting small quantity generator criteria before treatment, disposal, or storage elsewhere.	Cal. Code Regs. tit. 22, § 66264.171, 66264.172, and 66264.173	Applicable and relevant and appropriate	The substantive provisions are ARARs for handling small amounts of waste generated in the implementation of the remedies (for example, the construction of new groundwater monitoring wells or other investigation derived waste). The requirements are applicable if waste is determined to be RCRA hazardous or non-RCRA, state-regulated hazardous waste. These requirements are relevant and appropriate for solid waste that is designated or nonhazardous solid waste.

TABLE 13-3: ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Action	Requirement	Prerequisite	Citation	ARAR Determination	Comments
EXCAVATION AND DISPOSAL OF WASTE (Continued)					
FEDERAL ARARs (Continued)					
Resource Conservation and Recovery Act (42 USC, Chapter 82, §§ 6901-6991[i])[a] (Continued)					
Container Storage (Continued)	Inspect container storage areas weekly for deterioration.	Storage in a container of RCRA hazardous waste not meeting small-quantity generator criteria before treatment, disposal, or storage elsewhere.	Cal. Code Regs. tit. 22, § 66264.174	Applicable and relevant and appropriate	The substantive provisions are ARARs for handling small amounts of waste generated in the implementation of the remedies (for example, the construction of new groundwater monitoring wells or other investigation derived waste). The requirements are applicable if waste is determined to be RCRA hazardous or non-RCRA, state-regulated hazardous waste. These requirements are relevant and appropriate for solid waste that is designated or nonhazardous solid waste.
	Place containers on a sloped, crack-free base, and protect from contact with accumulated liquid. Provide containment system with a capacity of 10 percent of the volume of containers of free liquids. Remove spilled or leaked waste in a timely manner to prevent overflow of the containment system.	Storage in a container of RCRA hazardous waste not meeting small-quantity generator criteria before treatment, disposal, or storage elsewhere.	Cal. Code Regs. tit. 22, § 66264.175(a), (b)	Applicable and relevant and appropriate	The substantive provisions are ARARs for handling small amounts of waste generated in the implementation of the remedies (for example, the construction of new groundwater monitoring wells or other investigation derived waste). The requirements are applicable if waste is determined to be RCRA hazardous or non-RCRA, state-regulated hazardous waste. These requirements are relevant and appropriate for solid waste that is

TABLE 13-3: ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Action	Requirement	Prerequisite	Citation	ARAR Determination	Comments
EXCAVATION AND DISPOSAL OF WASTE (Continued)					
FEDERAL ARARs (Continued)					
Resource Conservation and Recovery Act (42 USC, Chapter 82, §§ 6901-6991[i])[a] (Continued)					
	Keep incompatible materials separate. Separate incompatible materials stored near each other by a dike or other barrier.	Storage in a container of RCRA hazardous waste not meeting small-quantity generator criteria before treatment, disposal, or storage elsewhere	Cal. Code Regs. titl 22, § 66264.177	Applicable and relevant and appropriate	designated or nonhazardous solid waste. The substantive provisions are ARARs for handling small amounts of waste generated in the implementation of the remedies (for example, the construction of new groundwater monitoring wells or other investigation derived waste). The requirements are applicable if waste is determined to be RCRA hazardous or non-RCRA, state-regulated hazardous waste. These requirements are relevant and appropriate for solid waste that is designated or nonhazardous solid waste.

TABLE 13-3: ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Action	Requirement	Prerequisite	Citation	ARAR Determination	Comments
EXCAVATION AND DISPOSAL OF WASTE (Continued)					
FEDERAL ARARs (Continued)					
Resource Conservation and Recovery Act (42 USC, Chapter 82, §§ 6901-6991[i])[a] (Continued)					
	At closure, remove all hazardous waste and residues from the containment system, and decontaminate or remove all containers and liners.	Hazardous waste.	Cal. Code Regs. tit. 22, § 66264.178	Applicable and relevant and appropriate	The substantive provisions are ARARs for handling small amounts of waste generated in the implementation of the remedies (for example, the construction of new groundwater monitoring wells or other investigation derived waste). The requirements are applicable if waste is determined to be RCRA hazardous or non-RCRA, state-regulated hazardous waste. These requirements are relevant and appropriate for solid waste that is designated or nonhazardous solid waste.

TABLE 13-3: ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Action	Requirement	Prerequisite	Citation	ARAR Determination	Comments
EXCAVATION AND DISPOSAL OF WASTE (Continued)					
Federal ARARs (Continued)					
Resource Conservation and Recovery Act (42 USC, Chapter 82, §§ 6901-6991[i])[a] (Continued)					
Waste pile	Alternative requirements that are protective of human health or the environment may replace design, operating, or closure standards for temporary tanks and container storage areas.	Hazardous remediation waste temporarily stored in piles.	Cal. Code Regs. tit. 22, § 66264.553(b),(d), (e), and (f)	Applicable and relevant and appropriate	The substantive provisions are applicable for temporarily storing excavated soil that is RCRA hazardous or non-RCRA, state-regulated hazardous waste prior to on-site relocation or off-site disposal. The substantive provisions are relevant and appropriate for temporarily storing excavated soil that is designated or nonhazardous waste.
	Alternative requirements that are protective of human health or the environment may replace design, operating, or closure standards for temporary tanks and container storage areas.	Hazardous remediation waste temporarily stored in piles.	40 CFR§ 264.554(d)(1)(i–ii) and (d)(2),(e), (f), (h), (i),(j), and (k)	Applicable and relevant and appropriate	The substantive provisions are applicable for temporarily storing excavated soil that is RCRA hazardous or non-RCRA, state-regulated hazardous waste prior to on-site relocation or off-site disposal. The substantive provisions are relevant and appropriate for temporarily storing excavated soil that is designated or nonhazardous waste.
	At closure, owner shall remove or decontaminate all waste residues, contaminated containment system components, contaminated subsoils, and structures and equipment contaminated with waste and leachate, and manage them as hazardous waste. If waste is left on site, perform postclosure care in	Waste pile used to store hazardous waste.	Cal. Code Regs. tit. 22, § 66264.258(a) and (b) except references to procedural requirements	Applicable and relevant and appropriate	The substantive provisions are applicable for temporarily storing excavated soil that is RCRA hazardous or non-RCRA, state-regulated hazardous waste prior to on-site relocation or off-site disposal. The substantive provisions are relevant and appropriate for temporarily storing

TABLE 13-3: ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Action	Requirement	Prerequisite	Citation	ARAR Determination	Comments
EXCAVATION AND DISPOSAL OF WASTE (Continued)					
Federal ARARs (Continued)					
Resource Conservation and Recovery Act (42 USC, Chapter 82, §§ 6901-6991[i])a (Continued)					
	accordance with the closure and postclosure care requirements that apply to landfills.				excavated soil that is designated or nonhazardous waste.
Military Munitions Rule (40 CFR part 266 subpart M)[a]					
Management of military munitions	Identification of hazardous waste munitions and treatment and storage requirements for hazardous waste munitions.	Presence of military munitions	40 CFR §§ 266.203, 266.205, and 266.206	Applicable	The substantive provisions of these requirements are applicable to any MPPEH found while implementing the remedy.
Clean Water Act of 1977 (33 USC § 1344)[a]					
Storm Water Discharge	General requirements for a storm water management plan and implementation of best management practices.	Construction involving one acre or more of soil disturbance	40 CFR § 122.44(k)(2)and (4)	Applicable	Substantive provisions are applicable for soil excavation alternatives wherein acre or more of soil disturbance is expected.
Clean Air Act (42 USC §§ 7401–7671)[a]					
Discharge to air	A person shall not emit from any source for a period or periods aggregating more than 3 minutes in any hour a visible emission which is as dark as or darker than No. 1 on the Ringelmann chart or of such opacity as to obscure an observer's view to an equivalent or greater degree. A person shall not emit for a period or periods aggregating more than3 minutes in any hour, an emission equal to or greater than 20 percent opacity.	Emissions	BAAQMD Regulation 6, § 6-301 and 302	Applicable	Substantive provisions are applicable for the earthwork and soil excavation activities.

TABLE 13-3: ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Action	Requirement	Prerequisite	Citation	ARAR Determination	Comments
SOIL COVERS					
Federal ARARs					
Resource Conservation and Recovery Act (42 USC, Chapter 82, §§ 6901-6991[i])[a]					
Site closure	Minimize the need for further maintenance controls and minimize or eliminate, to the extent necessary to protect human health and the environment, postclosure escape of hazardous waste, hazardous constituents, leachate, contaminated rainfall or runoff, or waste decomposition products to groundwater or surface water or to the atmosphere.	Hazardous waste management facility	Cal. Code Regs. tit. 22, § 66264.111(a) and (b)	Relevant and Appropriate	Substantive provisions are relevant and appropriate for the soil covers.
Clean closure	During the partial and final closure periods, all contaminated equipment, structures, and soils shall be properly disposed or decontaminated by removing all hazardous waste and residues.	Hazardous waste management facility	Cal. Code Regs. tit. 22, § 66264.114	Relevant and appropriate	Substantive provisions are relevant and appropriate for the soil covers.
Final cover	The final cover shall be designed and constructed to function with minimum maintenance.	Hazardous waste treatment, storage, or disposal facility	Cal. Code Regs. tit. 22 § 66264.310(a)(2)	Relevant and appropriate	Substantive provisions are relevant and appropriate for the soil cover.
Final cover	The final cover shall be designed and constructed to promote drainage and minimize erosion or abrasion of the cover.	Hazardous waste treatment, storage, or disposal facility	Cal. Code Regs. tit. 22 § 66264.310(a)(3)	Relevant and appropriate	Substantive provisions are relevant and appropriate for the soil cover.
Final cover	The final cover shall be designed and constructed to accommodate settling and subsidence so that the cover's integrity is maintained.	Hazardous waste treatment, storage, or disposal facility	Cal. Code Regs. tit. 22 § 66264.310(a)(4)	Relevant and appropriate	Substantive provisions are relevant and appropriate for the soil cover.

TABLE 13-3: ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Action	Requirement	Prerequisite	Citation	ARAR Determination	Comments
SOIL COVER (Continued)					
Federal ARARs (Continued)					
Resource Conservation and Recovery Act (42 USC, Chapter 82, §§ 6901-6991[i])[a] (Continued)					
Final cover	The final cover shall be designed and constructed to accommodate lateral and vertical shear forces generated by the maximum credible earthquake so that the integrity of the cover is maintained.	Hazardous waste treatment, storage, or disposal facility	Cal. Code Regs. tit. 22, § 66264.310(a)(5)	Relevant and appropriate	Substantive provisions are relevant and appropriate for the soil covers.
Postclosure care	Maintain the integrity and effectiveness of the final cover, including making repairs to the cap as necessary to correct the effects of settling, subsidence, erosion, or other events throughout the postclosure period.	Hazardous waste treatment, storage, or disposal facility	Cal. Code Regs. tit. 22, § 66264.310(b)(1)	Relevant and appropriate	Substantive provisions are relevant and appropriate for the soil covers.
Site security	Prevent the unknowing entry, and minimize the possibility for the unauthorized entry, of persons or livestock onto the active portion of the facility.	Hazardous waste treatment, storage, or disposal facility	Cal. Code Regs. tit. 22, § 66264.14(a)	Relevant and appropriate	Substantive provisions are relevant and appropriate for the soil covers.
Clean Water Act of 1977 (33 USC § 1344)[a]					
Storm Water Discharge	General requirements for a storm water management plan and implementation of best management practices.	Construction involving one acre or more of soil disturbance	40 CFR § 122.44(k)(2)and (4)	Applicable	Substantive provisions are applicable for constructing the soil cover.

TABLE 13-3: ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Action	Requirement	Prerequisite	Citation	ARAR Determination	Comments
SOIL COVER (Continued)					
State ARARs					
Landfill gas control	The operator shall ensure that landfill gases generated at a disposal site are controlled. Methane must not exceed 1.25 percent by volume in air within on-site structures, concentrations of methane gas migrating from the landfill must not exceed 5 percent by volume in air at the property boundary, and trace gases shall be controlled to prevent adverse acute and chronic exposure to toxic and/or carcinogenic compounds.	Cal. Code Regs. tit. 27 requirements are applicable only for waste discharged after July 18, 1997, unless otherwise noted.	Cal. Code Regs. tit. 27, § 20921(a)(1),(2), and (3)	Relevant and appropriate	Substantive provisions are relevant and appropriate for the soil covers.
Erosion control	Diversion and drainage facilities shall be designed, constructed, and maintained to accommodate the anticipated volume of precipitation and peak flows. Collection and holding facilities associated with precipitation and drainage control systems shall be emptied immediately or otherwise managed to maintain system design capacity.	Cal. Code Regs. tit. 27 requirements are applicable only for waste discharged after July 18, 1997, unless otherwise noted.	Cal. Code Regs. tit. 27, §§ 20365(c) and(d), 21090(c)(4),and 21150	Relevant and appropriate	Substantive provisions are relevant and appropriate for the soil covers.

TABLE 13-3: ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Action	Requirement	Prerequisite	Citation	ARAR Determination	Comments
SOIL COVER (Continued)					
State ARARs (Continued)					
Engineered alternatives to final cover standard	Alternatives to prescriptive standards may be considered provided the prescriptive standard is not feasible and there is a specific engineered alternative that is consistent with the performance goal and affords equivalent protection against water quality impairment. The Water Board can allow any alternative final cover that it finds will continue to isolate the waste and irrigation waters at least as well as would a final cover built in accordance with applicable prescriptive standards.	Cal. Code Regs. tit. 27 requirements are applicable only for waste discharged after July 18, 1997, unless otherwise noted.	Cal. Code Regs. tit. 27, §§ 20080(b) and(c) and 21090(a)	Relevant and appropriate	Substantive provisions are relevant and appropriate for the soil covers.
Vegetative layer	Closed landfills shall be provided with an uppermost cover layer consisting of either a vegetative layer consisting of knotless than 1 foot of soil capable of sustaining native or other suitable plant growth or a mechanically erosion resistant layer.	Cal. Code Regs. tit. 27 requirements are applicable only for waste discharged after July 18, 1997, unless otherwise noted	Cal. Code Regs. tit. 27, § 21090(a)(3)	Relevant and appropriate	Substantive provisions are relevant and appropriate for the soil covers.
Final grading	The final cover of closed landfills shall be designed, graded, and maintained to prevent ponding and to prevent site erosion due to high runoff velocities. Slopes should be at least 3 percent.	Cal. Code Regs. tit. 27 requirements are applicable only for waste discharged after July 18, 1997, unless otherwise noted	Cal. Code Regs. tit. 27, § 21090(b)(1)	Relevant and appropriate	Substantive provisions are relevant and appropriate for the soil covers.

TABLE 13-3: ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Action	Requirement	Prerequisite	Citation	ARAR Determination	Comments
RADIOLOGICAL SCREENING AND MPPEH SWEEP					
Federal ARARs					
Atomic Energy Act of 1954 (42 U.S.C. ch. 23, § 2011 et seq.)[a]					
Temporary storage of radiologically contaminated soil	The licensee shall secure from unauthorized removal or access licensed materials that are stored in controlled or unrestricted areas.	Existing NRC-licensed site	10 CFR § 20.1801	Relevant and appropriate	This requirement is not applicable to Site 1 because Site 1 is not an NRC-licensed facility. The substantive provisions of this requirement are relevant and appropriate for staging excavated soil contaminated with ROCs at levels at or above remediation goals prior to off-site disposal.
	The licensee shall control and maintain constant surveillance of licensed material that is in a controlled or unrestricted area and that is not in storage.	Existing NRC-licensed site	10 CFR § 20.1802	Relevant and appropriate	This requirement is not applicable to Site 1 because Site 1 is not an NRC-licensed facility. The substantive provisions of this requirement are relevant and appropriate for staging excavated soil contaminated with ROCs at levels at or above remediation goals prior to off-site disposal.

TABLE 13-3: ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Action	Requirement	Prerequisite	Citation	ARAR Determination	Comments
WETLAND MITIGATION PLAN					
Federal ARARs					
Clean Water Act of 1977 (33 USC § 1344)[a]					
Discharge of dredged material	U.S. Army Corps of Engineers requirements for permitting discharges of dredged material to waters of the United States.	Discharge of dredged material to waters of the United States, including adjacent wetlands	33 CFR § 320.4 40 CFR §§ 230.10, 230.11, 230.20-230.25, 230.31, 230.32, 230.41, 230.42 and 230.53	Applicable	Substantive provisions are applicable for the soil covers.
INSTITUTIONAL CONTROLS					
State ARARs					
California Civil Code (Cal. Civil Code § 1471)[a]					
Land use controls	Provides conditions under which land use restrictions will apply to successive owners of land	Transfer property from the Navy to a nonfederal agency	Cal. Civil Code § 1471	Relevant and appropriate	Substantive provisions are the following general narrative standard: "to do or refrain from doing some act on his or her own land … where (c) Each such act relates to the use of land and each such act is reasonably necessary to protect present or future human health or safety of the environment as a result of the presence of hazardous materials, as defined in § 25260 of the Cal. Health & Safety Code." This narrative standard would be implemented through incorporation of restrictive covenants in the deed at the time of transfer.

TABLE 13-3: ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Action	Requirement	Prerequisite	Citation	ARAR Determination	Comments
INSTITUTIONAL CONTROLS (Continued)					
State ARARs (Continued)					
California Health and Safety Code Land Use Controls (Cal. Health & Safety Code §§ 25202.5, 25222.1, 25232(b)(1)(A)-(E), 25233(c), § 25234, § 25355.5)					
Land use controls	Allows DTSC to enter into an agreement with the owner of a hazardous waste facility to restrict present and future land uses.	Transfer property from the Navy to a nonfederal agency	Cal. Health & Safety Code § 25202.5	Relevant and appropriate	The substantive provisions of this section are the general narrative standards to restrict "present and future uses of all or part of the land on which the facility …is located."
Land use controls (Continued)	Provides a streamlined process to be used to enter into an agreement to restrict specific use of property in order to implement the substantive use restrictions.	Transfer property from the Navy to a nonfederal agency.	Cal. Health & Safety Code § 25222.1	Relevant and appropriate	Cal. Health & Safety Code § 25222.1 provides the authority for the state to enter into voluntary agreements to establish land use covenants with the owner of the property. The substantive provision of Cal. Health & Safety Code § 25222.1 is the general narrative standard: "restricting specified uses of the property."
	Prohibits certain uses of land containing hazardous waste without a specific variance.	Hazardous waste property.	Cal. Health & Safety Code § 25232(b)(1)(A)–(E)	Relevant and appropriate	Land-use restrictions will be used to prohibit the following activities at Site 1: residential use of the sites, construction of hospitals for humans, schools for persons under 21 years of age, day care centers for children, or any permanently occupied human habitation on the sites.

TABLE 13-3: ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Action	Requirement	Prerequisite	Citation	ARAR Determination	Comments
INSTITUTIONAL CONTROLS (Continued)					
State ARARs (Continued)					
California Health and Safety Code Land Use Controls (Cal. Health & Safety Code §§ 25202.5, 25222.1, 25232(b)(1)(A)-(E), 25233(c), § 25234, § 25355.5)					
	Provides a process for obtaining a written variance from a land use restriction.	Transfer property from the Navy to a nonfederal entity.	Cal. Health & Safety Code § 25233(c)	Relevant and appropriate	Cal. Health & Safety Code § 25233(c) sets forth substantive criteria for granting variances from the uses prohibited in § 25232(b)(1)(A)-(E) based on specific environmental and health criteria.
	Provides a process by which DTSC can remove land use restrictions	Transfer property from the Navy to a nonfederal entity	Cal. Health & Safety Code § 25234	Relevant and appropriate	Cal. Health & Safety Code § 25234 sets forth the following "relevant and appropriate" substantive criteria for the removal of a land-use restriction on the grounds that "…the waste no longer creates a significant existing or potential hazard to present or future public health or safety."
	Authorizes DTSC to enter into an enforceable agreement that imposes restrictions on present and future uses of the property	Transfer property from the Navy to a nonfederal entity	Cal. Health & Safety Code § 25355.5(a)(1)(C)	Relevant and appropriate	The substantive requirements of the following Cal. Health & Safety Code § 25355.5(a)(1)(C) provisions are "relevant and appropriate": "…execution and recording of a written instrument that imposes an easement, covenant, restriction, or servitude, or combination thereof , as appropriate, upon the present and future uses of the site."

TABLE 13-3: ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Action	Requirement	Prerequisite	Citation	ARAR Determination	Comments
INSTITUTIONAL CONTROLS (Continued)					
State ARARs (Continued)					
Cal/EPA Department of Toxic Substances Control (Cal. Code Regs., tit. 22, § 67391.1)[a]					
Land use covenants	A land use covenant imposing appropriate limitations on land use shall be executed and recorded when facility closure, corrective action, remedial or removal action, or other response actions are undertaken and hazardous materials, hazardous wastes or constituents, or hazardous substances will remain at the property at levels which are not suitable for unrestricted use of the land.	Property transfer by federal government to nonfederal entity.	Cal. Code Regs., tit. 22, § 67391.1	Relevant and appropriate	Relevant and appropriate when the Navy is transferring property to a nonfederal agency. EPA Region 9 considers the following portions of 22 CCR 67391.1 to be relevant and appropriate for this ROD: (a)(1), (a)(2), (b), (d), (e)(1) and (e)(2). The Navy has selected ICs as part of the remedies for soil and groundwater. These requirements are ARARs for those ICs. DTSC's position is that all of the state regulation is an ARAR.
PLACEMENT OF RIPRAP COVER					
Federal ARARs					
Resource Conservation and Recovery Act (42 USC, Chapter 82, §§ 6901-6991[i])[a]					
Placement of rip rap cover	Protect and maintain surveyed benchmarks throughout the postclosure period.	Hazardous waste treatment, storage, or disposal facility.	Cal. Code Regs. tit. 22 § 66264.310(b)(5)	Relevant and appropriate	The Navy has identified these requirements as relevant and appropriate to construction and maintenance of the riprap covers in the exposed beach areas of Area 5.

TABLE 13-3: ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Action	Requirement	Prerequisite	Citation	ARAR Determination	Comments
PLACEMENT OF RIPRAP COVER (Continued)					
Federal ARARs (Continued)					
Clean Water Act of 1977 (33 USC § 1344)[a]					
Storm Water Discharge	General requirements for a storm water management plan and implementation of best management practices.	Construction involving one acre or more of soil disturbance	40 CFR § 122.44(k)(2)and (4)	Applicable	Substantive provisions are applicable for constructing the riprap covers.
State ARARs					
Erosion control	Diversion and drainage facilities shall be designed, constructed, and maintained to accommodate the anticipated volume of precipitation and peak flows. Collection and holding facilities associated with precipitation and drainage control systems shall be emptied immediately or otherwise managed to maintain system design capacity.	Cal. Code Regs. tit. 27 requirements are applicable only for waste discharged after July 18, 1997, unless otherwise noted.	Cal. Code Regs. tit. 27, §§ 20365(c) and(d), 21090(c)(4),and 21150	Relevant and appropriate	Substantive provisions are relevant and appropriate for constructing the riprap covers.
REMOVAL OF RADIOLOGICALLY-IMPACTED WASTE					
Federal ARARs					
Resource Conservation and Recovery Act (42 USC, Chapter 82, §§ 6901-6991[i])[a]					
On-site generation of waste	Person who generates waste shall determine if that waste is a hazardous waste	Generator of waste	Cal. Code Regs., tit. 22, §§ 66262.10(a), 66262.11	Applicable	Applicable for characterization of waste generated during removal of radiological hot spots prior to placing the soil cover. .
	Requirement for analyzing waste to determine whether waste is hazardous.	Generator of waste	Cal. Code Regs., tit. 22, § 66264.13(a) and (b)	Applicable	Applicable for characterization of waste generated during removal of radiological hot spots prior to placing the soil cover. .

TABLE 13-3: ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Action	Requirement	Prerequisite	Citation	ARAR Determination	Comments
REMOVAL OF RADIOLOGICALLY-IMPACTED WASTE (Continued)					
Federal ARARs (Continued)					
Resource Conservation and Recovery Act (42 USC, Chapter 82, §§ 6901-6991[i])[a] (Continued)					
Temporary waste pile	Alternative requirements that are protective of human health or the environment may replace design, operating, or closure standards for temporary tanks and container storage areas.	Hazardous remediation waste temporarily stored in piles.	40 CFR§ 264.554(d)(1)(i–ii) and (d)(2),(e), (f), (h), (i),(j), and (k)	Applicable and relevant and appropriate	The substantive provisions are applicable for temporarily storing excavated soil that is RCRA hazardous or non-RCRA, state-regulated hazardous waste prior to on-site relocation or off-site disposal. The substantive provisions are relevant and appropriate for temporarily storing excavated soil that is designated or nonhazardous waste.
Clean Water Act of 1977 (33 USC § 1344)[a]					
Storm Water Discharge	General requirements for a storm water management plan and implementation of best management practices.	Construction involving one acre or more of soil disturbance	40 CFR § 122.44(k)(2)and (4)	Applicable	Substantive provisions are applicable for the excavation of waste.
Atomic Energy Act of 1954 (42 U.S.C. ch. 23, § 2011 et seq.)[a]					
Temporary storage of radiologically contaminated soil	The licensee shall secure from unauthorized removal or access licensed materials that are stored in controlled or unrestricted areas.	Existing NRC-licensed site	10 CFR § 20.1801	Relevant and appropriate	This requirement is not applicable to Site 1 because Site 1 is not an NRC-licensed facility. The substantive provisions of this requirement are relevant and appropriate for staging excavated soil contaminated with ROCs at levels at or above remediation goals prior to off-site disposal.

TABLE 13-3: ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Action	Requirement	Prerequisite	Citation	ARAR Determination	Comments
REMOVAL OF RADIOLOGICALLY-IMPACTED WASTE (Continued)					
Federal ARARs (Continued)					
Atomic Energy Act of 1954 (42 U.S.C. ch. 23, § 2011 et seq.)[a] (Continued)					
	The licensee shall control and maintain constant surveillance of licensed material that is in a controlled or unrestricted area and that is not in storage.	Existing NRC-licensed site	10 CFR § 20.1802	Relevant and appropriate	This requirement is not applicable to Site 1 because Site 1 is not an NRC-licensed facility. The substantive provisions of this requirement are relevant and appropriate for staging excavated soil contaminated with ROCs at levels at or above remediation goals prior to off-site disposal.
GROUNDWATER MONITORING					
Federal ARARs					
Resource Conservation and Recovery Act (42 USC, Chapter 82, §§ 6901-6991[i])[a]					
Groundwater monitoring	After final closure, maintain and monitor the groundwater monitoring system and comply with all other applicable requirements of article 6 of chapter 14.	Hazardous waste treatment, storage, or disposal facility	Cal. Code Regs. tit. 22, § 66264.310(b)(3)	Relevant and appropriate	The substantive provisions are relevant and appropriate for the groundwater monitoring associated with constructing the soil cover over the waste in Site 1. The specific provisions of chapter 14, article 6 that the Navy has identified as ARARs are discussed below.

TABLE 13-3: ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Action	Requirement	Prerequisite	Citation	ARAR Determination	Comments
GROUNDWATER MONITORING (Continued)					
Federal ARARs (Continued)					
Resource Conservation and Recovery Act (42 USC, Chapter 82, §§ 6901-6991[i])[a] (Continued)					
Monitoring	The owner or operator shall establish and implement, in conjunction with the corrective action measures, a water quality monitoring program that will demonstrate the effectiveness of the corrective action program and be effective in determining compliance with the water quality protection standard and in determining the success of the corrective action measures under subsection (c) of this section.	Hazardous waste treatment, storage, or disposal facility	Cal. Code Regs. tit. 22, § 66264.100(d)	Relevant and Appropriate	This section is an ARAR for groundwater monitoring.
Completion of response action	The corrective action program is complete when compliance with the water quality standard is demonstrated based on the results of sampling and analysis for all constituents of concern for a period of 1 year.	Hazardous waste treatment, storage, or disposal facility	Cal. Code Regs. tit. 22, § 66264.100(g)(1)	Relevant and Appropriate	This section is an ARAR for groundwater monitoring.

TABLE 13-3: ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Action	Requirement	Prerequisite	Citation	ARAR Determination	Comments
GROUNDWATER MONITORING (Continued)					
Federal ARARs (Continued)					
Resource Conservation and Recovery Act (42 USC, Chapter 82, §§ 6901-6991[i])[a] (Continued)					
Chemicals of concern	Identify constituents of concern including the waste constituents, reaction products, and hazardous constituents that are reasonably expected to be in or derived from waste contained in the regulated unit.	Hazardous waste treatment, storage, or disposal facility	Cal. Code Regs. tit. 22, § 66264.93	Relevant and Appropriate	This section is an ARAR for groundwater monitoring.
Monitoring	Requirements for monitoring groundwater, surface water, and the vadose zone.	Hazardous waste treatment, storage, or disposal facility	Cal. Code Regs. tit. 22, § 66264.97(b)(1)(A), (B) and (C), 66264.97(b)(1)(D)(1) and (2), 66264.97(b)(2), 66264.97(b)(4)-(7), 66264.97(e)(6), 66264.97(e)(12)(A) and (B), 66264.97(e)(13), and 66264.97(e)(15)	Relevant and Appropriate	These sections are ARARs for groundwater monitoring.

TABLE 13-3: ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Action	Requirement	Prerequisite	Citation	ARAR Determination	Comments
GROUNDWATER MONITORING (Continued)					
Federal (Continued)					
Resource Conservation and Recovery Act (42 USC, Chapter 82, §§ 6901-6991[i])[a] (Continued)					
Monitoring (Continued)	Requirements for a detection monitoring program.	Hazardous waste treatment, storage, or disposal facility	Cal. Code Regs. tit. 22, § 66264.98(e)(1-5), (i), (j), (k)(1-3), (4)(A) and (D),(5), (7)(C) and (D),(n)(1),(2)(B), and (C)C	Relevant and Appropriate	These sections are ARARs for groundwater monitoring.
	Requirements for an evaluation monitoring program.	Hazardous waste treatment, storage, or disposal facility	Cal. Code Regs. tit. 22, § 66264.99(b), (e)(1)–(6), (f)(3), and (g)	Relevant and Appropriate	These sections are ARARs for groundwater monitoring.
	Requires continued monitoring until the regulated unit has been in compliance with the water quality protection standard for a period of three consecutive years and all waste, waste residues, contaminated subsoils and all other contaminated geologic materials are removed or decontaminated at closure.	Hazardous waste treatment, storage, or disposal facility	Cal. Code Regs. tit. 22, § 66264.90(c)(1) and (c)(2)	Relevant and Appropriate	These sections are ARARs for groundwater monitoring.

TABLE 13-3: ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for Installation Restoration Site 1, 1943-1956 Disposal Area, Alameda Point, Alameda, California

Action	Requirement	Prerequisite	Citation	ARAR Determination	Comments
GROUNDWATER MONITORING (Continued)					
State ARARs					
	For compliance demonstration each "must have remained at or below its respective concentration limit during a proof period of at least one year . . . and . . . (2) each Monitoring Point must have been evenly distributed throughout the proof period and have consisted of no less than eight sampling events per year per Monitoring Point."	Waste discharged after July 18, 1997	Cal. Code Regs. tit. 27, § 20430(g)(1)	Relevant and Appropriate	This section is an ARAR for groundwater monitoring.

Notes:

a	Statutes and policies, and their citations, are provided as headings to identify general categories of ARARs for the convenience of the reader; listing the statutes and policies does not indicate that the Navy accepts the entire statutes or policies as ARARs; specific ARARs are addressed in the table below each general heading; only substantive requirements of the specific citations are considered ARARs.
§	Section
§§	Sections
ARAR	Applicable or relevant and appropriate requirement
BAAQMD	Bay Area Air Quality Management District
Cal. Code. Regs.	*California Code of Regulations*
Cal. Civil Code	*California Civil Code*
Cal/EPA	California Environmental Protection Agency
CFR	*Code of Federal Regulations*
DTSC	California Environmental Protection Agency Department of Toxic Substances Control
EPA	Environmental Protection Agency
POC	Point of compliance
RCRA	Resource Conservation and Recovery Act
ROC	Radionuclides of concern
ROD	Record of Decision
tit.	Title
USC	*United States Code*
Water Board	San Francisco Bay Regional Water Quality Control Board

14.0 DOCUMENTATION OF SIGNIFICANT CHANGES

CERCLA Section 117(b) and the NCP at 40 CFR §300.430(f)(3)(ii) require that after publication of the Proposed Plan and prior to the adoption of the Selected Remedy in the ROD, if new information is made available that significantly changes the basic features of the remedy with respect to scope, performance, or cost, such that the remedy significantly differs from the original proposal in the Proposed Plan and the supporting analysis and information, a discussion of the changes and reasons for such changes must be presented in the ROD. If the changes could be reasonably anticipated by the public based on the alternatives and other information in the Proposed Plan, supporting analysis, or the Administrative Record file then additional public notice or comment is not required.

All components of the preferred remedy included in the alternatives were addressed and included in the FS Report and the Proposed Plan. The Proposed Plan for Site 1 was released for public comment in September 2006 (Navy 2006a). For management purposes, the site was divided into five geographic areas for soil, all which have different preferred remedial alternatives. In addition, two other preferred remedial alternatives were selected for site-wide radium-impacted soil and the groundwater at Site 1. These preferred remedial alternatives were identified in the Proposed Plan and are summarized as follows:

- Alternative S1-4a: Excavation and Off-site Disposal, Soil Cover, Radiological and MEC Sweep, and Wetland Mitigation Plan for Area 1;
- Alternative S2-3: Pavement Maintenance and ICs for Area 2;
- Alternative S3-4: Tier 2 Ecological Risk Assessment, Hot Spot Relocation, and Wetlands Mitigation Plan for Area 3;
- Alternative S4-4: Removal, Screening, and Off-site Disposal for Area 4;
- Alternative S5-4: Confirmation Sampling and ICs for Area 5;
- Alternative S6-4: Removal of Radium-Impacted Waste in Areas 3 and 5 and One Location in Area 1b for Site-Wide Radium-Impacted Waste, Cover/Cap Remaining Radium-Impacted Waste in Area 1, and Wetland Mitigation Plan;
- Alternative GW-3: ISCO, MNA, Monitoring, and ICs for Groundwater.

After the Proposed Plan was released, the Navy completed a TCRA in July 2008. One of the objectives of the TCRA was to respond to potential risk posed by radiological contamination at Areas 1b, 3a, 3b, 4, 5b and chemical contamination at Area 4 within Site 1. While completing the TCRA, radiological contamination was found at deeper depths than originally anticipated within Areas 3a, 3b, 4, and 5. Based on this information, the conceptual site model of Area 3 was found to be more similar to the adjacent Site 32 than Site 1. As a result, the Navy, with agreement from the FFA signatories, revised the Site 1 boundary to remove Area 3a and 3b from Site 1. Area 2a was also removed from Site 1 because of its location in relation to Areas 3a and

3b. Areas 2a, 3a, and 3b will be included with Site 32 in a Revised RI/FS, which then will proceed to a Proposed Plan and ROD. This ROD for Site 1 will not select a remedy for Areas 2a, 3a or 3b. Figure 14-1 presents the former and current areas of IR Site 1 and Site 32. Therefore, Alternative S3-4 has been deleted. In addition, Alternative S2-3 will now apply only to Area 2b.

New information made available in the Final TCRA Post-Construction Report for IR Sites 1, 2, and 32 (Tetra Tech EC, Inc. 2009), significantly changed the basic features of the remedy with respect to scope for four of the Preferred Alternatives selected in the Proposed Plan. However, the changes could be reasonably anticipated by the public because they involve integration of components from other remedial alternatives evaluated in the FS Report (and subsequently presented to the public) into the preferred alternatives presented in this ROD. Furthermore, they do not fundamentally change the remedy. The changes are as follows:

- Alternative S2-3 has modified the containment component of the preferred remedial alternative from "Pavement Maintenance" to "Soil Cover." In the Proposed Plan, radiological contamination was not suspected beneath Area 2b and "Pavement Maintenance" was determined to be protective of human health and the environment in the Proposed Plan. Since issuance of the Proposed Plan, the TCRA Post-Construction Report (Tetra Tech EC, Inc. 2009) has indicated that radiological contamination may be present beneath the pavement; therefore, the Navy will place a two foot soil cover over the entire Area 2b to ensure protection of human health and the environment. If the pavement in Area 2b is excavated to accommodate seismic design requirements, then 4 feet of clean soil will be placed over the Area 2b soil area. A "Cover/Cap" component was included in Alternative S6-4 to address radiological contamination that is similar to that discovered in Area 2b. Incorporation of this component into Alternative S2-3 to address subsequently discovered similar contamination could be reasonably anticipated by the public.

- Alternative S4-4 has incorporated an "IC" component into the preferred remedial alternative. The ICs will prohibit residential use and land disturbing activities that may reduce the effectiveness of the cover that will be placed over Area 4 as part of Alternative S6-4. An "IC" component is included in Alternative S1-4a to protect the effectiveness of an identical soil cover in Area 1. Incorporation of this "IC" component could be reasonably anticipated by the public.

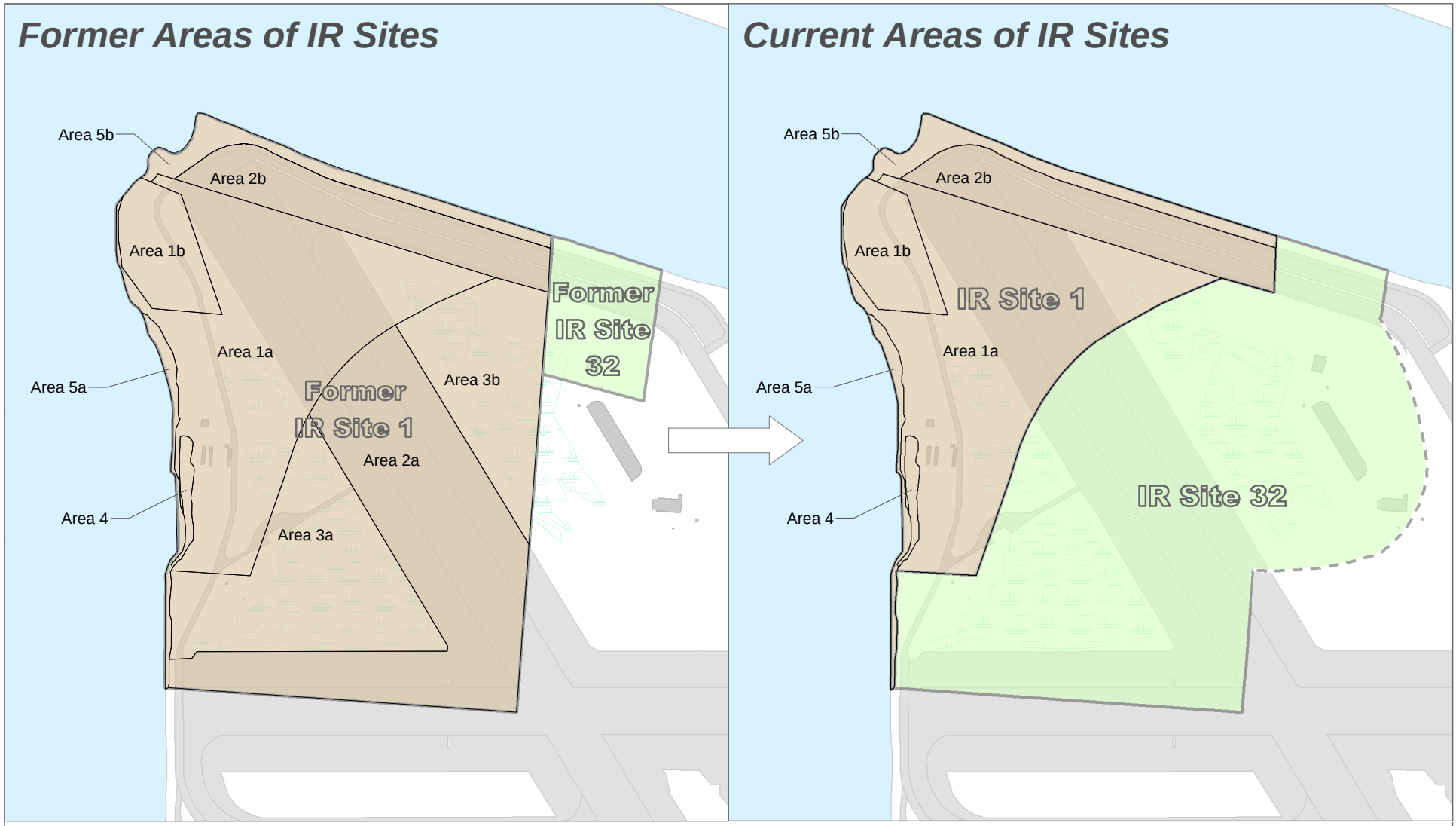
- Alternative S5-4 has incorporated a containment component into the preferred remedial alternative. Exposed areas on the beach side of the existing riprap within Areas 5a and 5b will be covered with additional riprap brought in from off-site. Incorporation of this component into the alternative will help stabilize the beach areas and prevent exposure to potential contamination greater than two feet bgs. A "Cover/Cap" component is included in Alternative S6-4 to address potential radiological contamination in the inland areas of Area 5 that is similar to that which may be present in the beach areas of Area 5. Incorporation of this component into Alternative S5-4 to address similar contamination

could be reasonably anticipated by the public. Confirmation Sampling, Hot Spot Relocation, and ICs will still remain as a component of Alternative S5-4.

- Alternative S6-4 has been changed to reflect the revised site boundary and the findings of the Final TCRA Post-Construction Report (Tetra Tech EC, Inc. 2009). The first component of this Alternative, "Removal of Radium-Impacted Waste in Areas 3 and 5 and One Location in Area 1b" is changed to omit Area 3 as it is no longer part of Site 1. In addition, removal of radium-impacted waste will occur across all of Site 1 (and not just Area 5), since radiological hot spot removal will occur in all areas that will have cover placement. In addition, the Navy will define a radiological hot spot as material exhibiting gamma radiation readings approximately 2 times background. The second component, "Cover/Cap Remaining Radium-Impacted Waste in Area 1" will be changed to omit reference to only Area 1. Based on the TCRA, the Navy has determined that the soil cover should extend to the existing riprap within Area 5a and 5b. Extending the cover is based on the findings of the Final TCRA Post-Construction Report (Tetra Tech EC, Inc. 2009), which identified that all radiological contamination was not removed during the TCRA and it is suspected at greater depths. Omitting exclusive reference to Area 1 will also accommodate incorporation of this component into Alternatives S2-3 and S5-4, as stated in the bullets above. The Wetland Mitigation Plan component of this Alternative was to address wetlands within Area 3. Since Area 3 has been removed from IR Site 1, this component is no longer necessary.

Alternatives S1-4a and GW-3 have not been changed from the Proposed Plan.

FIGURES



IR Site 1
IR Site 32
Area Yet To Be Defined
Soil Contamination Area
Road or Airfield Surface Area
Building
Wetland
Water

N

300 0 300 600
Feet

Note:
IR Installation Restoration

ChaduxTt JV
Consulting Engineers and Scientists

Alameda Point, Alameda, California
U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE 14-1

FORMER AND CURRENT AREAS OF INSTALLATION RESTORATION SITES 1 AND 32

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ATTACHMENT A
ADMINISTRATIVE RECORD INDEX

135 pages.

ALAMEDA POINT NAS

DRAFT ENVIRONMENTAL RESTORATION RECORD INDEX - UPDATE (SORTED BY RECORD DATE/RECORD NUMBER)

DOCUMENTS RELATED TO SITE 1

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)	
N00236 / 000198 NEESA 13-014 REPORT N62474-82-C-8272 176	11-24-1999 **04-01-1983** NONE 00.0	ECOLOGY AND ENVIRONMENT, INC. NAVFAC - EFA WEST	INITIAL ASSESSMENT STUDY (IAS)	ADMIN RECORD	005 006 007 008 009 010 011 012 017 SITE 00001 SITE 00002 SITE 00003 SITE 00004	FRC - PERRIS IMAGED APNT_045	181-03-0179 41074200	BOX 0010
N00236 / 000146 EFAW SER 09A2A.13/MGP CORRESPONDENC NONE 4	11-24-1999 **04-25-1986** NONE 00.0	NAVFAC - EFA WEST DONG, A. CRWQCB	RESPONSE TO RWQCB LETTER OF 04 MARCH 1986 (NO. 124) REGARDING TIMELY COMPLETION OF 1 FOOT COVER ON WEST BEACH LANDFILL	ADMIN RECORD INFO REPOSITORY	SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_002	181-03-0179 41074200	BOX 0008
N00236 / 000103 SER 0LE/105 CORRESPONDENC NONE 1	11-24-1999 **05-03-1988** NONE 00.0	DEPARTMENT OF THE NAVY R. STEIMER CRWQCB - OAKLAND K. THEISSEN	REQUEST FOR JOINT SOLID WASTE ASSESSMENT TEST (SWAT) FOR WEST BEACH AND 1943-1956 LANDFILLS	ADMIN RECORD	SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_002	181-03-0179 41074200	BOX 0003

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)
N00236 / 000104 FILE NO. 2199.9080 (KJT) CORRESPONDENC NONE 1	11-24-1999 **05-24-1988** NONE 00.0	CRWQCB - OAKLAND LUNDGREN, A. NAVFAC - EFA WEST R. CATE	APPROVAL OF JOINT SOLID WASTE ASSESSMENT TEST (SWAT) FOR WEST BEACH AND 1943-1956 LANDFILLS	ADMIN RECORD	SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_002	181-03-0179 BOX 0003 41074200

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)
N00236 / 000212 NONE REPORT NONE 215	11-24-1999 **08-01-1988** NONE 00.0	CANONIE ENVIRONMENTAL NAVFAC - EFA WEST	FINAL DRAFT SAMPLING PLAN (SP), REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) [VOLUME 1 OF 8] {***SEE COMMENTS}	ADMIN RECORD	005 006 007 008 009 010 011 012 013 014 015 016 017 018 019 020 AREA 97 BLDG. 10 BLDG. 114 BLDG. 14 BLDG. 162 BLDG. 301 BLDG. 360 BLDG. 389 BLDG. 400 BLDG. 41 BLDG. 410 BLDG. 459 BLDG. 5 BLDG. 530 BLDG. 547 CANS C-2 AREA SITE 00001 SITE 00002 SITE 00003	FRC - PERRIS IMAGED APNT_019	181-08-0082 BOX 0007 40095306 SAI

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)
					SITE 00004 YARD D-13		

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)
N00236 / 000214 NONE REPORT NONE 66	11-24-1999 **08-01-1988** NONE 00.0	CANONIE ENVIRONMENTAL NAVFAC - EFA WEST	FINAL DRAFT HEALTH AND SAFETY PLAN (HASP), REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) [VOLUME 2 OF 8] {INCLUDES APPENDICES A THROUGH C} (***SEE COMMENTS)	ADMIN RECORD	005 006 007 008 009 010 011 012 013 014 015 016 017 018 019 020 AREA 97 BLDG. 10 BLDG. 114 BLDG. 14 BLDG. 162 BLDG. 301 BLDG. 360 BLDG. 389 BLDG. 400 BLDG. 41 BLDG. 410 BLDG. 459 BLDG. 5 BLDG. 530 BLDG. 547 CANS C-2 AR SITE 00001 SITE 00002 SITE 00003	FRC - PERRIS IMAGED APNT_019	181-03-0179 BOX 0011 41074200

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N00236 / 000787 NONE REPORT N62474-85-D-5620 27	11-24-1999 **08-01-1988** DO 001 & DO 002 00.0	CANONIE ENVIRONMENTAL NAVFAC - EFA WEST	FINAL DRAFT AIR SAMPLING PLAN, REMEDIAL INVESTIGASTION/FEASIBILITY STUDY (RI/FS) [VOLUME 1B OF 8] {***SEE COMMENTS}	ADMIN RECORD	005 006 007 008 009 010 011 012 013 014 015 016 017 018 019 020 AREA 97 BLDG. 10 BLDG. 114 BLDG. 14 BLDG. 162 BLDG. 301 BLDG. 360 BLDG. 389 BLDG. 400 BLDG. 41 BLDG. 410 BLDG. 459 BLDG. 5 BLDG. 530 BLDG. 547 CANS C-2 AREA SITE 00001 SITE 00002 SITE 00003	FRC - PERRIS IMAGED APNT_019	181-03-0179 BOX 0018 41074200

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)
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UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)
N00236 / 000258 NONE REPORT N62474-85-D-5620 27	11-24-1999 **09-01-1988** DO 001 & DO 002 00.0	CANONIE ENVIRONMENTAL NAVFAC - EFA WEST	FINAL DRAFT AIR SAMPLING PLAN, REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) [VOLUME 1B OF 8] {***SEE COMMENTS}	ADMIN RECORD	005 006 007 008 009 010 011 012 013 014 015 016 017 018 019 020 AREA 97 BLDG. 10 BLDG. 114 BLDG. 14 BLDG. 162 BLDG. 301 BLDG. 360 BLDG. 389 BLDG. 400 BLDG. 41 BLDG. 410 BLDG. 459 BLDG. 5 BLDG. 530 BLDG. 547 CANS C-2 AREA SITE 00001 SITE 00002 SITE 00003	FRC - PERRIS IMAGED APNT_019	181-03-0179 BOX 0012 41074200

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)	
					SITE 00004 YARD D-13			
N00236 / 000807 NONE REPORT N62474-85-D-5620 189	11-24-1999 **09-01-1988** DO 0004 00.0	CANONIE ENVIRONMENTAL NAVFAC - EFA WEST	DRAFT SAMPLING PLAN, SOLID WASTE ASSESSMENT TEST (SWAT) PROPOSAL ADDENDUM, REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) [VOLUME 1A OF 8] {MISSING FIGURE 3-7} (INCLUDES APPENDICES A THROUGH G) [***SEE COMMENTS]	INFO REPOSITORY	SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_019	181-03-0179 41074200	BOX 0021	
N00236 / 000257 NONE REPORT N62474-85-D-5620 185	11-24-1999 **10-01-1988** DO 0004 00.0	CANONIE ENVIRONMENTAL NAVFAC - EFA WEST	FINAL DRAFT SAMPLING PLAN, SOLID WASTE ASSESSMENT TEST (SWAT) PROPOSAL ADDENDUM, REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) [VOLUME 1A OF 8] {INCLUDES APPENDICES A THROUGH G} (***SEE COMMENTS)	ADMIN RECORD INFO REPOSITORY	SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_019	181-03-0179 41074200	BOX 0012	

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N00236 / 000259 NONE REPORT N62474-85-D-5620 38	11-24-1999 **11-01-1988** DO 0005 00.0	CANONIE ENVIRONMENTAL NAVFAC - EFA WEST	FINAL DRAFT PROJECT MANAGEMENT PLAN/SCHEDULE, REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) [VOLUME 5 OF 8] {***SEE COMMENTS}	ADMIN RECORD	005 006 007 008 009 010 011 012 013 014 015 016 017 018 019 020 AREA 97 BLDG. 10 BLDG. 114 BLDG. 14 BLDG. 162 BLDG. 301 BLDG. 360 BLDG. 389 BLDG. 400 BLDG. 41 BLDG. 410 BLDG. 459 BLDG. 5 BLDG. 530 BLDG. 547 CANS C-2 AREA SITE 00001 SITE 00002 SITE 00003	FRC - PERRIS IMAGED APNT_019	181-03-0179 BOX 0012 41074200

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N00236 / 000260 NONE REPORT N62474-85-D-562085	11-24-1999 **12-01-1988** DO 0005 00.0	CANONIE ENVIRONMENTAL NAVFAC - EFA WEST	FINAL DRAFT DATA MANAGEMENT PLAN, REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) [VOLUME 6 OF 8] {***SEE COMMENTS}	ADMIN RECORD	005 006 007 008 009 010 011 012 013 014 015 016 017 018 019 020 AREA 97 BLDG. 10 BLDG. 114 BLDG. 14 BLDG. 162 BLDG. 301 BLDG. 360 BLDG. 389 BLDG. 400 BLDG. 41 BLDG. 410 BLDG. 459 BLDG. 5 BLDG. 530 BLDG. 547 CANS C-2 AREA SITE 00001 SITE 00002 SITE 00003	FRC - PERRIS IMAGED APNT_019	181-03-0179 BOX 0012 41074200

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N00236 / 000261 NONE REPORT NONE 345	11-24-1999 **12-01-1988** NONE 00.0	CLEMENT ASSOCIATES NAVFAC - EFA WEST	FINAL DRAFT PUBLIC HEALTH AND ENVIRONMENTAL EVALUATION PLAN (PHEE), REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) [VOLUME 7 OF 8] {MISSING SECTION 3} (***SEE COMMENTS)	ADMIN RECORD	005 006 007 008 009 010 011 012 013 014 015 016 017 018 019 020 AREA 97 BLDG. 10 BLDG. 114 BLDG. 14 BLDG. 162 BLDG. 301 BLDG. 360 BLDG. 389 BLDG. 400 BLDG. 41 BLDG. 410 BLDG. 459 BLDG. 5 BLDG. 530 BLDG. 547 CANS C-2 AREA SITE 00001 SITE 00002 SITE 00003	FRC - PERRIS IMAGED APNT_019	181-03-0179 BOX 0013 41074200

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N00236 / 000262 NONE REPORT N62474-85-D-5620 78	11-24-1999 **12-01-1988** DO 0005 00.0	CANONIE ENVIRONMENTAL NAVFAC - EFA WEST	FINAL DRAFT FEASIBILITY STUDY (FS) PLAN, REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) [VOLUME 8 OF 8] {***SEE COMMENTS}	ADMIN RECORD	005 006 007 008 009 010 011 012 013 014 015 016 017 018 019 020 AREA 97 BLDG. 10 BLDG. 114 BLDG. 14 BLDG. 162 BLDG. 301 BLDG. 360 BLDG. 389 BLDG. 400 BLDG. 41 BLDG. 410 BLDG. 459 BLDG. 5 BLDG. 530 BLDG. 547 CANS C-2 AREA SITE 00001 SITE 00002 SITE 00003	FRC - PERRIS IMAGED APNT_019	181-03-0179 BOX 0013 41074200

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N00236 / 000274 NONE REPORT N62474-85-D-5620 123	11-24-1999 **12-01-1988** DO 001 & DO 002 00.0	CANONIE ENVIRONMENTAL NAVFAC - EFA WEST	FINAL HEALTH AND SAFETY PLAN (HASP), REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) [VOLUME 2 OF 8] {INCLUDES APPENDICES A THROUGH H} (***SEE COMMENTS)	ADMIN RECORD	005 006 007 008 009 010 011 012 013 014 015 016 017 018 019 020 AREA 97 BLDG. 10 BLDG. 114 BLDG. 14 BLDG. 162 BLDG. 301 BLDG. 360 BLDG. 389 BLDG. 400 BLDG. 41 BLDG. 410 BLDG. 459 BLDG. 5 BLDG. 530 BLDG. 547 CANS C-2 AR SITE 00001 SITE 00002 SITE 00003	FRC - PERRIS IMAGED APNT_019	181-03-0179 BOX 0013 41074200

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N00236 / 000275 NONE REPORT N62474-85-D-5620 34	11-24-1999 **12-01-1988** DO 001 & 002 00.0	CANONIE ENVIRONMENTAL NAVFAC - EFA WEST	FINAL AIR SAMPLING PLAN, REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) [VOLUME 1B OF 8] {***SEE COMMENTS}	ADMIN RECORD INFO REPOSITORY	005 006 007 008 009 010 011 012 013 0140 015 016 017 018 019 020 AREA 97 BLDG. 10 BLDG. 114 BLDG. 14 BLDG. 162 BLDG. 301 BLDG. 360 BLDG. 389 BLDG. 400 BLDG. 41 BLDG. 410 BLDG. 459 BLDG. 5 BLDG. 530 BLDG. 547 CANS C-2 AREA SITE 00001 SITE 00002 SITE 00003	FRC - PERRIS IMAGED APNT_019	181-03-0179 BOX 0013 41074200

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N00236 / 000291 NONE REPORT N62474-85-D-5620 212	11-24-1999 **01-01-1989** DO 001 & DO 002 00.0	CANONIE ENVIRONMENTAL NAVFAC - EFA WEST	SAMPLING PLAN (SP), REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) [VOLUME 1 OF 8] (REVISED VERSION) [***SEE COMMENTS]	ADMIN RECORD	005 006 007 008 009 010 011 012 013 014 015 016 017 018 019 020 AREA 97 BLDG. 10 BLDG. 114 BLDG. 14 BLDG. 162 BLDG. 301 BLDG. 360 BLDG. 389 BLDG. 400 BLDG. 41 BLDG. 410 BLDG. 459 BLDG. 5 BLDG. 530 BLDG. 547 CANS C-2 AREA SITE 00001 SITE 00002 SITE 00003	FRC - PERRIS IMAGED APNT_019	181-03-0179 BOX 0013 41074200

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					SITE 00004 YARD D-13			
N00236 / 000311 NONE REPORT N62474-85-D-5620 194	11-24-1999 **02-01-1989** DO 0004 00.0	CANONIE ENVIRONMENTAL NAVFAC - EFA WEST	FINAL SAMPLING PLAN - SOLID WASTE ASSESSMENT TEST (SWAT) PROPOSAL ADDENDUM, REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) [VOLUME 1A OF 8] {INCLUDES APPENDICES A THROUGH G} (***SEE COMMENTS)	ADMIN RECORD INFO REPOSITORY	SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_019	181-03-0179 41074200	BOX 0014	

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N00236 / 000322 NONE REPORT NONE 45	11-24-1999 **02-01-1989** NONE 00.0	CANONIE ENVIRONMENTAL NAVFAC - EFA WEST	FINAL PROJECT MANAGEMENT PLAN/SCHEDULE, REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) [VOLUME 5 OF 8] (SEE AR #322 - EFAW TRANSMITTAL LETTER BY R. SERAYDARIAN) {***SEE COMMENTS}	ADMIN RECORD INFO REPOSITORY	005 006 007 008 009 010 011 012 013 014 015 016 017 018 019 020 AREA 97 BLDG. 10 BLDG. 114 BLDG. 14 BLDG. 162 BLDG. 301 BLDG. 360 BLDG. 389 BLDG. 400 BLDG. 41 BLDG. 410 BLDG. 459 BLDG. 5 BLDG. 530 BLDG. 547 CANS C-2 AREA SITE 00001 SITE 00002 SITE 00003	FRC - PERRIS IMAGED APNT_019	181-03-0179 BOX 0014 41074200

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N00236 / 000351 NONE REPORT N62474-85-D-5620 154	11-24-1999 **05-01-1989** DO 001 & DO 002 00.0	CANONIE ENVIRONMENTAL NAVFAC - EFA WEST	REVISED FINAL HEALTH AND SAFETY PLAN (HASP), REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) [VOLUME 2 OF 8] {INCLUDES APPENDICES A THROUGH J} (***SEE COMMENTS)	ADMIN RECORD	005 006 007 008 009 010 011 012 013 014 015 016 017 018 019 020 AREA 97 BLDG. 10 BLDG. 114 BLDG. 14 BLDG. 162 BLDG. 301 BLDG. 360 BLDG. 389 BLDG. 400 BLDG. 41 BLDG. 410 BLDG. 459 BLDG. 5 BLDG. 530 BLDG. 547 CANS C-2 AR SITE 00001 SITE 00002 SITE 00003	FRC - PERRIS IMAGED APNT_019	181-03-0179 BOX 0014 41074200

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)
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UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)
N00236 / 000361 NONE REPORT NONE 86	11-24-1999 **05-01-1989** NONE 00.0	CANONIE ENVIRONMENTAL NAVFAC - EFA WEST	DATA MANAGEMENT PLAN, REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) [VOLUME 6 OF 8] {***SEE COMMENTS}	ADMIN RECORD INFO REPOSITORY	005 006 007 008 009 010 011 012 013 014 015 016 017 018 019 020 AREA 97 BLDG. 10 BLDG. 114 BLDG. 14 BLDG. 162 BLDG. 301 BLDG. 360 BLDG. 389 BLDG. 400 BLDG. 41 BLDG. 410 BLDG. 459 BLDG. 5 BLDG. 530 BLDG. 547 CANS C-2 AREA SITE 00001 SITE 00002 SITE 00003	FRC - PERRIS IMAGED APNT_019	181-03-0179 BOX 0014 41074200

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UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)
N00236 / 000371 NONE REPORT NONE 364	11-24-1999 **06-01-1989** NONE 00.0	CLEMENT ASSOCIATES NAVFAC - EFA WEST	FINAL PRELIMINARY PUBLIC HEALTH AND ENVIRONMENTAL EVALUATION PLAN (PHEE), REMEDIAL INVESTIGATION FEASIBILITY STUDY (RI/FS) [VOLUME 7 OF 8] {***SEE COMMENTS}	ADMIN RECORD	005 006 007 008 009 010 011 012 013 014 015 016 017 018 019 020 AREA 97 BLDG. 10 BLDG. 114 BLDG. 14 BLDG. 162 BLDG. 301 BLDG. 360 BLDG. 389 BLDG. 400 BLDG. 41 BLDG. 410 BLDG. 459 BLDG. 5 BLDG. 530 BLDG. 547 CANS C-2 AREA SITE 00001 SITE 00002 SITE 00003	FRC - PERRIS IMAGED APNT_019	181-03-0179 BOX 0015 41074200

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)	
					SITE 00004 YARD D-13			
N00236 / 000784 FILE NO. 0388042.0(REPORT N62474-85-D-5620 46	11-24-1999 **10-16-1989** DO 0007 00.0	SCS ENGINEERS NAVFAC - EFA WEST	MONITORING PLAN AIR QUALITY SOLID WASTE ASSESSMENT TEST (SWAT) [SEE AR #525 - REVISION 1]	ADMIN RECORD INFO REPOSITORY	SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_011	181-03-0179 41074200	BOX 0018

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)
N00236 / 000780 NONE REPORT N62474-85-D-5620 178	11-24-1999 **11-01-1989** DO 0008 00.0	CANONIE ENVIRONMENTAL NAVFAC - EFA WEST	REVISED FINAL HEALTH AND SAFETY PLAN (HASP), REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) [VOLUME 2 OF 8] {INCLUDES APPENDICES A THROUGH K} (***SEE COMMENTS)	ADMIN RECORD INFO REPOSITORY	005 006 007 008 009 010 011 012 013 014 015 016 017 018 019 020 AREA 97 BLDG. 10 BLDG. 114 BLDG. 14 BLDG. 162 BLDG. 301 BLDG. 360 BLDG. 389 BLDG. 400 BLDG. 41 BLDG. 410 BLDG. 459 BLDG. 5 BLDG. 530 BLDG. 547 CANS C-2 AR SITE 00001 SITE 00002 SITE 00003	FRC - PERRIS IMAGED APNT_019	181-03-0179 BOX 0018 41074200

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N00236 / 000783 NONE REPORT N62474-85-D-562093	11-24-1999 **01-01-1990** DO 0005 00.0	CANONIE ENVIRONMENTAL NAVFAC - EFA WEST	FINAL FEASIBILITY STUDY PLAN (FS), REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) [VOLUME 8 OF 8] {***SEE COMMENTS}	ADMIN RECORD	005 006 007 008 009 010 011 012 013 014 015 016 017 018 019 020 AREA 97 BLDG. 10 BLDG. 114 BLDG. 14 BLDG. 162 BLDG. 301 BLDG. 360 BLDG. 389 BLDG. 400 BLDG. 41 BLDG. 410 BLDG. 459 BLDG. 5 BLDG. 530 BLDG. 547 CANS C-2 AREA SITE 00001 SITE 00002 SITE 00003	FRC - PERRIS IMAGED APNT_019	181-03-0179 BOX 0018 41074200

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)
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N00236 / 000785 NONE REPORT N62474-85-D-5620 283	11-24-1999 **02-01-1990** DO 0008 00.0	CANONIE ENVIRONMENTAL NAVFAC - EFA WEST	FINAL SAMPLING PLAN (SP), REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) [VOLUME 1 OF 8] {***SEE COMMENTS}	ADMIN RECORD INFO REPOSITORY	005 006 007 008 009 010 011 012 013 014 015 016 017 018 019 020 AREA 97 BLDG. 10 BLDG. 114 BLDG. 14 BLDG. 162 BLDG. 301 BLDG. 360 BLDG. 389 BLDG. 400 BLDG. 41 BLDG. 410 BLDG. 459 BLDG. 5 BLDG. 530 BLDG. 547 CANS C-2 AREA SITE 00001 SITE 00002 SITE 00003	FRC - PERRIS IMAGED APNT_019	181-03-0179 BOX 0018 41074200

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					SITE 00004 YARD D-13			
N00236 / 000786 NONE REPORT N62474-85-D-5620 265	11-24-1999 **02-01-1990** DO 0008 00.0	CANONIE ENVIRONMENTAL NAVFAC - EFA WEST	FINAL SAMPLING PLAN - SOLID WASTE ASSESSMENT TEST (SWAT) PROPOSAL ADDENDUM, REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) [VOLUME 1A OF 8] {INCLUDES APPENDICES A THROUGH H} (***SEE COMMENTS)	ADMIN RECORD INFO REPOSITORY	SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_019	181-03-0179 41074200	BOX 0018
N00236 / 000481 NONE CORRESPONDENC NONE 3	11-24-1999 **04-11-1990** NONE 00.0	CRWQCB - OAKLAND S. RITCHIE DEPARTMENT OF THE NAVY R. BOENNIGHAUSEN	REQUEST FOR IMMEDIATE IMPLEMENTATION OF SOLID WASTE ASSESSMENT TEST (SWAT) AT WEST BEACH LANDFILL AND 1943-1956 DISPOSAL AREA (INCLUDES NAVY LETTER BY R. STEIMER DATED 4/11/90)	ADMIN RECORD	SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_007	181-03-0179 41074200	BOX 0015
N00236 / 000525 NONE REPORT NONE 45	11-24-1999 **04-24-1990** NONE 00.0	CANONIE ENVIRONMENTAL NAVFAC - SOUTHWEST DIVISION	MONITORING PLAN AIR QUALITY SOLID WASTE ASSESSMENT TEST (SWAT) WEST BEACH LANDFILL AND THE 1943-1956 DISPOSAL AREA, REVISION 1 (SEE AR #784 - MONITORING PLAN AIR QUALITY SWAT, AND AR #526 - EFA WEST TRANSMITTAL LETTER)	ADMIN RECORD INFO REPOSITORY	SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_011	181-03-0179 41074200	BOX 0015
N00236 / 000488 EFAW SER 1813BD/00359 CORRESPONDENC NONE 6	11-24-1999 **05-25-1990** NONE 00.0	NAVFAC - EFA WEST SERAYDARIAN, R. DTSC - BERKELEY MALINOWSKI, M.	NOTIFICATION ABOUT REVISING SURFACE SOIL SAMPLING AT 1943-1956 DISPOSAL AREA	ADMIN RECORD INFO REPOSITORY	SITE 00001	FRC - PERRIS IMAGED APNT_045	181-03-0179 41074200	BOX 0015
N00236 / 000498 SER 52/191 CORRESPONDENC NONE 1	11-24-1999 **06-19-1990** NONE 00.0	DEPARTMENT OF THE NAVY R. STEIMER CRWQCB - OAKLAND S. RITCHIE	NAVY LETTER REGARDING RESCHEDULING OF SOLID WASTE ASSESSMENT TEST (SWAT) AT WEST BEACH LANDFILL AND 1943-1956 LANDFILL	ADMIN RECORD INFO REPOSITORY	SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_007	181-03-0179 41074200	BOX 0015

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N00236 / 000791 NONE REPORT NONE 54	11-24-1999 **12-01-1990** NONE 00.0	CANONIE	REVISED PHASE 1 ANALYTICAL RESULTS FOR SITES 1, 2, AND 13: 1943-1956 DISPOSAL AREA, WEST BEACH LANDFILL AND OIL REFINERY SITE RI/FS VOL 1 (ENCLOSURE 1)	REFERENCE	013 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_019	181-03-0179 41074200	BOX 0018
N00236 / 000792 NONE REPORT NONE 4	11-24-1999 **12-01-1990** NONE 00.0	CANONIE	REVISED PHASE 1 ANALYTICAL RESULTS FOR SITES 1, 2, AND 13: 1943-1956 DISPOSAL AREA, WEST BEACH LANDFILL AND OIL REFINERY SITE RI/FS VOL 2 (ENCLOSURE 2)	REFERENCE	013 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_019	181-03-0179 41074200	BOX 0019
N00236 / 000790 NONE REPORT N62474-85-D-5620 178	11-24-1999 **01-02-1991** NONE 00.0	CANONIE ENVIRONMENTAL NAVFAC - EFA WEST	AIR QUALITY SOLID WASTE ASSESSMENT TEST (SWAT) REPORT [SEE AR # 541 - EFAW TRANSMITTAL LETTER]	ADMIN RECORD INFO REPOSITORY	SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_011	181-03-0179 41074200	BOX 0018
N00236 / 000881 NONE REPORT N62474-88-D-5086 76	11-24-1999 **01-24-1991** NONE 00.0	PRC ENVIRONMENTAL MANAGEMENT, INC. J. JOHNSON NAVFAC - EFA WEST B. DIZON	WELL DECOMMISSIONING PLAN: 1943-1956 DISPOSAL AREA AND WEST BEACH LANDFILL (SEE AR #542 - EFA WEST TRANSMITTAL LETTER BY R. SERAYDARIAN)	ADMIN RECORD INFO REPOSITORY	SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_024	181-03-0179 41074200	BOX 0027
N00236 / 000544 NONE CORRESPONDENC NONE 2	11-24-1999 **02-08-1991** NONE 00.0	DHS - BERKELEY M MALINOWSKI NAVFAC - EFA WEST L. WILLIAMS	COMMENTS ON THE WELL DECOMMISSIONING PLAN: 1943-1956 DISPOSAL AREA AND WEST BEACH LANDFILL	ADMIN RECORD INFO REPOSITORY	SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_011	181-03-0179 41074200	BOX 0016

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N00236 / 000513 NONE REPORT NONE 80	11-24-1999 **03-12-1991** NONE 00.0	PRC ENVIRONMENTAL MANAGEMENT, INC. J. JOHNSON NAVFAC - EFA WEST B. DIZON	FINAL WELL DECOMMISSIONING PLAN: 1943-1956 DISPOSAL AREA AND WEST BEACH LANDFILL [SEE AR #514 - EFAW TRANSMITTAL LETTER BY R. SERAYDARIAN]	ADMIN RECORD INFO REPOSITORY	SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_024	181-03-0179 41074200	BOX 0015
N00236 / 000582 NONE REPORT N62474-88-D-5086 44	11-24-1999 **01-23-1992** 00095 00.0	PRC ENVIRONMENTAL MGMT INC. S. MACNEILL NAVFAC - EFA WEST W. WONG	WELL DECOMMISSIONING REPORT 1943-1956 DISPOSAL AREA AND WEST BEACH LANDFILL (SEE AR #599 - ADDENDUM 1)	ADMIN RECORD INFO REPOSITORY	SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_011	181-03-0179 41074200	BOX 0016
N00236 / 000828 NONE REPORT NONE 54	11-24-1999 **06-01-1992** NONE 00.0	CANONIE	REVISED PHASE 1 AND 2A ANALYTICAL RESULTS FOR SITES 1 AND 2, 1943-1956 DISPOSAL AREA WEST BEACH LANDFILL RI/FS - VOLUME 1	REFERENCE	SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_019	181-03-0179 41074200	BOX 0022
N00236 / 000829 NONE REPORT NONE 4	11-24-1999 **06-01-1992** NONE 00.0	CANONIE	REVISED PHASE 1 AND 2A ANALYTICAL RESULTS FOR SITES 1 AND 2, 1943-1956 DISPOSAL AREA WEST BEACH LANDFILL RI/FS - VOLUME 2	REFERENCE	SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_019	181-03-0179 41074200	BOX 0022

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N00236 / 000643 TC.A021.10075 MM N68711-00-D-0005 8	06-13-2003 **02-02-1993** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	02 FEBRUARY 1993 MEETING MINUTES FOR THE REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS)	ADMIN RECORD INFO REPOSITORY	007A 015 018 PHASE 1 PHASE 2A PHASE 2B PHASE 3 PHASE 5 PHASE 6 SITE 00001 SITE 00002 SITE 00003	FRC - PERRIS IMAGED APNT_007	181-03-0188 41031858	BOX 0013
N00236 / 000644 TC.A021.10075 MM N68711-00-D-0005 5	06-13-2003 **02-19-1993** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	19 FEBRUARY 1993 MONTHLY PROGRESS REVIEW COMMITTEE MEETING MINUTES FOR THE REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS)	ADMIN RECORD INFO REPOSITORY	007A 015 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_007	181-03-0188 41031858	BOX 0013
N00236 / 000646 TC.A021.10075 MM N68711-00-D-0005 4	06-13-2003 **04-02-1993** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	02 APRIL 1993 MONTHLY PROGRESS REVIEW MEETING MINUTES FOR THE REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS)	ADMIN RECORD INFO REPOSITORY	007A 007B 009 011 017 PHASE 1 PHASE 2A PHASE 2B PHASE 3 PHASE 5 PHASE 6 SITE 00001 SITE 00002 SITE 00004	FRC - PERRIS IMAGED APNT_007	181-03-0188 41031858	BOX 0013

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N00236 / 001003 NONE REPORT N62474-88-D-5086 123	11-24-1999 **04-02-1993** 00107 00.0	PRC ENVIRONMENTAL MGMT INC. NAVFAC - EFA WEST	DRAFT FIELD SAMPLING PLAN (FSP) FOR FOLLOW-ON WORK REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) PHASES 5 AND 6 - LANDFILL INVESTIGATION (INCLUDES 10 SEPTEMBER 1993 MEETING MINUTES REGARDING RWQCB'S COMMENTS AND RWQCB'S COMMENTS DATED 12 AUGUST 1993)	ADMIN RECORD	PHASE 5 PHASE 6 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_002	181-03-0179 41074200	BOX 0029
N00236 / 000858 NONE REPORT N62474-88-D-5086 303	11-24-1999 **09-29-1993** 00107 00.0	PRC ENVIRONMENTAL MGMT INC. NAVFAC - EFA WEST	DRAFT FINAL REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) WORK PLAN ADDENDUM (INCLUDES COMMENTS ON DRAFT RI/FS WORK PLAN ADDENDUM BY R. HOUGH {COMMUNITY ADVISOR COMMITTEE}) [MISSING APPENDIX F] {PORTION OF THE COMMENTS IS SENSITIVE} (***SEE COMMENTS)	ADMIN RECORD INFO REPOSITORY SENSITIVE	005 006 007A 007B 007C 008 009 010A 010B 011 012 013 014 015 016 017 018 019 020 SITE 00001 SITE 00002 SITE 00003 SITE 00004	FRC - PERRIS IMAGED APNT_019	181-03-0179 41074200	BOX 0027

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)	
N00236 / 000666 TC.A021.10075 MM N68711-00-D-0005 6	06-16-2003 **03-14-1995** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	14 MARCH 1995 PROGRESS REVIEW MEETING MINUTES	ADMIN RECORD INFO REPOSITORY	005 007A 007C 010A 012 013 014 015 018 SITE 00001 SITE 00002 SITE 00003 SITE 00004	FRC - PERRIS IMAGED APNT_007	181-03-0188 41031858	BOX 0013
N00236 / 001213 EFAW SER 1831.2/5160 CORRESPONDENC NONE 5	11-24-1999 **07-11-1995** NONE 00.0	NAVFAC - EFA WEST G. KIKUGAWA DISTRIBUTION	SUBMISSION OF DOCUMENT SUMMARY FOR DRAFT DATA TRANSMITTAL MEMORANDUM FOR INSTALLATION RESTORATION SITES 1, 2, 3, RUNWAY AREA, 6 , 7A, 7B, 7C, 10B, 11, 13, 15, 16, AND 19 (W/ ENCLOSURE)	ADMIN RECORD	006 007 010 011 013 015 016 019 SITE 00001 SITE 00002 SITE 00003	FRC - PERRIS IMAGED APNT_007	181-03-0179 41074200	BOX 0032

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)	
N00236 / 001216 EFAW SER NO. 1831.2/5159 CORRESPONDENC NONE 6	11-24-1999 **07-14-1995** NONE 00.0	NAVFAC - EFA WEST G. KIKUGAWA VARIOUS AGENCIES	TRANSMITTAL OF 1) DOCUMENT SUMMARY FOR DRAFT DATA TRANSMITTAL MEMORANDUM, AND 2) DRAFT DATA TRANSMITTAL MEMORANDUM (W/ ENCLOSURE 1) [SEE AR #1214 AND AR #1215 - FINAL DATA TRANSMITTAL MEMORANDUM, VOLUMES 1 AND 2 OF 2]	ADMIN RECORD	006 007A 007B 007C 010B 011 013 015 016 019 SITE 00001 SITE 00002 SITE 00003	FRC - PERRIS IMAGED APNT_022	181-03-0179 41074200	BOX 0033
N00236 / 001284 EFAW SER 18312GK/L6153 CORRESPONDENC N62474-88-D-5086 3	11-24-1999 **04-24-1996** 00280 00.0	NAVFAC - EFA WEST G. KIKUGAWA VARIOUS AGENCIES	TRANSMITTAL OF REPLACEMENT PAGES CONVERTING DRAFT DATED 11 JULY 1995 TO FINAL REMEDIAL INVETIGATION/FEASIBILITY STUDY DATA TRANSMITTAL MEMORANDUM (W/OUT ENCLOUSURE) {REPLACEMENT PAGES INSERTED IN THE DOCUMENT}	INFO REPOSITORY	006 007 009 011 013 015 016 019 021 022 023 SITE 00001 SITE 00002 SITE 00003	FRC - PERRIS IMAGED APNT_025	181-03-0179 41074200	BOX 0034

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)	
N00236 / 001214 NONE REPORT N62474-88-D-5086 398	11-24-1999 **05-01-1996** 00280 00.0	PRC ENVIRONMENTAL MANAGEMENT, INC. BALCH, D. NAVFAC - EFA WEST G. MUNEKAWA	FINAL REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS); DATA TRANSMITTAL MEMORANDUM, VOL 1 OF 2 (INCLUDES REPLACEMENT PAGES CONVERTING THE DRAFT DATED 7/11/95 TO FINAL)	ADMIN RECORD	006 007 010 011 013 015 016 019 SITE 00001 SITE 00002 SITE 00003	FRC - PERRIS IMAGED APNT_025	181-03-0179 41074200	BOX 0033
N00236 / 001215 NONE REPORT N62474-88-D-5086 849	11-24-1999 **05-01-1996** 00280 00.0	PRC ENVIRONMENTAL MGMT INC. BALCH, D. NAVFAC - EFA WEST G. MUNEKAWA	FINAL REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS); DATA TRANSMITTAL MEMORANDUM, VOL 2 OF 2 (INCLUDES REPLACEMENT PAGES CONVERTING DRAFT DATED 7/11/95 TO FINAL)	ADMIN RECORD	006 007 010 011 013 015 016 019 SITE 00001 SITE 00002 SITE 00003	FRC - PERRIS IMAGED APNT_025	181-03-0179 41074200	BOX 0033
N00236 / 000672 TC.A021.10075 MM N68711-00-D-0005 5	06-16-2003 **05-21-1996** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	21 MAY 1996 MONTHLY TRACKING MEETING MINUTES FOR ENVIRONMENTAL ACTIONS	ADMIN RECORD INFO REPOSITORY	015 016 018 OU 1 OU 2 OU 3 OU 4 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_007	181-03-0188 41031858	BOX 0013

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)	
N00236 / 001298 EFAW SER 18312GK/L6219 RESP NONE 2	11-24-1999 **05-21-1996** NONE 00.0	NAVFAC - EFA WEST G. KIKUGAWA DTSC - BERKELEY T. LANPHAR	RESPONSE TO COMMENTS ON THE PRELIMINARY DRAFT ADDENDUM TO THE REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS), RADIATION SURVEY REPORT	ADMIN RECORD	SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_025	181-03-0179 41074200	BOX 0035
N00236 / 001307 NONE REPORT N62474-88-D-5086 115	11-24-1999 **06-01-1996** 00280 00.0	PRC ENVIRONMENTAL MANAGEMENT, INC. R. HALKET NAVFAC - EFA WEST G. KIKUGAWA	DRAFT ADDENDUM TO THE REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS), DATA TRANSMITTAL MEMORANDUM, RADIATION SURVEY REPORT {SEE AR #1306 - EFAW TRANSMITTAL LETTER BY G. KIKUGAWA, AR #1214 - AND AR #1215 - FINAL RI/FS DATA TRANSM. MEMORANDUM, VOL 1 & 2}	ADMIN RECORD	SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_025	181-03-0179 41074200	BOX 0035
N00236 / 001306 EFAW SER 1831.2GK/L6297 CORRESPONDENC N62474-88-D-5086 3	11-24-1999 **07-11-1996** 00280 00.0	NAVFAC - EFA WEST G. KIKUGAWA VARIOUS AGENCIES	TRANSMITTAL OF DRAFT ADDENDUM TO THE REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS), DATA TRANSMITTAL MEMORANDUM, RADIATION SURVEY REPORT (W/OUT ENCLOSURE) [SEE AR #1307 - DRAFT ADDENDUM]	ADMIN RECORD	SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_025	181-03-0179 41074200	BOX 0035
N00236 / 001467 EFAW SER 1831.4/L6307 REPORT NONE 37	11-24-1999 **07-16-1996** NONE 00.0	EINARSON, FOWLER & WATSON M. EINARSON DISTRIBUTION	WORK PLAN (WP) FOR HYDROGEOLOGIC INVESTIGATION, SITE 1 (INCLUDES EFAW TRANSMITTAL LETTER BY K. SPIELMAN)	ADMIN RECORD	SITE 00001	FRC - PERRIS IMAGED APNT_009	181-03-0179 41074200	BOX 0038

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N00236 / 000674 TC.A021.10075 MM N68711-00-D-0005 11	06-16-2003 **08-20-1996** DO 0021	TETRA TECH EM INC. NAVFAC - EFA WEST	20 AUGUST 1996 MONTHLY TRACKING MEETING MINUTES FOR ENVIRONMENTAL ACTIONS (INCLUDES ATTENDANCE LIST AND AGENDA) [MISSING ATTACHMENT C]	ADMIN RECORD INFO REPOSITORY	005 007 007A 007C 010 010A 014 015 016 018 022 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_007	181-03-0188 41031858	BOX 0013
N00236 / 001329 NONE CORRESPONDENC NONE 5	11-24-1999 **08-23-1996** NONE 00.0	DTSC LANPHAR, T. NAVY GARIBALDI, C.	COMMENTS ON THE RADIATION SURVEY AND FIELD SAMPLING WORK PLAN (WP), AND DATA TRANSMITTAL MEMORANDUM, SITES 1 AND 2 RADIATION SURVEY REPORT	ADMIN RECORD	SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_008	181-03-0179 41074200	BOX 0035
N00236 / 000680 TC.A021.10075 MM N68711-00-D-0005 7	06-16-2003 **10-15-1996** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	15 OCTOBER 1996 MONTHLY TRACKING MEETING MINUTES FOR ENVIRONMENTAL ACTIONS (INCLUDES ATTENDANCE LIST AND AGENDA)	ADMIN RECORD INFO REPOSITORY	005 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_007	181-03-0188 41031858	BOX 0014
N00236 / 001342 NONE CORRESPONDENC NONE 5	11-24-1999 **11-15-1996** NONE 00.0	US EPA - SAN FRANCISCO J. RICKS NAVFAC - EFA WEST C. GARIBALDI	COMMENTS ON DRAFT RADIATION SURVEY REPORT, ADDENDUM TO THE REMEDIAL INVESTIGATION/FEASIBILITY STUDY DATA TRANSMITTAL MEMO, AND DRAFT FINAL RADIATION SURVEY FIELD SAMPLING WORK PLAN	ADMIN RECORD	SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_022	181-03-0179 41074200	BOX 0036

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N00236 / 001393 NONE REPORT NONE 483	11-24-1999 **12-01-1996** NONE 00.0	UNIVERSITY OF WATERLOO NAVFAC - EFA WEST	REVISED WORK PLAN FOR THE SEMI-PASSIVE GROUNDWATER REMEDIATION DEMONSTRATION PROJECT AT SITE 1	ADMIN RECORD	SITE 00001	FRC - PERRIS IMAGED APNT_009	181-03-0179 41074200	BOX 0036
N00236 / 001368 EFAW SER 02/02E/00831 CORRESPONDENC NONE 8	11-24-1999 **12-09-1996** NONE 00.0	RADIOLOGICAL AFFAIRS SUPP OFFI FARRAND, D. NAVFAC - EFA WEST G. KIKUGAWA	SUBMISSION OF DATA, ANOMALY NO. 23 IN SITE 1 (W/ ENCLOSURE)	ADMIN RECORD	SITE 00001	FRC - PERRIS IMAGED APNT_007	181-03-0179 41074200	BOX 0036
N00236 / 000681 TC.A021.10075 MM N68711-00-D-0005 16	06-16-2003 **12-17-1996** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	17 DECEMBER 1996 MONTHLY TRACKING MEETING MINUTES FOR ENVIRONMENTAL ACTIONS (INCLUDES ATTENDANCE LIST, AGENDA AND PROJECT STATUS AND UPDATE SHEETS)	ADMIN RECORD INFO REPOSITORY	005 007 012 014 016 022 OU 4 SITE 00001 SITE 00003	FRC - PERRIS IMAGED APNT_007	181-03-0188 41031858	BOX 0014
N00236 / 001374 NONE REPORT N62474-88-D-5086 116	11-24-1999 **02-01-1997** 00280 00.0	PRC ENVIRONMENTAL MGMT INC. N. HUTCHISON NAVFAC - EFA WEST G. KIKUGAWA	FINAL ADDENDUM TO THE REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) DATA TRANSMITTAL MEMORANDUM, RADIATION SURVEY REPORT [SEE AR #1373 AND AR #1403 - EFAW TRANSMITTAL LETTERS BY G. KIKUGAWA,	ADMIN RECORD	SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_025	181-03-0179 41074200	BOX 0036
N00236 / 001373 EFAW SER 1831.2GK/L7103 CORRESPONDENC N62474-88-D-5086 2	11-24-1999 **02-14-1997** 00280 00.0	NAVFAC - EFA WEST G. KIKUGAWA VARIOUS AGENCIES	TRANSMITTAL OF FINAL ADDENDUM TO THE REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) DATA TRANSMITTAL MEMORANDUM, SITE 1 AND SITE 2 RADIATION SURVEY REPORT (W/OUT ENCLOSURE) [SEE AR #1374 - FINAL ADDENDUM]	ADMIN RECORD INFO REPOSITORY	SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_025	181-03-0179 41074200	BOX 0036

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N00236 / 000687 TC.A021.10075 MM N68711-00-D-0005 10	06-16-2003 **07-29-1997** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	29 JULY 1997 MONTHLY TRACKING MEETING MINUTES FOR ENVIRONMENTAL ACTIONS (INCLUDES AGENDA) [MISSING ATTACHMENT B]	ADMIN RECORD INFO REPOSITORY	005 014 015 016 024 OU 2 OU 3 SITE 00001 SITE 00002 SITE 00004	FRC - PERRIS IMAGED APNT_007	181-03-0188 41031858	BOX 0014
N00236 / 000689 TC.A021.10075 MM N68711-00-D-0005 13	06-16-2003 **09-16-1997** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	16 SEPTEMBER 1997 MONTHLY TRACKING MEETING MINUTES FOR ENVIRONMENTAL ACTIONS (INCLUDES AGENDA) [MISSING ATTACHMENT B]	ADMIN RECORD INFO REPOSITORY	005 007 011 012 014 015 022 OU 2 SITE 00001 SITE 00003 SITE 00004	FRC - PERRIS IMAGED APNT_007	181-03-0188 41031858	BOX 0014
N00236 / 001458 EFAW SER 612.4/L8001 CORRESPONDENC NONE 5	11-24-1999 **10-02-1997** NONE 00.0	NAVFAC - EFA WEST GARIBALDI, C. DTSC - BERKELEY T. LANPHAR	REQUEST FOR IDENTIFICATION OF STATE APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARS) FOR REMOVAL ACTIONS (RM) AT SITES 1, 2, 5, AND 10	ADMIN RECORD	005 010 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_009	181-03-0179 41074200	BOX 0038
N00236 / 001453 4545-0147-R-S-001-C REPORT N62474-94-D-7609 54	11-24-1999 **11-01-1997** 00147 00.0	TETRA TECH EM INC. NAVFAC - EFA WEST G. KIKUGAWA	RADIOLOGICAL REMOVAL ACTION, DRAFT TECHNICAL WORK DOCUMENT/PRELIMINARY DRAFT REMOVAL ACTION PLAN [SEE AR #1452 - EFA WEST TRANSMITTAL LETTER BY G. KIKUGAWA]	ADMIN RECORD	005 010 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_025	181-03-0179 41074200	BOX 0038

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N00236 / 001454 NONE REPORT N62474-94-D-7609 11	11-24-1999 **11-01-1997** 00147 00.0	TETRA TECH HUTCHISON, N. NAVY KIKUGAWA, G.	DRAFT REMOVAL SITE EVALUATION FOR REMOVAL ACTION (RM) AT INSTALLATION RESTORATION (IR) SITES 1, 2, 5, AND 10	REMOVED	005 010 SITE 00001 SITE 00002	NAVFAC SOUTHWEST - BLDG. 1		
N00236 / 001452 EFAW SER 612.4GK/L8014 CORRESPONDENC N62474-94-D-7609 3	11-24-1999 **11-05-1997** 00147 00.0	NAVFAC - EFA WEST KIKUGAWA, G. VARIOUS AGENCIES	TRANSMITTAL OF 1) RADIOLOGICAL REMOVAL ACTION, DRAFT TECHNICAL WORK DOCUMENT/PRELIMINARY DRAFT REMOVAL ACTION PLAN AND 2) RADIOLOGICAL REMOVAL ACTION, DRAFT REMOVAL SITE EVALUATION (W/OUT ENCLOSURES) [SEE AR #1453 - ENCLOSURE 1] {***SEE COMMENTS}	ADMIN RECORD	SITE 00001 SITE 00002 SITE 00005 SITE 00010	FRC - PERRIS IMAGED APNT_025	181-03-0179 41074200	BOX 0038
N00236 / 000691 TC.A021.10075 MM N68711-00-D-0005 13	06-16-2003 **12-09-1997** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	09 DECEMBER 1997 TRACKING MEETING MINUTES FOR ENVIRONMENTAL ACTIONS (INCLUDES AGENDA) [MISSING ATTACHMENT B]	ADMIN RECORD INFO REPOSITORY	005 010 014 SITE 00001 SITE 00002 SITE 00004	FRC - PERRIS IMAGED APNT_007	181-03-0188 41031858	BOX 0014
N00236 / 001476 NONE CORRESPONDENC NONE 5	11-24-1999 **01-13-1998** NONE 00.0	DTSC - BERKELEY M. CASSA NAVFAC - EFA WEST G. KIKUGAWA	COMMENTS ON THE WORK PLAN FOR LANDFILL 1 AND 2 (INSTALLATION RESTORATION SITES 1 AND 2) RADIOLOGICAL SURVEYS, SAMPLING AND REMEDIATION; AND WORK PLAN FOR BUILDING 5 AND 400 CONTAMINATED DRAIN PIPING REMOVAL	ADMIN RECORD	005 010 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_009	181-03-0179 41074200	BOX 0038
N00236 / 001477 NONE CORRESPONDENC NONE 14	11-24-1999 **01-15-1998** NONE 00.0	DTSC - BERKELEY M. CASSA NAVFAC - EFA WEST G. KIKUGAWA	COMMENTS ON THE RADIOLOGICAL REMOVAL ACTION, DRAFT TECHNICAL WORK DOCUMENT/PRELIMINARY DRAFT REMOVAL ACTION PLAN (INCLUDES APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS FOR REMEDIATION OF RADIUM-226 CONTAMINATION)	ADMIN RECORD	005 010 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_025	181-03-0179 41074200	BOX 0038

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N00236 / 000693 TC.A021.10075 MM N68711-00-D-0005 11	06-16-2003 **01-20-1998** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	20 JANUARY 1998 TRACKING MEETING MINUTES FOR ENVIRONMENTAL ACTIONS (MISSING ATTACHMENT A AND ATTACHMENT B)	ADMIN RECORD INFO REPOSITORY	005 010 014 SITE 00001 SITE 00002 SITE 00004	FRC - PERRIS IMAGED APNT_019	181-03-0188 41031858	BOX 0014
N00236 / 001478 NONE CORRESPONDENC NONE 9	11-24-1999 **01-30-1998** NONE 00.0	DTSC - BERKELEY M. CASSA NAVFAC - EFA WEST G. KIKUGAWA	CORRECTIONS TO THE APPLICABLE OR RELEVANT AND APPROPRIATE (ARARS) FOR REMEDIATION OF RADIUM - 226 CONTAMINATION	ADMIN RECORD	005 010 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_025	181-03-0179 41074200	BOX 0038
N00236 / 000694 TC.A021.10075 MM N68711-00-D-0005 12	06-16-2003 **02-17-1998** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	17 FEBRUARY 1998 TRACKING MEETING MINUTES FOR ENVIRONMENTAL ACTIONS (MISSING ATTACHMENT A AND ATTACHMENT B)	ADMIN RECORD INFO REPOSITORY	005 010 OU 1 OU 2 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_019	181-03-0188 41031858	BOX 0014
N00236 / 001496 NONE REPORT N62474-94-D-7609 114	11-24-1999 **03-01-1998** 00147 00.0	MORRISON KNUDSEN CORPORATION MUELLERLEILE, A. NAVFAC - EFA WEST G. KIKUGAWA	DRAFT INSTALLATION RESTORATION (IR) SITES 1, 2, 5, AND 10, AND STORM DRAIN LINE F, RADIOLOGICAL REMOVAL ACTION TECHNICAL SPECIFICATIONS FOR IMPLEMENTATION WORK PLAN (SEE AR #1495 - EFA WEST TRANSMITTAL LETTER BY G. KIKUGAWA)	ADMIN RECORD	005 010 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_009	181-03-0179 41074200	BOX 0039
N00236 / 001497 NONE REPORT N62474-94-D-7609 9	11-24-1999 **03-01-1998** 00147 00.0	MORRISON KNUDSEN CORPORATION NAVFAC - EFA WEST G. KIKUGAWA	DRAFT INSTALLATION RESTORATION (IR) SITES 1, 2, 5, AND 10, AND STORM DRAIN LINE F, RADIOLOGICAL REMOVAL ACTION (RM) PLANS' DRAWINGS (SEE AR #1495 - EFA WEST TRANSMITTAL LETTER BY G. KIKUGAWA)	ADMIN RECORD	005 010 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_009	181-03-0179 41074200	BOX 0039

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N00236 / 001495 EFAW SER 612.4GK/L8102 CORRESPONDENC N62474-94-D-7609 4	11-24-1999 **03-25-1998** 00147 00.0	NAVFAC - EFA WEST G. KIKUGAWA DISTRIBUTION	SUBMISSION OF THE DRAFT INSTALLATION RESTORATION (IR) SITES 1, 2, 5, AND 10, AND STORM DRAIN LINE F, RADIOLOGICAL REMOVAL ACTION - TECHNICAL SPECIFICATIONS FOR IMPLEMENTATION WORK PLAN AND DRAWINGS (W/OUT ENCLOSURES) [***SEE COMMENTS]	ADMIN RECORD	005 010 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_009	181-03-0179 41074200	BOX 0039
N00236 / 001498 NONE CORRESPONDENC NONE 7	11-24-1999 **03-31-1998** NONE 00.0	DTSC - BERKELEY M. CASSA NAVFAC - EFA WEST G. KIKUGAWA	COMMENTS ON VARIOUS DOCUMENTS FOR INSTALLATION RESTORATION (IR) SITES (INCLUDES TABLE OF DOCUMENTS REVIEWED BY AGENCIES)	ADMIN RECORD	005 010 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_025	181-03-0179 41074200	BOX 0039
N00236 / 001500 EFAW SER 612.4/L8110 RESPONSE NONE 7	11-24-1999 **04-07-1998** NONE 00.0	NAVFAC - EFA WEST G. KIKUGAWA DTSC - BERKELEY M. CASSA	RESPONSE TO COMMENTS ON THE WORK PLAN (WP) FOR LANDFILL 1 AND 2 (SITES 1 AND 2) RADIOLOGICAL SURVEYS, SAMPLING AND REMEDIATION; AND WORK PLAN FOR BUILDINGS 5 AND 400 CONTAMINATED DRAIN PIPING REMOVAL	ADMIN RECORD	005 010 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_009	181-03-0179 41074200	BOX 0039
N00236 / 001499 NONE CORRESPONDENC NONE 3	11-24-1999 **04-08-1998** NONE 00.0	USEPA - SAN FRANCISCO COOK, A. NAVFAC - EFA WEST G. KIKUGAWA	COMMENTS ON THE RADIOLOGICAL REMOVAL ACTION FOR INSTALLATION RESTORATION (IR) SITES 1, 2, 5 AND 10, TECHNICAL WORK DOCUMENT/DRAFT REMEDIAL ACTION PLAN	ADMIN RECORD	005 010 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_009	181-03-0179 41074200	BOX 0039
N00236 / 001503 WP NO. NASA-2 REPORT NONE 57	11-24-1999 **04-10-1998** NONE 00.0	SUPERVISOR SHIPBUILDING PORTSMOUTH ENVIRONMENTAL DETACHMENT NAVFAC - EFA WEST	DRAFT FINAL WORK PLAN (WP) LANDFILL 1 AND 2, RADIOLOGICAL SURVEYS AND ANOMALY REMOVAL, REVISION 1 [SEE AR #1501 - EFA WEST TRANSMITTAL LETTER BY G. KIKUGAWA AND AR #1538 - FINAL WORK PLAN, REVISION 2] {***SEE COMMENTS}	ADMIN RECORD	SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_025	181-03-0179 41074200	BOX 0039

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N00236 / 001501 EFAW SER 612.4/L8119 CORRESPONDENC NONE 3	11-24-1999 **04-22-1998** NONE 00.0	NAVFAC - EFA WEST G. KIKUGAWA VARIOUS AGENCIES	TRANSMITTAL OF 1) DRAFT FINAL WORK PLAN FOR LANDFILLS 1 AND 2 RADIOLOGICAL SURVEYS AND ANOMALY REMOVAL AND 2) DRAFT FINAL WORK PLAN FOR CONTAMINATED DRAIN/PIPING/WALL/FLOOR REMOVAL (W/OUT ENCLOSURES) [SEE AR #1503 - ENCLOSURE 1 & AR #1537 - ENCLOSURE 2]	ADMIN RECORD	005 010 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_025	181-03-0179 41074200	BOX 0039
N00236 / 001531 NONE REPORT N62474-94-D-7609 8	11-24-1999 **05-01-1998** 00147 00.0	TETRA TECH EM INC. E. HO NAVFAC - EFA WEST G. KIKUGAWA	FINAL REMOVAL SITE EVALUATION FOR REMOVAL ACTIONS (RM) [SEE AR #1452 - EFA WEST TRANSMITTAL LETTER BY G. KIKUGAWA] {***SEE COMMENTS}	ADMIN RECORD	005 010 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_025	181-03-0179 41074200	BOX 0039
N00236 / 001510 NONE CORRESPONDENC NONE 2	11-24-1999 **05-12-1998** NONE 00.0	DTSC - BERKELEY MURPHY, D. NAVFAC - EFA WEST G. KIKUGAWA	REQUIREMENTS FOR DISCHARGE OF GROUNDWATER TO SAN FRANCISCO BAY	ADMIN RECORD	005 010 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_009	181-03-0179 41074200	BOX 0039
N00236 / 001524 EFA WEST SER 612.4/L8135 RESPONSE NONE 11	11-24-1999 **05-12-1998** NONE 00.0	NAVFAC - EFA WEST G. KIKUGAWA USEPA - SAN FRANCISCO A. COOK	SUBMISSION OF RESPONSE TO COMMENTS ON THE RADIOLOGICAL REMOVAL ACTION FOR INSTALLATION RESTORATION (IR) SITES 1, 2, 5, AND 10, TECHNICAL WORK DOCUMENT/DRAFT REMEDIAL ACTION PLAN (W/ ENCLOSURES)	ADMIN RECORD	005 010 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_009	181-03-0179 41074200	BOX 0039
N00236 / 001515 EFAW SER 612.4/L8138 RESP NONE 9	11-24-1999 **05-13-1998** NONE 00.0	NAVFAC - EFA WEST G. KIKUGAWA DTSC - BERKELEY M. CASSA	RESPONSES TO COMMENTS ON THE RADIOLOGICAL REMOVAL ACTION WORK DOCUMENT/DRAFT REMEDIAL ACTION PLAN (INCLUDES RESPONSE TO APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS FOR REMEDIATION OF RADIUM-226 CONTAMINATION)	ADMIN RECORD	005 010 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_025	181-03-0179 41074200	BOX 0039

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N00236 / 001525 EFAW SER 612.4/L8143 CORRESPONDENC NONE 5	11-24-1999 **05-15-1998** NONE 00.0	NAVFAC - EFA WEST H. GEE DTSC - BERKELEY D. MURPHY	APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARS) FOR DISCHARGE OF GROUNDWATER TO SAN FRANCISCO BAY FOR REMOVAL ACTIONS (RM) AT SITE 1, 2, 5, AND 10	ADMIN RECORD	005 010 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_009	181-03-0179 41074200	BOX 0039
N00236 / 001520 NONE CORRESPONDENC NONE 14	11-24-1999 **05-18-1998** NONE 00.0	DTSC - BERKELEY M. CASSA NAVFAC - EFA WEST G. KIKUGAWA	COMMENTS ON THE WORK PLAN DRAFT FINAL, CONTAMINATED DRAIN PIPING REMOVAL AND WORK PLAN DRAFT FINAL, RADIOLOGICAL SURVEYS AND ANOMALY REMOVAL, REVISION 1(INCLUDES CHECKLISTS USEFUL IN QUALITY ASSURANCE REVIEW) {CHECKLIST IN APPENDIX C IS AN EXCERPT}	ADMIN RECORD	SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_025	181-03-0179 41074200	BOX 0039
N00236 / 001521 NONE CORRESPONDENC NONE 4	11-24-1999 **05-27-1998** NONE 00.0	DTSC - BERKELEY M. CASSA NAVFAC - EFA WEST G. KIKUGAWA	COMMENTS ON THE DRAFT FINAL TECHNICAL WORK DOCUMENT/DRAFT INTERIM REMEDIAL ACTION (IRA) PLAN FOR INSTALLATION RESTORATION SITES 1, 2, 5, AND 10 RADIOLOGICAL REMOVAL	ADMIN RECORD	005 010 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_009	181-03-0179 41074200	BOX 0039
N00236 / 001538 WP NO. NASA - 2 REPORT NONE 60	11-24-1999 **06-05-1998** NONE 00.0	SUPERVISOR SHIPBUILDING PORTSMOUTH ENVIRONMENTAL DETACHMENT NAVFAC - EFA WEST G. KIKUGAWA	FINAL WORK PLAN (WP) FOR LANDFILL 1 AND 2 RADIOLOGICAL SURVEYS AND ANOMALY REMOVAL, REVISION 2 [SEE AR #1501 AND AR #1536 - EFA WEST TRANSMITTAL LETTERS BY G. KIKUGAWA AND AR #1503 - DRAFT FINAL WORK PLAN, REVISION 1] {*** SEE COMMENTS}	ADMIN RECORD	SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_025	181-03-0179 41074200	BOX 0040
N00236 / 001528 NONE CORRESPONDENC NONE 8	11-24-1999 **06-22-1998** NONE 00.0	DTSC - BERKELEY M. CASSA NAVFAC - EFA WEST G. KIKUGAWA	COMMENTS ON THE RADIOLOGICAL REMOVAL ACTION (RM) REVISIONS TO TECHNICAL WORK DOCUMENT/REMEDIAL ACTION (RA) PLAN (PORTION OF THE MAILING LIST IS SENSITIVE) [INCLUDES EPA LETTER DATED 09 JUNE 1998 ON CRWQCB REQUIREMENTS FOR WATER DISCHARGE]	ADMIN RECORD SENSITIVE	005 010 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_025	181-03-0179 41074200	BOX 0039

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)	
N00236 / 001529 NONE CORRESPONDENC NONE 10	11-24-1999 **06-22-1998** NONE 00.0	DTSC - BERKELEY M. CASSA NAVFAC - EFA WEST G. KIKUGAWA	COMMENTS ON RADIOLOGICAL REMOVAL ACTION (RM) SITE QUALITY ASSURANCE PLAN (QAP), SITE WORK PLAN (WP), AND SITE HEALTH AND SAFETY PLAN (SHSP) (INCLUDES COMMENTS BY HERD DATED 06/17/98)	ADMIN RECORD	005 010 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_022	181-03-0179 41074200	BOX 0039
N00236 / 001536 EFAW SER 612.4/L8173 CORRESPONDENC NONE 3	11-24-1999 **07-01-1998** NONE 00.0	NAVFAC - EFA WEST G. KIKUGAWA VARIOUS AGENCIES	TRANSMITTAL OF 1) FINAL WORK PLAN (WP) FOR BUILDINGS 5 AND 400 RADIOACTIVELY CONTAMINATED DRAIN PIPING/WALL/FLOOR REMOVAL, REVISION 2 AND 2) FINAL WORK PLAN FOR LANDFILL 1 AND 2, RADIOLOGICAL SURVEYS AND ANOMALY REMOVAL (W/OUT ENCLOSURES) {**SEE COMMENTS}	ADMIN RECORD	005 010 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_025	181-03-0179 41074200	BOX 0040
N00236 / 001532 NONE REPORT N62474-94-D-7609 114	11-24-1999 **07-08-1998** 00147 00.0	TETRA TECH EM INC. P. SOLBERG NAVFAC - EFA WEST G. KIKUGAWA	INSTALLATION RESTORATION (IR) SITES 1, 2, 5, AND 10; RADIOLOGICAL REMOVAL ACTION (RM) FINAL TECHNICAL WORK DOCUMENT/INTERIM REMEDIAL ACTION (IRA) PLAN (PORTIONS OF SECTION 5 - COST ESTIMATE ARE CONFIDENTIAL)	ADMIN RECORD SENSITIVE	005 010 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_009	181-03-0179 41074200	BOX 0039
N00236 / 001567 NONE CORRESPONDENC N62474-94-D-7609 113	11-24-1999 **08-01-1998** 00147 00.0	TETRA TECH NAVFAC - EFA WEST G. KIKUGAWA	FINAL RADIOLOGICAL REMOVAL ACTION (RM) FOR IR SITES 1, 2, 5, 10, AND STORM DRAIN LINE F, IMPLEMENTATION WORK PLAN (WP) TECHNICAL SPECIFICATIONS (SEE AR #1566 - EFA WEST TRANSMITTAL LETTER BY G. KIKUGAWA)	ADMIN RECORD	005 010 017 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_009	181-03-0179 41074200	BOX 0040
N00236 / 001568 NONE REPORT N62474-94-D-7609 9	11-24-1999 **08-01-1998** 00147 00.0	TETRA TECH EM INC. NAVFAC - EFA WEST G. KIKUGAWA	FINAL RADIOLOGICAL REMOVAL ACTION (RM) FOR IR SITES 1, 2, 5, 10, AND STORM DRAIN LINE F, IMPLEMENTATION WORK PLAN (WP) DRAWINGS (SEE AR #1566 - EFA WEST TRANSMITTAL LETTER BY G. KIKUGAWA)	ADMIN RECORD	005 010 017 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_009	181-03-0179 41074200	BOX 0040

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N00236 / 000701 TC.A021.10075 MM N68711-00-D-0005 53	06-16-2003 **08-18-1998** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	18 AUGUST 1998 TRACKING MEETING MINUTES FOR ENVIRONMENTAL ACTIONS (INCLUDES AGENDA, ATTENDANCE SHEETS, AND VARIOUS HANDOUTS)	ADMIN RECORD INFO REPOSITORY	005 010 016 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_007	181-03-0188 41031858	BOX 0014
N00236 / 001566 EFAW SER 612.4GK/L8220 CORRESPONDENC N62474-94-D-7609 3	11-24-1999 **08-27-1998** NONE 00.0	NAVFAC - EFA WEST G. KIKUGAWA DISTRIBUTION	SUBMISSION OF THE FINAL RADIOLOGICAL REMOVAL ACTION (RM) FOR IR SITES 1, 2, 5, 10, AND STORM DRAIN LINE F, IMPLEMENTATION WORK PLAN (1) TECHNICAL SPECIFICATIONS AND (2) DRAWINGS (W/OUT ENCLOSURE) ***SEE COMMENTS	ADMIN RECORD	005 010 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_009	181-03-0179 41074200	BOX 0040
N00236 / 001548 NONE REPORT N62474-94-D-7609 110	11-24-1999 **08-28-1998** 00147 00.0	TETRA TECH EM INC. NAVFAC - EFA WEST G. KIKUGAWA	FINAL RADIOLOGICAL REMOVAL ACTION, ACTION MEMORANDUM/INTERIM REMEDIAL ACTION PLAN (PORTION OF ESTIMATED COST SECTIONS ARE CONFIDENTIAL)	ADMIN RECORD SENSITIVE	005 010 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_009	181-03-0179 41074200	BOX 0040
N00236 / 001575 NONE REPORT NONE 17	11-24-1999 **12-04-1998** NONE 00.0	SUPERVISOR OF SHIPBUILDING, CONVERSTION AND REPAIR ENVIRONMENTAL DETACHMENT L. MAGGINI NAVFAC - EFA WEST G. KIKUGAWA	UNEXPLODED ORDNANCE (UXO) EMERGENCY REMOVAL ACTION SUMMARY REPORT (SEE AR #1574 - EFAW TRANSMITTAL LETTER BY G. KIKUGAWA)	ADMIN RECORD	SITE 00001	FRC - PERRIS IMAGED APNT_022	181-03-0179 41074200	BOX 0041

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N00236 / 001573 NONE REPORT N62474-94-D-7609 838	11-24-1999 **12-07-1998** 00108 00.0	TETRA TECH EM INC. M. UDELL NAVFAC - EFA WEST P. MCFADDEN	DATA SUMMARY REPORT FOR QUARTERLY GROUNDWATER MONITORING, NOVEMBER 1997 - AUGUST 1998 [SEE AR #1533 - EFAW TRANSMITTAL LETTER BY P. MCFADDEN] {***SEE COMMENTS}	ADMIN RECORD	005 006 007 009 011 012 013 014 016 022 023 SITE 00001 SITE 00002 SITE 00003 SITE 00004	FRC - PERRIS IMAGED APNT_025	181-03-0179 41074200	BOX 0040
N00236 / 001574 EFAW SER 612.4/L9005 CORRESPONDENC NONE 2	11-24-1999 **12-16-1998** NONE 00.0	NAVFAC - EFA WEST G. KIKUGAWA, VARIOUS AGENCIES	TRANSMITTAL OF UNEXPLODED ORDNANCE (UXO) EMERGENCY REMOVAL ACTION SUMMARY REPORT (W/OUT ENCLOSURE) [SEE AR #1575 - SUMMARY REPORT]	ADMIN RECORD	SITE 00001	FRC - PERRIS IMAGED APNT_022	181-03-0179 41074200	BOX 0041
N00236 / 001662 NONE MM NONE 32	11-24-1999 **01-05-1999** NONE 00.0	NAVFAC - EFA WEST RAB MEMBERS	05 JANUARY 1999 RESTORATION ADVISORY BOARD (RAB) MEETING SUMMARY (INCLUDES ATTENDANCE LIST, AGENDA, AND VARIOUS HANDOUTS) {PORTION OF SIGN-IN SHEET IS SENSITIVE}	ADMIN RECORD SENSITIVE	005 007 OU 1 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_008	181-03-0179 41074200	BOX 0045
N00236 / 001588 NONE CORRESPONDENC NONE 13	11-24-1999 **01-14-1999** NONE 00.0	DTSC - BERKELEY M. CASSA NAVFAC - EFA WEST G. KIKUGAWA	COMMENTS ON THE 1) FINAL STATUS RADIATION SURVEY AND FIELD SAMPLING WORK PLAN, 2) TECHNICAL MEMORANDUM RADIOLOGICAL ASSESSMENT FOR RESIDUAL ACTIVITY GUIDELINES, 3) RESPONSE TO COMMENTS ON THE DRAFT CONFIRMATION RADIATION SURVEY & FIELD SAMPLING WORK PLAN	ADMIN RECORD SENSITIVE	005 010 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_009	181-03-0179 41074200	BOX 0041

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)	
N00236 / 001585 NONE REPORT N62474-94-D-7609 500	11-24-1999 **01-29-1999** 00168 00.0	TETRA TECH SHARMA, M. NAVY MCFADDEN, P.	DRAFT OPERABLE UNIT 3 (OU 3) REMEDIAL INVESTIGATION (RI) REPORT, VOLUME I OF III	REMOVED	014 OU 3 SITE 00001	NAVFAC SOUTHWEST - BLDG. 1		
N00236 / 001586 NONE REPORT N62474-94-D-7609 100	11-24-1999 **01-29-1999** 00168 00.0	TETRA TECH SHARMA, M. NAVY MCFADDEN, P.	DRAFT OPERABLE UNIT 3 (OU 3) REMEDIAL INVESTIGATION (RI) REPORT, VOLUME II OF III, CHAPTER 6 FIGURES	REMOVED	014 OU 3 SITE 00001	NAVFAC SOUTHWEST - BLDG. 1		
N00236 / 001587 NONE REPORT N62474-94-D-7609 2000	11-24-1999 **01-29-1999** 00168 00.0	TETRA TECH SHARMA, M. NAVY MCFADDEN, P.	DRAFT OPERABLE UNIT 3 (OU 3) REMEDIAL INVESTIGATION (RI) REPORT, VOLUME III OF III, APPENDICES	REMOVED	014 OU 3 SITE 00001	NAVFAC SOUTHWEST - BLDG. 1		
N00236 / 001704 NONE REPORT NONE 95	06-16-2000 **05-02-1999** NONE	SSPORTS ENVIRONMENTAL DETACHM J. RANDELL NAVFAC - SOUTHWEST DIVISION	FINAL UNEXPLODED ORDNANCE (UXO) SITE INVESTIGATION SURVEY WORK PACKAGE	ADMIN RECORD	OU 3 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_010	181-03-0179 41074200	BOX 0046
N00236 / 001666 NONE MM NONE 89	11-24-1999 **05-04-1999** NONE 00.0	NAVFAC - EFA WEST RAB MEMBERS	04 MAY 1999 RESTORATION ADVISORY BOARD (RAB) MEETING SUMMARY (INCLUDES ATTENDANCE LIST, RAB MEETING AGENDA, AND VARIOUS HANDOUTS)	ADMIN RECORD	SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_008	181-03-0179 41074200	BOX 0045

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N00236 / 000711 TC.A021.10075 MM N68711-00-D-0005 10	06-16-2003 **05-18-1999** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	18 MAY 1999 BASE REALIGNMENT AND CLOSURE (BRAC) CLEANUP TEAM (BCT) MONTHLY TRACKING MEETING MINUTES FOR ENVIRONMENTAL ACTIONS (INCLUDES ATTENDANCE LIST, AGENDA, AND VARIOUS HANDOUTS)	ADMIN RECORD INFO REPOSITORY	005 025 SITE 00001 SITE 00004	FRC - PERRIS IMAGED APNT_007	181-03-0188 41031858	BOX 0014
N00236 / 001618 NONE REPORT N62474-94-D-7609 340	11-24-1999 **05-19-1999** 00168 00.0	TETRA TECH EM INC. SHARMA, M. NAVFAC - EFA WEST MCFADDEN, P.	DRAFT FINAL OU-3 REMEDIAL INVESTIGATION (RI) REPORT, VOLUME I OF III (SEE AR# 1619 - VOL II OF III AND AR# 1620 - VOL III OF III)	ADMIN RECORD	014 OU 3 SITE 00001	FRC - PERRIS IMAGED APNT_019	181-03-0179 41074200	BOX 0042
N00236 / 001619 NONE REPORT N62474-94-D-7609 54	11-24-1999 **05-19-1999** 00168 00.0	TETRA TECH EM INC. SHARMA, M. NAVFAC - EFA WEST MCFADDEN, P.	DRAFT FINAL OU-3 REMEDIAL INVESTIGATION (RI) REPORT, VOLUME II OF III (CHAPTER 6 FIGURES) [SEE AR# 1618 - VOL I OF III AND AR#1620 - VOL III OF III]	ADMIN RECORD	014 SITE 00001	FRC - PERRIS IMAGED APNT_019	181-03-0179 41074200	BOX 0042
N00236 / 001620 NONE REPORT N62474-94-D-7609 1323	11-24-1999 **05-19-1999** 00168 00.0	TETRA TECH EM INC. SHARMA, M. NAVFAC - EFA WEST MCFADDEN, P.	DRAFT FINAL OU-3 REMEDIAL INVESTIGATION (RI) REPORT, VOLUME III OF III (APPENDICES) [SEE AR# 1618 - VOL I OF III AND AR# 1619 - VOL II OF III] {SEE COMMENTS}	ADMIN RECORD	014 SITE 00001	FRC - PERRIS IMAGED APNT_019	181-03-0179 41074200	BOX 0043

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N00236 / 001680 NONE MM NONE 71	01-21-2000 **07-06-1999** NONE 10.4	NAVFAC - WESTERN DIVISION NAVFAC - WESTERN DIVISION	06 JULY 1999 DRAFT RESTORATION ADVISORY BOARD (RAB) MEETING SUMMARY (INCLUDES AGENDA, HANDOUTS AND SIGN-IN SHEETS) [PORTION OF THE SIGN-IN SHEET IS CONFIDENTIAL]	ADMIN RECORD SENSITIVE	006 007 008 015 016 017 025 BLDG. 400 BLDG. 5 OU 1 OU 2 OU 3 OU 4 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_009	181-03-0179 BOX 0045 41074200

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N00236 / 001679 NONE MM NONE 29	01-21-2000 **08-03-1999** NONE 10.4	NAVFAC - WESTERN DIVISION NAVFAC - WESTERN DIVISION	3 AUGUST 1999 RESTORATION ADVISORY BOARD (RAB) MEETING SUMMARY (INCLUDES AGENDA, HANDOUTS AND SIGN-IN SHEETS) [PORTION OF THE SIGN-IN SHEET IS CONFIDENTIAL]	ADMIN RECORD SENSITIVE	005 009 010 013 014 017 019 020 021 022 023 024 025 1112 360 400 410 BLDG. 14 BLDG. 162 BLDG. 5 OU 1 OU 2 OU 3 OU 4 SITE 00001 SITE 00002 SITE 00003 SITE 00004	FRC - PERRIS IMAGED APNT_009	181-03-0179 BOX 0045 41074200
N00236 / 001654 NONE REPORT N62474-94-D-7609 349	11-24-1999 **08-09-1999** 00168 00.0	TETRA TECH EM INC. BURLESON, N. NAVFAC - EFA WEST KAKTIS, W.	FINAL REMEDIAL INVESTIGATION REPORT, VOLUME I OF III [SEE AR # 1655 - VOLUME II OF III, AR # 1656 - VOLUME III OF III, AR # 304 - DRAFT ADDENDUM, VOL. II, AR # 45 - DRAFT FINAL ADDENDUM, VOL. I, AR # 331 - DRAFT FINAL ADDENDUM, VOL. II] (SEE ***COMMENTS)	ADMIN RECORD	OU 0003 SITE 00001 SITE 00014	FRC - PERRIS IMAGED APNT_030	181-08-0082 BOX 0009 40095306 SAI

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N00236 / 001655 NONE REPORT N62474-94-D-7609 54	11-24-1999 **08-09-1999** 00168 00.0	TETRA TECH EM INC. BURLESON, N. NAVFAC - EFA WEST KAKTIS, W.	FINAL REMEDIAL INVESTIGATION REPORT, VOLUME II OF III [SEE AR # 1654 VOLUME I OF III, AR # 1656 - VOLUME III OF III, AR # 304 - DRAFT ADDENDUM, VOLUME II, AR # 45 - DRAFT FINAL ADDENDUM, VOLUME I, AR # 331 - DRAFT FINAL ADDENDUM, VOLUME II]	ADMIN RECORD	OU 0003 SITE 00001 SITE 00014	FRC - PERRIS IMAGED APNT_030	181-08-0082 40095306 SAI	BOX 0009
N00236 / 001656 EFAW SER 612.3/9192 REPORT N62474-94-D-7609 999	11-24-1999 **08-09-1999** 00168 00.0	TETRA TECH EM INC. BURLESON, N. NAVFAC - EFA WEST MCFADDEN, P.	FINAL REMEDIAL INVESTIGATION REPORT, VOLUME III OF III, (INCLUDES EFAW TRANSMITTAL LETTER) {SEE ***COMMENTS}	ADMIN RECORD INFO REPOSITORY	OU 0003 SITE 00001 SITE 00014	FRC - PERRIS IMAGED APNT_030	181-08-0082 40095306 SAI	BOX 0009
N00236 / 001658 NONE REPORT NONE 23	11-24-1999 **08-19-1999** NONE 00.0	SSPORTS ENVIRONMENTAL DETACH. NAVFAC - EFA WEST	FINAL RADIOLOGICAL SURVEY REPORT, LANDFILL 1 AND 2 [SEE AR# 1657 - NAVFAC EFAW TRANSMITTAL LETTER BY G. KIKUGAWA]	ADMIN RECORD	SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_008	181-03-0179 41074200	BOX 0045
N00236 / 001653 NONE REPORT N62474-94-D-7609 189	11-24-1999 **08-27-1999** 00168 00.0	TETRA TECH EM INC. N. BURLESON NAVFAC - EFA WEST W. KAKTIS	DRAFT FEASIBILITY STUDY (FS)	INFO REPOSITORY	014 OU 3 SITE 00001	FRC - PERRIS IMAGED APNT_025	181-03-0179 41074200	BOX 0045
N00236 / 001657 EFAW SER 612.4/L9205 CORRESPONDENC NONE 2	11-24-1999 **08-30-1999** NONE 00.0	NAVFAC - EFA WEST G. KIKUGAWA VARIOUS AGENCIES	TRANSMITTAL OF FINAL RADIOLOGICAL SURVEY REPORT, LANDFILL 1 AND 2 (W/OUT ENCLOSURE) [SEE AR# 1658 - FINAL RADIOLOGICAL SURVEY REPORT]	ADMIN RECORD	SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_008	181-03-0179 41074200	BOX 0045

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N00236 / 001677 NONE MM NONE 33	01-21-2000 **10-05-1999** NONE 10.4	NAVFAC - EFA WEST VARIOUS AGENCIES	05 OCTOBER 1999 DRAFT RESTORATION ADVISORY BOARD (RAB) MEETING SUMMARY (INCLUDES AGENDA, VARIOUS HANDOUTS AND SIGN-IN SHEETS)	ADMIN RECORD	005 010 014 025 BLDG. 400 BLDG. 5 OU 1 OU 2 OU 3 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_022	181-03-0179 41074200	BOX 0045
N00236 / 001705 NONE REPORT NONE 36	06-16-2000 **10-22-1999** NONE	SSPORTS ENVIRON. DETACHMENT J. RANDELL NAVFAC - SOUTHWEST DIVISION	FINAL - UNEXPLODED ORDNANCE SITE INVESTIGATION FINAL SUMMARY REPORT	ADMIN RECORD	OU 3 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_045	181-03-0179 41074200	BOX 0046

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N00236 / 001676 NONE MM NONE 43	01-21-2000 **11-11-1999** NONE 10.4	NAVFAC - SOUTHWEST DIVISION VARIOUS AGENCIES	11 NOVEMBER 1999 DRAFT RESTORATION ADVISORY BOARD (RAB) MEETING SUMMARY (INCLUDES AGENDA, VARIOUS HANDOUTS AND SIGN-IN SHEETS)	ADMIN RECORD	006 007 008 010 012 015 016 017 018 020 024 025 BLDG. 400 BLDG. 5 OU 1 OU 2 OU 3 OU 4 SITE 00001 SITE 00002 SITE 00004	FRC - PERRIS IMAGED APNT_025	181-03-0179 41074200	BOX 0045
N00236 / 000511 TC.A021.10074 MM N68711-00-D-0005 26	06-11-2003 **01-04-2000** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	04 JANUARY 2000 RESTORATION ADVISORY BOARD (RAB) MEETING SUMMARY (INCLUDES AGENDA, SIGN-IN SHEETS AND VARIOUS HANDOUTS)	ADMIN RECORD INFO REPOSITORY	005 010 014 025 BLDG. 400 OU 1 OU 2 OU 3 OU 4 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_007	181-03-0188 41031858	BOX 0013

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N00236 / 000512 TC.A021.10074 MM N68711-00-D-0005 81	06-11-2003 **02-01-2000** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	01 FEBRUARY 2000 RESTORATION ADVISORY BOARD (RAB) MEETING SUMMARY (INCLUDES AGENDA, SIGN-IN SHEETS AND VARIOUS HANDOUTS)	ADMIN RECORD	025 OU 2 OU 3 OU 4 SITE 00001	FRC - PERRIS IMAGED APNT_025	181-03-0188 41031858	BOX 0013
N00236 / 001685 NONE MM NONE 15	03-28-2000 **02-01-2000** NONE	 NAVFAC - SOUTHWEST DIVISION	DRAFT RAB MEETING SUMMARY FOR 1 FEBRUARY 2000	ADMIN RECORD	025 OU 2 OU 3 OU 4 SITE 00001	FRC - PERRIS IMAGED APNT_025	181-03-0179 41074200	BOX 0046
N00236 / 001702 NONE REPORT N62474-94-D-7609 77	06-16-2000 **05-05-2000** 00271	TETRA TECH EM INC. M. REISIG NAVFAC - SOUTHWEST DIVISION L. OCAMPO	INTERNAL DRAFT RECORD OF DECISION/REMEDIAL ACTION PLAN FOR THE MARSH CRUST GROUNDWATER AND THE MARSH CRUST AND FORMER SUBTIDAL AREA (INCLUDES SWDIV TRANSMITTAL LETTER BY L. OCAMPO) {***SEE NOTES}	ADMIN RECORD	006 OU 1 OU 2 OU 3 OU 4 SITE 00001 SITE 00002 SITE 00003 SITE 00004 WELL S27	FRC - PERRIS IMAGED APNT_025	181-03-0179 41074200	BOX 0046
N00236 / 003065 SWDIV SER 06CA.RW/0418 CORRESPONDENC NONE 4	04-14-2008 **06-02-2000** NONE	NAVFAC - SOUTHWEST WEISSENBORN, R. UNIVERSITY OF CENTRAL FLORIDA REINHART, D.	TRANSMITTAL OF THE 1) DRAFT TECHNOLOGY EVALUATION REPORT; 2) DRAFT PASSIVE AND SEMI-PASSIVE TECHNIQUES; AND 3) FINAL FUNNEL-AND-GATE DEMONSTRATION DATA SUMMARY REPORT FOURTH QUARTER (W/OUT ENCLOSURES) [SEE COMMENTS.]	ADMIN RECORD	SITE 00001	NAVFAC SOUTHWEST - BLDG. 1 SW080523-10 IMAGED APNT_035		
N00236 / 000560 TC.A021.10074 MM N68711-00-D-0005 9	06-11-2003 **06-06-2000** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	06 JUNE 2000 RESTORATION ADVISORY BOARD (RAB) MEETING SUMMARY [ATTENDANCE LIST IS MISSING]	ADMIN RECORD	025 OU 1 OU 2 OU 4 SITE 00001	FRC - PERRIS IMAGED APNT_007	181-03-0188 41031858	BOX 0013

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)	
N00236 / 003064 NONE CORRESPONDENC NONE 6	04-14-2008 **07-27-2000** NONE	U.S. EPA - SAN FRANCISCO, CA RAMSEY, P. NAVFAC - SOUTHWEST WEISSENBORN, R.	COMMENTS ON THE 1) FINAL - UNEXPLODED ORDNANCE SITE INVESTIGATION FINAL SUMMARY REPORT, AND 2) UNEXPLODED ORDNANCE INTRUSIVE INVESTIGATION IMPLEMENTATION WORK PACKAGE (PORTION OF MAILING LIST IS SENSITIVE)	ADMIN RECORD SENSITIVE	OU 0000003 SITE 00001 SITE 00002	NAVFAC SOUTHWEST - BLDG. 1 SW080523-10 IMAGED APNT_035		
N00236 / 003060 NONE CORRESPONDENC NONE 5	04-14-2008 **08-02-2000** NONE	STATE OF CALIFORNIA DEPARTMENT OF FISH AND GAME ELLIS, S. NAVFAC - SOUTHWEST DIVISION WEISSENBORN, R.	COMMENTS ON THE DRAFT UNEXPLODED ORDNANCE INTRUSIVE INVESTIGATION IMPLEMENTATION WORK PLAN (SEE COMMENTS.)	ADMIN RECORD	OU 0000003 OU 0000004 SITE 00001 SITE 00002	NAVFAC SOUTHWEST - BLDG. 1 SW-20081219-4/8 IMAGED APNT_039		
N00236 / 000589 TC.A021.10074 MM N68711-00-D-0005 8	06-11-2003 **09-05-2000** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	05 SEPTEMBER 2000 RESTORATION ADVISORY BOARD (RAB) MEETING SUMMARY (ATTENDANCE LIST IS MISSING)	ADMIN RECORD	005 010 011 012 014 017 024 027 OU 3 SITE 00001 SITE 00002 SITE 00003	FRC - PERRIS IMAGED APNT_007	181-03-0188 41031858	BOX 0013
N00236 / 003062 NONE CORRESPONDENC NONE 12	04-14-2008 **09-11-2000** NONE	DTSC - BERKELEY, CA CASSA, M. NAVFAC - SOUTHWEST WEISSENBORN, R.	COMMENTS ON THE DRAFT UNEXPLODED ORDNANCE INTRUSIVE INVESTIGATION IMPLEMENTATION WORK PLAN PACKAGE (INCLUDES STATE UNEXPLODED ORDNANCE COORDINATOR COMMENTS DATED 31 AUGUST 2000) [PORTION OF MAILING LIST IS SENSITIVE]	ADMIN RECORD SENSITIVE	OU 0000003 OU 0000004 SITE 00001 SITE 00002	NAVFAC SOUTHWEST - BLDG. 1 SW080523-10 IMAGED APNT_035		

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)	
N00236 / 000726 TC.A021.10075 MM N68711-00-D-0005 6	06-16-2003 **09-19-2000** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	19 SEPTEMBER 2000 FINAL BASE REALIGNMENT AND CLOSURE (BRAC) CLEANUP TEAM (BCT) MONTHLY TRACKING MEETING AFTER ACTION REPORT	ADMIN RECORD INFO REPOSITORY	OU 3 OU 4 SITE 00001	FRC - PERRIS IMAGED APNT_003	181-03-0188 41031858	BOX 0014
N00236 / 000590 TC.A021.10074 MM N68711-00-D-0005 19	06-11-2003 **10-03-2000** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	03 OCTOBER 2000 RESTORATION ADVISORY BOARD (RAB) MEETING MINUTES (MISSING ATTENDANCE LIST)	ADMIN RECORD	OU 0000001 OU 0000002 OU 0000002A OU 0000002B OU 0000002C OU 0000003 OU 0000004 OU 0000005 OU 0000007 SITE 00001 SITE 00002 SITE 00005 SITE 00007 SITE 00013 SITE 00025	FRC - PERRIS IMAGED APNT_007	181-03-0188 41031858	BOX 0013
N00236 / 000728 TC.A021.10075 MM N68711-00-D-0005 4	06-16-2003 **11-21-2000** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	21 NOVEMBER 2000 FINAL BASE REALIGNMENT AND CLOSURE (BRAC) CLEANUP TEAM (BCT) MONTHLY TRACKING MEETING AFTER ACTION REPORT	ADMIN RECORD INFO REPOSITORY	025 SITE 00001	FRC - PERRIS IMAGED APNT_003	181-03-0188 41031858	BOX 0014
N00236 / 000592 TC.A021.10074 MM N68711-00-D-0005 8	06-11-2003 **12-05-2000** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	05 DECEMBER 2000 RESTORATION ADVISORY BOARD (RAB) MEETING MINUTES {PORTION OF DOCUMENT IS SENSITIVE} (MISSING ATTENDANCE LIST)	ADMIN RECORD SENSITIVE	PARCEL 178 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_007	181-03-0188 41031858	BOX 0013

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)	
N00236 / 002671 NONE CORRESPONDENC NONE 3	01-25-2007 **12-06-2000** NONE	USEPA - SAN FRANCISCO P. RAMSEY NAVFAC - SOUTHWEST DIVISION R. WEISSENBORN	REVIEW AND RESPONSES TO COMMENTS ON DRAFT RADIATION RISK ASSESSMENT	ADMIN RECORD INFO REPOSITORY	OU 3 SITE 00001	FRC - PERRIS IMAGED APNT_028	181-08-0082 40095306 SAI	BOX 0063
N00236 / 003059 NONE CORRESPONDENC NONE 3	04-14-2008 **12-06-2000** NONE	U.S. EPA - SAN FRANCISCO, CA RAMSEY, P. NAVFAC - SOUTHWEST DIVISION WEISSENBORN, R.	RESPONSE TO COMMENTS ON DRAFT HUMAN HEALTH RISK ASSESSMENT IN SUPPORT OF REMEDIAL ACTION OBJECTIVES FOR RADIOLOGICAL MATERIALS (INCLUDES EPA SUPERFUND TECHNICAL SUPPORT TEAM COMMENTS DATED 30 NOVEMBER 2000)	ADMIN RECORD	OU 0000003 SITE 00001	NAVFAC SOUTHWEST - BLDG. 1 SW-20081219-4/8 IMAGED APNT_039		
N00236 / 003082 SWDIV SER 06.CA/0531 CORRESPONDENC NONE 8	04-21-2008 **05-17-2001** NONE	NAVFAC - SOUTHWEST DIVISION WEISSENBORN, R. FOSTER WHEELER LOAN, A.	COMMENTS ON THE PRE-DRAFT FOCUSED REMEDIAL INVESTIGATION WORK PLAN, ORDNANCE AND EXPLOSIVES CHARACTERIZATION, AND GEOTECHNICAL AND SEISMIC EVALUATIONS (SEE COMMENTS.)	ADMIN RECORD	SITE 00001	NAVFAC SOUTHWEST - BLDG. 1 SW-20081219-4/8 IMAGED APNT_041		
N00236 / 000188 FWSD-RACII-01-0223 & SWDIV SER 06CA.RW/0593 CORRESPONDENC N44255-95-D-6030 207	07-05-2001 **06-01-2001** DO 0095	FOSTER WHEELER L. HUMPHREY NAVFAC - SOUTHWEST DIVISION	DRAFT FOCUSED REMEDIAL INVESTIGATION WORK PLAN, REVISION 0 - ORDNANCE & EXPLOSIVES CHARACTERIZATION, & GEOTECHNICAL & SEISMIC EVALUATIONS (INCLUDES SWDIV TRANSMITTAL LETTER BY R. WEISSENBORN)	ADMIN RECORD INFO REPOSITORY	SITE 00001	FRC - PERRIS IMAGED APNT_011	181-03-0179 41074200	BOX 0009
N00236 / 002401 FILE NO. 2199.9285(LBJ) CORRESPONDENC NONE 2	08-21-2006 **06-13-2001** NONE	CRWQCB - OAKLAND JOB, B. NAVFAC - SOUTHWEST DIVISION M. MCCLELLAND	REVIEW AND COMMENTS ON DRAFT FOCUSED REMEDIAL INVESTIGATION WORK PLAN, ORDNANCE AND EXPLOSIVES CHARACTERIZATION, AND GEOTECHNICAL SEISMIC EVALUATION	ADMIN RECORD	SITE 00001	FRC - PERRIS IMAGED APNT_021	181-03-0179 41074200	BOX 0025

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)	
N00236 / 002402 NONE CORRESPONDENC NONE 5	08-21-2006 **06-26-2001** NONE	DTSC - BERKELEY M. CASSA NAVFAC - SOUTHWEST DIVISION R. WEISSENBORN	REVIEW AND COMMENTS ON DRAFT FOCUSED REMEDIAL INVESTIGATION WORK PLAN, ORDNANCE AND EXPLOSIVES CHARACTERIZATION AND GEOTECHNICAL AND SEISMIC EVALUATIONS (PORTION OF THE MAILING LIST IS SENSITIVE)	ADMIN RECORD SENSITIVE	SITE 00001	FRC - PERRIS IMAGED APNT_021	181-03-0179 41074200	BOX 0025
N00236 / 002403 NONE CORRESPONDENC NONE 9	08-21-2006 **07-12-2001** NONE	USEPA - SAN FRANCISCO COOK, A. NAVFAC - SOUTHWEST DIVISION R. WEISSENBORN	REVIEW AND COMMENTS ON DRAFT FOCUSED REMEDIAL INVESTIGATION WORK PLAN, ORDNANCE AND EXPLOSIVES CHARACTERIZATION, AND GEOTECHNICAL AND SEISMIC EVALUATION	ADMIN RECORD	SITE 00001	FRC - PERRIS IMAGED APNT_021	181-03-0179 41074200	BOX 0025
N00236 / 000394 NONE CORRESPONDENC NONE 1	06-28-2002 **09-20-2001** NONE	USEPA - SAN FRANCISCO COOK, A. NAVFAC - SOUTHWEST DIVISION R. WEISSENBORN	EPA CONCURRENCE ON THE DRAFT FINAL FOCUSED REMEDIAL INVESTIGATION WORK PLAN - ORDNANCE & EXPLOSIVES WASTE CHARACTERIZATION AND GEOTECHNICAL & SEISMIC EVALUATIONS - COMMENTS ON THE DRAFT HAVE BEEN ADEQUATELY ADDRESSED (SEE AR #228 - RI WORK PLAN)	ADMIN RECORD INFO REPOSITORY	SITE 00001	FRC - PERRIS IMAGED APNT_004	181-03-0188 41031858	BOX 0003
N00236 / 000228 FWSD-RACII-01-0299-1 & 01-0313 CORRESPONDENC N44255-95-D-6030 240	09-21-2001 **09-28-2001** DO 0095	FOSTER WHEELER L. HUMPHREY NAVFAC - SOUTHWEST DIVISION	FINAL FOCUSED REMEDIAL INVESTIGATION WORK PLAN, ORDNANCE AND EXPLOSIVES WASTE CHARACTERIZATION, AND GEOTECHNICAL AND SEISMIC EVALUATIONS, REVISION 1	ADMIN RECORD INFO REPOSITORY	SITE 00001	FRC - PERRIS IMAGED APNT_025	181-03-0179 41074200	BOX 0011
N00236 / 003076 NONE CORRESPONDENC NONE 5	04-17-2008 **09-29-2001** NONE	RAB MEMBER HUMPHREYS, G. SUTTER, M.	COMMENTS ON THE 1) THE DRAFT FINAL FOCUSED REMEDIAL INVESTIGATION WORK PLAN, AND 2) DRAFT SITE-SPECIFIC HEALTH AND SAFETY PLAN	ADMIN RECORD	SITE 00001 SITE 00002	NAVFAC SOUTHWEST - BLDG. 1 SW080523-10 IMAGED APNT_035		

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N00236 / 000272 FWSD-RACII-02-0010 CORRESPONDENC N44255-95-D-6030 84	11-02-2001 **10-30-2001** DO 0095	FOSTER WHEELER R. MARGOTTO NAVFAC - SOUTHWEST DIVISION	FINAL SITE SPECIFIC HEALTH AND SAFETY PLAN, ORDNANCE AND EXPLOSIVES WASTE CHARACTERIZATION, AND GEOTECHNICAL AND SEISMIC EVALUATIONS, REVISION 0	ADMIN RECORD INFO REPOSITORY	SITE 00001	FRC - PERRIS IMAGED APNT_012	181-03-0179 BOX 0013 41074200
N00236 / 000313 2700.0 CORRESPONDENC N62474-98-D-2076 501	01-04-2002 **12-18-2001** 00078	IT CORPORATION J. MCGUIRE NAVFAC - SOUTHWEST DIVISION R. WEISSENBORN	DRAFT WORK PLAN FOR BASEWIDE GROUNDWATER MONITORING PROGRAM, REVISION 0	ADMIN RECORD INFO REPOSITORY	005 006 007 008 009 010 011 012 014 016 021 025 GROUP 026 027 SITE 00001 SITE 00003 SITE 00004	FRC - PERRIS IMAGED APNT_007	181-08-0082 BOX 0007 40095306 SAI

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)	
N00236 / 000747 TC.A021.10075 MM N68711-00-D-0005 87	06-17-2003 **04-16-2002** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	16 APRIL 2002 FINAL BASE REALIGNMENT AND CLOSURE (BRAC) CLEANUP TEAM (BCT) MONTHLY TRACKING MEETING AFTER ACTION REPORT (INCLUDES AGENDA, SIGN-IN SHEET, AND VARIOUS HANDOUTS) [PORTION OF THE SIGN-IN SHEET IS SENSITIVE]	ADMIN RECORD INFO REPOSITORY SENSITIVE	009 011 014 015 016 021 026 OU 1 OU 2 SITE 00001 SITE 00002 SITE 00004	FRC - PERRIS IMAGED APNT_003	181-03-0188 41031858	BOX 0014
N00236 / 000374 FWSD-RACII-02-0190 REPORT N44255-95-D-6030 654	06-18-2002 **04-26-2002** DO 0095	FOSTER WHEELER LOAN, A. NAVFAC - SOUTHWEST DIVISION	DRAFT ORDNANCE AND EXPLOSIVES WASTE/GEOTECHNICAL CHARACTERIZATION REPORT; ORDNANCE AND EXPLOSIVES WASTE CHARACTERIZATION, AND GEOTECHNICAL AND SEISMIC EVALUATIONS, REVISION 0 (INCLUDES SWDIV TRANSMITTAL LETTER BY. WEISSENBORN) [CD COPY OF PHOTOS ENCLOSED]	ADMIN RECORD INFO REPOSITORY	OU 3 SITE 00001	FRC - PERRIS IMAGED APNT_010	181-03-0188 41031858	BOX 0002
N00236 / 001808 3834 REPORT N62474-98-D-2076 436	04-22-2004 **05-03-2002** 00078	IT CORPORATION J. MCGUIRE NAVFAC - SOUTHWEST DIVISION	DRAFT WORK PLAN FOR BASEWIDE GROUNDWATER MONITORING PROGRAM, REVISION 0 (FIGURES 35 AND 66 AND TABLES 15 AND 16 ARE MISSING)	ADMIN RECORD INFO REPOSITORY	005 006 007 008 009 014 016 025 026 027 SITE 00001 SITE 00003	FRC - PERRIS IMAGED APNT_008	181-08-0082 40095306 SAI	BOX 0017

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)
N00236 / 001809 4100 REPORT N62474-98-D-2076 600	04-22-2004 **06-13-2002** 00078	IT CORPORATION R. CONDIT NAVFAC - SOUTHWEST DIVISION	DRAFT FINAL WORK PLAN FOR BASEWIDE GROUNDWATER MONITORING PROGRAM, REVISION 0, [CD COPY ENCLOSED OF WELL INVENTORY]	ADMIN RECORD INFO REPOSITORY	005 006 007 008 009 014 016 025 026 027 SITE 00001 SITE 00003	NAVFAC SOUTHWEST - BLDG. 110 RECORD PULLED FOR REVIEW ON 2/6/08	

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)
N00236 / 000367 SWDIV SER 06CA.AD/0624 CORRESPONDENC NONE 35	06-18-2002 **06-14-2002** NONE	NAVFAC - SOUTHWEST DIVISION DICK, A. US EPA - SAN FRANCISCO A. COOK	TRANSMITTAL OF DRAFT SITE MANAGEMENT PLAN AMENDMENT (W/ ENCLOSURE)	ADMIN RECORD INFO REPOSITORY	AREA 1 AREA 2 AREA 3 OU 0000001 OU 0000002A OU 0000002B OU 0000002C OU 0000003 OU 0000004A OU 0000004B OU 0000004C OU 0000005 OU 0000006 SITE 00001 SITE 00002 SITE 00006 SITE 00007 SITE 00008 SITE 00009 SITE 00013 SITE 00014 SITE 00015 SITE 00016 SITE 00017 SITE 00019 SITE 00020 SITE 00022 SITE 00023 SITE 00024 SITE 00025 SITE 00026 SITE 00027 SITE 00028 SITE 00029	FRC - PERRIS IMAGED APNT_022	181-03-0188 BOX 0002 41031858

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)	
N00236 / 002462 NONE CORRESPONDENC NONE 9	08-23-2006 **06-25-2002** NONE	DTSC - BERKELEY M. LIAO NAVFAC - SOUTHWEST DIVISION R. WEISSENBORN	REVIEW AND COMMENTS ON DRAFT ORDNANCE AND EXPLOSIVE WASTE, GEOTECHNICAL CHARACTERIZATION REPORT (INCLUDES OMF COMMENTS BY J. AUSTRENG AND ESU COMMENTS BY R. RAMANUJAM DATED 25 JUNE 2002)	ADMIN RECORD	SITE 00001	FRC - PERRIS IMAGED APNT_024	181-03-0179 41074200	BOX 0004
N00236 / 000750 TC.A021.10075 MM N68711-00-D-0005 52	06-17-2003 **07-16-2002** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	16 JULY 2002 FINAL BASE REALIGNMENT AND CLOSURE (BRAC) CLEANUP TEAM (BCT) MONTHLY TRACKING MEETING AFTER ACTION REPORT (INCLUDES AGENDA, SIGN-IN SHEET, AND VARIOUS HANDOUTS) [PORTION OF THE SIGN-IN SHEET IS SENSITIVE]	ADMIN RECORD INFO REPOSITORY SENSITIVE	OU 0000001 OU 0000002A OU 0000002B OU 0000005 SITE 00001 SITE 00002 SITE 00013	FRC - PERRIS IMAGED APNT_005	181-03-0188 41031858	BOX 0014
N00236 / 000623 TC.A021.10074 MM N68711-00-D-0005 29	06-12-2003 **08-06-2002** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	06 AUGUST 2002 FINAL RESTORATION ADVISORY BOARD (RAB) MEETING SUMMARY (INCLUDES MEETING AGENDA, SIGN-IN SHEETS, AND VARIOUS HANDOUTS)	ADMIN RECORD INFO REPOSITORY	OU 0000005 SITE 00001 SITE 00025	FRC - PERRIS IMAGED APNT_007	181-03-0188 41031858	BOX 0013

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)
N00236 / 000412 TC.0190.11423 - MOD. 2 REPORT N62474-94-D-7609 417	08-29-2002 **08-16-2002** 00190	TETRA TECH EM INC. G. FOULK NAVFAC - SOUTHWEST DIVISION	DRAFT SUPPLEMENTAL ENVIRONMENTAL BASELINE SURVEY	ADMIN RECORD INFO REPOSITORY	005 006 007 008 009 010 011 012 013 014 015 016 017 019 020 021 022 023 024 025 026 027 028 029 OU 1 OU 2A OU 2B OU 2C OU 3 OU 4A OU 4B OU 4C OU 5 OU 6 SITE 00001	FRC - PERRIS IMAGED APNT_027	181-03-0188 BOX 0004 41031858

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					SITE 00002 SITE 00003 SITE 00004			
N00236 / 000416 FWSD-RACIII-02-1437 AND SWDIV SER 06CA.RW/0837 REPORT N68711-98-D-5713 858	08-29-2002 **08-19-2002** 00054	FOSTER WHEELER LOAN, A. NAVFAC - SOUTHWEST DIVISION	DRAFT GEOTECHNICAL FEASIBILITY STUDY REPORT, REVISION 0 (INCLUDES SWDIV TRANSMITTAL LETTER BY R. WEISSENBORN) [PORTIONS OF SECTIONS 4 AND 5, APPENDIX B AND THE MAILING LIST ARE CONFIDENTIAL]	ADMIN RECORD INFO REPOSITORY	SITE 00001	FRC - PERRIS IMAGED APNT_010	181-03-0188 41031858	BOX 0004
N00236 / 000428 FWSD-RACIII-02-1439 AND SWDIV SER 06CA.RW/0994 REPORT N68711-98-D-5713 770	09-25-2002 **09-20-2002** 00054	FOSTER WHEELER LOAN, A. NAVFAC - SOUTHWEST DIVISION	DRAFT FINAL ORDNANCE AND EXPLOSIVES WASTE/GEOTECHNICAL CHARACTERIZATION REPORT; ORDNANCE AND EXPLOSIVES WASTE CHARACTERIZATION, AND GEOTECHNICAL AND SEISMIC EVALUATIONS (NCLUDES SWDIV TRANSMITTAL LETTER BY R. WEISSENBORN)	ADMIN RECORD INFO REPOSITORY SENSITIVE	OU 3 SITE 00001	FRC - PERRIS IMAGED APNT_011	181-03-0188 41031858	BOX 0005
N00236 / 000427 FWSD-RACII-02-0190 RESPONSE N68711-98-D-5713 28	09-25-2002 **09-25-2002** 00054	FOSTER WHEELER NAVFAC - SOUTHWEST DIVISION	COMPILED RESPONSES TO COMMENTS ON THE DRAFT ORDNANCE AND EXPLOSIVES WASTE/GEOTECHNICAL CHARACTERIZATION REPORT; ORDNANCE AND EXPLOSIVES WASTE CHARACTERIZATION AND GEOTECHNICAL AND SEISMIC EVALUATIONS	ADMIN RECORD INFO REPOSITORY	OU 3 SITE 00001	FRC - PERRIS IMAGED APNT_010	181-03-0188 41031858	BOX 0005
N00236 / 000625 TC.A021.10074 MM N68711-00-D-0005 47	06-12-2003 **10-01-2002** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	01 OCTOBER 2002 FINAL RESTORATION ADVISORY BOARD (RAB) MEETING SUMMARY (INCLUDES MEETING AGENDA, SIGN-IN SHEETS, AND VARIOUS HANDOUTS)	ADMIN RECORD INFO REPOSITORY	014 015 032 OU 3 OU 5 SITE 00001	FRC - PERRIS IMAGED APNT_007	181-03-0188 41031858	BOX 0013

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)
N00236 / 000436 DS.A033.10075 AND SWDIV SER 06CA.LO/0019 REPORT N68711-00-D-0005 237	10-31-2002 **10-08-2002** DO A033	TETRA TECH EM INC. KELLY, B. NAVFAC - SOUTHWEST DIVISION L. OCAMPO	DRAFT TECHNICAL MEMORANDUM: EVALUATION OF ISSUES RELATED TO THE RESOURCE CONSERVATION AND RECOVERY ACT (RCRA); FACILITY PERMIT EPA ID CA 2170023236, TIERED PERMITS, AND THE NONPERMITTED AREAS (INCLUDES SWDIV TRANSMITTAL LETTER BY L. OCAMPO)	ADMIN RECORD INFO REPOSITORY SENSITIVE	BLDG 00013 OU 0000001 OU 0000002A OU 0000002B OU 0000002C OU 0000003 OU 0000004A OU 0000004B OU 0000004C OU 0000005 OU 0000006 SITE 00001 SITE 00002 SITE 00003 SITE 00004 SITE 00006 SITE 00007 SITE 00008 SITE 00009 SITE 00013 SITE 00014 SITE 00015 SITE 00016 SITE 00019 SITE 00020 SITE 00022 SITE 00023 SITE 00026 SITE 00027 SITE 00028	FRC - PERRIS IMAGED APNT_013	181-03-0188 BOX 0006 41031858

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)	
N00236 / 002448 NONE CORRESPONDENC NONE 11	08-23-2006 **10-21-2002** NONE	DTSC - BERKELEY M. LIAO NAVFAC - SOUTHWEST DIVISION R. WEISSENBORN	REVIEW AND COMMENTS ON DRAFT FINAL ORDNANCE AND EXPLOSIVE WASTE/GEOTECHNICAL CHARACTERIZATON REPORT (INCLUDES DMF COMMENTS BY J. AUSTRENG DATED 16 OCTOBER 2002 AND ESU COMMENTS BY R. RAMANUJAM DATED 18 OCTOBER 2002)	ADMIN RECORD	OU 3 SITE 00001	FRC - PERRIS IMAGED APNT_024	181-03-0179 41074200	BOX 0025
N00236 / 000626 TC.A021.10074 MM N68711-00-D-0005 18	06-12-2003 **11-05-2002** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	05 NOVEMBER 2002 FINAL RESTORATION ADVISORY BOARD (RAB) MEETING SUMMARY (INCLUDES MEETING AGENDA, SIGN-IN SHEETS, AND VARIOUS HANDOUTS)	ADMIN RECORD INFO REPOSITORY	014 015 SITE 00001	FRC - PERRIS IMAGED APNT_007	181-03-0188 41031858	BOX 0013
N00236 / 000447 FWSD-RACIII-02-1827 & SWDIV SER 06CA.RW\0233 REPORT N68711-98-D-5713 778	12-16-2002 **11-25-2002** 00054	FOSTER WHEELER LOAN, A. NAVFAC - SOUTHWEST DIVISION	FINAL ORDNANCE AND EXPLOSIVES WASTE/GEOTECHNICAL CHARACTERIZATION REPORT; ORDNANCE AND EXPLOSIVES WASTE CHARACTERIZATION, AND GEOTECHNICAL AND SEISMIC EVALUATIONS, REVISION 0 (INCLUDES SWDIV TRANSMITTAL LETTER BY R. WEISSENBORN)	ADMIN RECORD INFO REPOSITORY SENSITIVE	OU 3 SITE 00001	FRC - PERRIS IMAGED APNT_013	181-03-0188 41031858	BOX 0009
N00236 / 000448 FWSD-RACIII-02-1827 & SWDIV SER 06CA.RW\0233 RESPONSE N68711-98-D-5713 21	12-16-2002 **12-05-2002** 00054	FOSTER WHEELER NAVFAC - SOUTHWEST DIVISION	RESPONSES TO COMMENTS ON THE DRAFT FINAL ORDNANCE AND EXPLOSIVES WASTE/GEOTECHNICAL CHARACTERIZATION REPORT (INCLUDES SWDIV TRANSMITTAL LETTER BY R. WEISSENBORN)	ADMIN RECORD INFO REPOSITORY SENSITIVE	OU 3 SITE 00001	FRC - PERRIS IMAGED APNT_010	181-03-0188 41031858	BOX 0009
N00236 / 000457 DS.A029.10145 & SWDIV SER 06RW.CA\0241 REPORT N68711-00-D-0005 200	01-30-2003 **12-12-2002** DO 0029	TETRA TECH EM INC. DELA BARRE, B. NAVFAC - SOUTHWEST DIVISION R. WEISSENBORN	REVISED DRAFT FEASIBILITY STUDY REPORT, 1943-1956 DISPOSAL AREA (INCLUDES SWDIV TRANSMITTAL LETTER BY R. WEISSENBORN)	ADMIN RECORD INFO REPOSITORY	OU 3 SITE 00001	FRC - PERRIS IMAGED APNT_025	181-03-0188 41031858	BOX 0010

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N00236 / 000456 NONE CORRESPONDENC NONE 7	01-29-2003 **12-16-2002** NONE	DTSC - BERKELEY M. LIAO NAVFAC - SOUTHWEST DIVISION L. OCAMPO	COMMENTS ON THE DRAFT TECHNICAL MEMORANDUM: EVALUATION OF ISSUES RELATED TO THE RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) FACILITY PERMIT EPA ID CA 217002323G TIERED PERMITS AND THE NONPERMITTED AREAS	ADMIN RECORD INFO REPOSITORY	OU 0000001 OU 0000002A OU 0000003 OU 0000005 OU 0000006 OU 000002B OU 000002C OU 000004A OU 000004B OU 000004C SITE 00001 SITE 00002 SITE 00003 SITE 00004 SITE 00006 SITE 00007 SITE 00008 SITE 00009 SITE 00013 SITE 00014 SITE 00015 SITE 00016 SITE 00019 SITE 00020 SITE 00022 SITE 00023 SITE 00027 SITE 00028	FRC - PERRIS IMAGED APNT_004	181-03-0188 BOX 0010 41031858

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)
N00236 / 000995 TC.A021.10125 MM N68711-00-D-0005 47	08-20-2003 **01-21-2003** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	21 JANUARY 2003 FINAL BASE REALIGNMENT AND CLOSURE (BRAC) CLEANUP TEAM (BCT) MONTHLY TRACKING MEETING AFTER ACTION REPORT (INCLUDES AGENDA, SIGN-IN SHEET, AND HANDOUT MATERIALS) [PORTION OF THE SIGN-IN SHEET IS SENSITIVE]	ADMIN RECORD INFO REPOSITORY SENSITIVE	005 007 009 011 013 014 015 016 017 020 021 027 028 029 OU 5 SITE 00001	FRC - PERRIS IMAGED APNT_023	181-08-0082 BOX 0008 40095306 SAI
N00236 / 001029 TC.A021.10126 MM N68711-00-D-0005 43	08-20-2003 **02-04-2003** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	FINAL RESTORATION ADVISORY BOARD (RAB) MEETING MINUTES SUMMARY FOR THE 04 FEBRUARY 2003 MEETING - INCLUDES AGENDA, SIGN-IN SHEETS, AND HANDOUT MATERIALS	ADMIN RECORD INFO REPOSITORY	OU 3 SITE 00001	FRC - PERRIS IMAGED APNT_001	181-08-0082 BOX 0008 40095306 SAI
N00236 / 001681 NONE CORRESPONDENC NONE 5	09-09-2008 **03-18-2003** NONE	DHS - SACRAMENTO, CA BAILEY, D. DTSC - BERKELEY, CA LIAO, M.	COMMENTS ON THE REVISED DRAFT FEASIBILITY STUDY REPORT, 1943-1956 DISPOSAL AREA	ADMIN RECORD	OU 0000003 SITE 00001	NAVFAC SOUTHWEST - BLDG. 1 SW-20090105-5/5 IMAGED APNT_040	
N00236 / 002457 NONE CORRESPONDENC NONE 21	08-23-2006 **03-21-2003** NONE	DTSC - BERKELEY M. LIAO NAVFAC - SOUTHWEST DIVISION R. WEISSENBORN	REVIEW AND COMMENTS ON REVISED DRAFT FEASIBILITY REPORT (INCLUDES ESU COMMENTS BY R. RAMANUJAM DATED 7 FEBRUARY 2003 AND ESU COMMENTS BY A. PATHAK DATED 11 MARCH 2003)	ADMIN RECORD	OU 3 SITE 00001	FRC - PERRIS IMAGED APNT_025	181-03-0179 BOX 0025 41074200

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)
N00236 / 002458 NONE CORRESPONDENC NONE 6	08-23-2006 **03-21-2003** NONE	DTSC - BERKELEY M. LIAO NAVFAC - SOUTHWEST DIVISION R. WEISSENBORN	REVIEW AND COMMENTS ON DRAFT GEOTECHNICAL FEASIBILITY REPORT (INCLUDES ESU COMMENTS BY R. RAMANUJAM DATED 10 FEBRUARY 2003)	ADMIN RECORD	OU 3 SITE 00001	FRC - PERRIS IMAGED APNT_021	181-03-0179 BOX 0025 41074200
N00236 / 003094 NONE CORRESPONDENC NONE 16	04-23-2008 **04-09-2003** NONE	DTSC - BERKELEY, CA LIAO, M. NAVFAC - SOUTHWEST DIVISION WEISSENBORN, R.	COMMENTS ON THE DRAFT ORDNANCE AND EXPLOSIVES WASTE / GEOTECHNICAL CHARACTERIZATION REPORT (INCLUDES COMMENTS BY OMF DATED 08 APRIL 2003 AND ESU DATED 02 APRIL 2003)	ADMIN RECORD	OU 0000004A SITE 00001 SITE 00002	NAVFAC SOUTHWEST - BLDG. 1 SW-20081219-4/8 IMAGED APNT_041	

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)
N00236 / 000772 NONE PUB NOTICE NONE 16	08-04-2003 **07-01-2003** NONE	NAVFAC - SOUTHWEST DIVISION M. MCCLELLAND PUBLIC INTEREST	JULY 2003 ALAMEDA POINT FOCUS ENVIRONMENTAL NEWSLETTER	ADMIN RECORD	005 006 007 008 009 010 011 012 013 014 015 016 017 018 019 020 021 022 023 024 025 026 027 028 029 030 031 032 SITE 00001 SITE 00002 SITE 00003 SITE 00004	FRC - PERRIS IMAGED APNT_008	181-03-0188 BOX 0016 41031858

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)
N00236 / 001803 TC.B010.10187 MM N68711-03-D-5104 34	04-22-2004 **08-05-2003** 00010	SULTECH NAVFAC - SOUTHWEST DIVISION	05 AUGUST 2003 FINAL RESTORATION ADVISORY BOARD (RAB) MEETING SUMMARY (INCLUDES MEETING AGENDA, SIGN-IN SHEETS AND VARIOUS HANDOUTS) [ATTENDANCE LIST IS MISSING]	ADMIN RECORD INFO REPOSITORY	005 006 007 008 009 011 014 016 021 025 026 027 BLDG. 195 SITE 00001 SITE 00002 SITE 00003	FRC - PERRIS IMAGED APNT_014	181-08-0082 BOX 0017 40095306 SAN
N00236 / 003093 NONE CORRESPONDENC NONE 3	04-23-2008 **09-26-2003** NONE	DTSC - BERKELEY, CA LIAO, M. VARIOUS AGENCIES	RESPONSE TO PROPOSAL BY CITY OF ALAMEDA TO REUSE DREDGED MATERIALS FROM SEAPLANE LAGOON AS FOUNDATION LAYER FOR THE LANDFILL CAP (SEE COMMENTS.)	ADMIN RECORD	SITE 00001 SITE 00017	NAVFAC SOUTHWEST - BLDG. 1 SW-20081219-4/8 IMAGED APNT_041	

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N00236 / 001757 SWDIV SER 06CA.AD/1416 REPORT NONE 33	01-15-2004 **11-05-2003** NONE	NAVFAC - SOUTHWEST DIVISION MCCLELLAND, M. US EPA - SAN FRANCISCO COOK, A.	SITE MANAGEMENT PLAN UPDATE - [INCLUDES SWDIV TRANSMITTAL LETTER] [SEE RECORD # 1710 - FEDERAL FACILITIES AGREEMENT]	ADMIN RECORD INFO REPOSITORY	005 006 007 008 009 011 012 013 014 015 016 018 019 020 021 022 023 024 025 026 027 OU 1 OU 2A OU 2B OU 2C OU 3 OU 4A OU 4B OU 4C OU 5 OU 6 SITE 00001 SITE 00002 SITE 00003 SITE 00004	FRC - PERRIS IMAGED APNT_014	181-08-0082 BOX 0012 40095306 SAN

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)	
N00236 / 001727 6564 REPORT N62474-98-D-2076 150	11-19-2003 **11-11-2003** 00103	SHAW ENVIRONMENTAL, INC. NAVFAC - SOUTHWEST DIVISION	GROUNDWATER MONITORING REPORT, SUMMER 2002 TO SPRING 2003 (DOCUMENT WAS ISSUED WITH SECTION 6 ONLY AND REPLACEMENT PAGES) [***SEE COMMENTS]	ADMIN RECORD INFO REPOSITORY SENSITIVE	SITE 00001	NAVFAC SOUTHWEST - BLDG. 110		
N00236 / 001880 SWDIV SER. 06CA.CD/1492 CORRESPONDENC NONE 15	10-18-2004 **11-24-2003** NONE	NAVFAC - SOUTHWEST MACCHIARELLA, T. US EPA - SAN FRANCISCO RIPPERDA, M.	TRANSMITTAL OF GROUNDWATER MONITORING REPORTS, SUMMER 2002 TO SPRING 2003 (W/OUT ENCLOSURES) [SEE AR # 774 THROUGH AR # 778, AR # 823, AR # 824, AR # 839, AR # 840, AR # 861, AR # 873, AND AR # 880 - GROUNDWATER MONITORING REPORTS]	ADMIN RECORD INFO REPOSITORY	SITE 00001 SITE 00002 SITE 00003 SITE 00005 SITE 00006 SITE 00007 SITE 00008 SITE 00009 SITE 00014 SITE 00016 SITE 00025 GROUP SITE 00027	FRC - PERRIS IMAGED APNT_026	181-08-0082 40095306 SAN	BOX 0022
N00236 / 001714 FWSD-RAC-03-3603 & SWDIV SER 06CA.CD/1491 REPORT N68711-98-D-5713 866	10-15-2003 **12-05-2003** 00054	FOSTER WHEELER LOAN, A. NAVFAC - SOUTHWEST DIVISION	FINAL FEASIBILITY STUDY REPORT, OPERABLE UNIT 3 (OU 3), SITE 1 - 1943-1956 DISPOSAL AREA, VOLUME 2 - GEOTECHNICAL AND SEISMIC, REVISION 0 [INCLUDES SWDIV TRANSMITTAL LETTER BY T. MACCHIARELLA] ***SEE COMMENTS	ADMIN RECORD INFO REPOSITORY	OU 3 SITE 00001	FRC - PERRIS IMAGED APNT_017	181-08-0082 40095306 SAN	BOX 0010
N00236 / 001768 SWDIV SER 06CA.DN/0125 CORRESPONDENC NONE 12	03-01-2004 **12-10-2003** NONE	NAVFAC - SOUTHWEST DIVISION T. MACCHIARELLA U.S. EPA - SAN FRANCISCO A. COOK	TRANSMITTAL OF 10 DECEMBER 2003 MEETING MINUTES REGARDING THE NAVY'S RESPONSE TO AGENCY COMMENTS (RTC) ON THE DRAFT SKEET RANGE REMEDIAL INVESTIGATION REPORT AND SEAPLANE LAGOON FEASIBILITY STUDY SCOPING MEETING (W/ ENCLOSURE)	ADMIN RECORD INFO REPOSITORY	017 029 SITE 00001	FRC - PERRIS IMAGED APNT_025	181-08-0082 40095306 SAN	BOX 0014

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N00236 / 003083 NONE MINUTES NONE 6	04-23-2008 **02-24-2004** NONE	BATTELLE LAU, V. VARIOUS AGENCIES	24 FEBRUARY 2004 FINAL SEAPLANE LAGOON FEASIBILITY STUDY STRATEGY MEETING MINUTES	ADMIN RECORD SENSITIVE	BLDG 00001 SITE 00001 SITE 00017	NAVFAC SOUTHWEST - BLDG. 1 SW-20081219-4/8 IMAGED APNT_041	
N00236 / 001788 FWSD-RAC-04-1277 REPORT N68711-98-D-5713 26	03-16-2004 **02-26-2004** 00087	TETRA TECH FW INC. ELOSKOF, A. NAVFAC - SOUTHWEST DIVISION	DRAFT VEGETATION CLEARANCE PLAN, RADIOLOGICAL SURVEY AT THE 1943-1956 DISPOSAL AREA AND THE WEST BEACH LANDFILL	ADMIN RECORD INFO REPOSITORY	SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_022	181-08-0082 BOX 0016 40095306 SAN
N00236 / 001771 6695 & SWDIV SER 06CA.CG/0222 REPORT N62474-98-D-2076 250	03-02-2004 **02-27-2004** 00103	SHAW ENVIRONMENTAL, INC. NAVFAC - SOUTHWEST DIVISION	GROUNDWATER MONITORING REPORT, SUMMER 2002 TO SPRING 2003 (DOCUMENT WAS ISSUED WITH ORIGINAL SECTIONS 7 & 8 ONLY AND REPLACEMENT PAGES) [***SEE COMMENTS]	ADMIN RECORD INFO REPOSITORY	SITE 00001	NAVFAC SOUTHWEST - BLDG. 110	
N00236 / 001792 FWSD-RAC-04/1278 REV. 1 & SWDIV SER 06CA.CD/0251 REPORT N68711-98-D-5713 43	04-01-2004 **02-27-2004** 00087	TETRA TECH FW INC. V. RICHARDS NAVFAC - SOUTHWEST DIVISION	FINAL VEGETATION CLEARANCE PLAN, RADIOLOGICAL SURVEY AT 1943-1956 DISPOSAL AREA AND WEST BEACH LANDFILL, REVISION 1 (INCLUDES SWDIV TRANSMITTAL LETTER BY G. LORTON AND REPLACEMENT PAGES) {***SEE COMMENTS}	ADMIN RECORD INFO REPOSITORY SENSITIVE	SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_022	181-08-0082 BOX 0016 40095306 SAN
N00236 / 001791 7547 & SWDIV SER 06CA.CD/0311 CORRESPONDENC N62474-98-D-2076 33	04-01-2004 **03-15-2004** 00103	SHAW ENVIRONMENTAL, INC. R.CONDIT NAVFAC - SOUTHWEST DIVISION	DRAFT SAMPLING AND ANALYSIS PLAN ADDENDUM (FIELD SAMPLING PLAN/QUALITY ASSURANCE PROJECT PLAN) BASEWIDE GROUNDWATER MONITORING, REVISION 0 - [INCLUDES SWDIV TRANSMITTAL LETTER BY G. LORTON], (PORTION OF MAILING LIST IS CONFIDENTIAL)	ADMIN RECORD INFO REPOSITORY SENSITIVE	SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_007	181-08-0082 BOX 0016 40095306 SAN

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N00236 / 001794 FWSD-RAC-04-1410 REPORT N68711-98-D-5713 20	04-05-2004 **03-26-2004** 00087	TETRA TECH FW INC. L. MALO NAVFAC - SOUTHWEST DIVISION	TECHNICAL MEMORANDUM WETLAND ASSESSMENT - RADIOLOGICAL SURVEY AT 1943-1956 DISPOSAL AREA AND WEST BEACH LANDFILL (INCLUDES 19 AUGUST 2003 BASE REALIGNMENT AND CLOSURE (BRAC) CLEANUP TEAM (BCT) MONTHLY TRACKING MEETING AFTER ACTION REPORT)	ADMIN RECORD INFO REPOSITORY	SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_014	181-08-0082 40095306 SAN BOX 0017
N00236 / 001825 CTO-0068/0023 MM N68711-95-D-7526 9	05-05-2004 **04-13-2004** 00068	BECHTEL ENVIRONMENTAL, INC. J. ARGYRES NAVFAC - SOUTHWEST DIVISION	13 APRIL 2004 AGENCY WORKSHOP FOR INSTALLATION RESTORATION SITE 1 FEASIBILITY STUDY (FS) MEETING MINUTES (CD COPY ENCLOSED)	ADMIN RECORD INFO REPOSITORY	OU 3 SITE 00001	FRC - PERRIS IMAGED APNT_019	181-08-0082 40095306 SAN BOX 0019
N00236 / 001828 FWSD-RAC-04-1479 & SWDIV SER. 06CA.CD/0486 REPORT N68711-98-D-5713 506	05-11-2004 **04-30-2004** 00087	TETRA TECH FW INC. ELOSKOF, A. NAVFAC - SOUTHWEST DIVISION	REVISED DRAFT INSTALLATION RESTORATION, RADIOLOGICAL SURVEY WORK PLAN, REV. 0 RADIOLOGICAL SURVEY AT INSTALLATION RESTORATION (IR), 1943-1956 DISPOSAL AREA [INCLUDES SWDIV TRANSMITTAL LETTER BY T. MACCHIARELLA]	ADMIN RECORD INFO REPOSITORY	SITE 00001	FRC - PERRIS IMAGED APNT_017	181-08-0082 40095306 SAN BOX 0019
N00236 / 001830 7788.0, 7789 & SWDIV SER 06CA.CD/0507 MISC N62474-98-D-2076 7	05-11-2004 **05-07-2004** 00103	NAVFAC - SOUTHWEST DIVISION T. MACCHIARELLA U.S. EPA - SAN FRANCISCO A. COOK	WINTER AND FALL 2003 QUARTERLY GROUNDWATER MONITORING DATA REPORTS (COMPACT DISC (CD) FORMAT ONLY) {PORTION OF THE MAILING LIST IS SENSITIVE}	ADMIN RECORD INFO REPOSITORY SENSITIVE	005 006 007 008 009 014 016 025 GROUP SITE 00001 SITE 00002 SITE 00003	FRC - PERRIS IMAGED APNT_014	181-08-0082 40095306 SAN BOX 0019

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N00236 / 002067 NONE CORRESPONDENC NONE 1	07-28-2005 **06-10-2004** NONE	DEPT. OF HEALTH SERVICES BAILEY, D. DTSC - BERKELEY M. LAIO	REVIEW AND NO COMMENTS ON THE DRAFT FINAL RADIOLOGICAL SURVEY WORK PLANS (WP), REVISION 0	ADMIN RECORD	SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_019	181-08-0082 40095306 SAI	BOX 0035
N00236 / 001839 FWSD-RAC-04-2061 & SWDIV SER. 06CA/0649 REPORT N68711-98-D-5713 515	06-15-2004 **06-21-2004** 00087	TETRA TECH FW INC. STEPHAN, C. NAVFAC - SOUTHWEST DIVISION	FINAL RADIOLOGICAL SURVEY WORK PLAN, REVISION 0, RADIOLOGICAL SURVEY AT INSTALLATION RESTORATION, 1943-1956 DISPOSAL AREA (INCLUDES SWDIV TRANSMITTAL LETTER BY T. MACCHIARELLA) [CD COPY ENCLOSED]	ADMIN RECORD INFO REPOSITORY	SITE 00001	FRC - PERRIS IMAGED APNT_015	181-08-0082 40095306 SAI	BOX 0019
N00236 / 001872 TC.B010.10254 MM N68711-03-D-5104 38	09-27-2004 **07-01-2004** 00010	SULTECH NAVFAC - SOUTHWEST DIVISION	1 JULY 2004 FINAL RESTORATION ADVISORY BOARD (RAB) MEETING SUMMARY (INCLUDES AGENDA AND VARIOUS HANDOUTS)	ADMIN RECORD INFO REPOSITORY	009 011 013 019 021 022 023 025 SITE 00001 SITE 00002 SITE 00003 SITE 00004	FRC - PERRIS IMAGED APNT_019	181-08-0082 40095306 SAI	BOX 0022
N00236 / 002535 FILE NO. 2199.9285(JCH) CORRESPONDENC NONE 4	09-19-2006 **07-09-2004** NONE	CRWQCB - OAKLAND J. HUANG NAVFAC - SOUTHWEST DIVISION T. MACCHIARELLA	REVIEW AND COMMENTS ON SCHEDULE CHANGES IN SITE MANAGEMENT PLAN (SMP) [PORTION OF THE MAILING LIST IS SENSITIVE]	ADMIN RECORD SENSITIVE	014 020 024 OU 11 OU 21 OU 2B OU 3 OU 4 SITE 00001	FRC - PERRIS IMAGED APNT_025	181-03-0179 41074200	BOX 0005

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N00236 / 001418 NONE CORRESPONDENC NONE 3	09-09-2008 **07-15-2004** NONE	ARC ECOLOGY LOIZOS, L. NAVFAC - SOUTHWEST DIVISION MACCHIARELLA, T.	COMMENTS ON THE DRAFT SITE MANAGEMENT PLAN (SMP) FOR FISCAL YEAR 2005	ADMIN RECORD	OU 0000001 OU 0000002A OU 0000002B OU 0000003 OU 0000005 SITE 00001 SITE 00014 SITE 00025	NAVFAC SOUTHWEST - BLDG. 1 SW-20090105-5/5 IMAGED APNT_040	
N00236 / 001893 TC.B010.10262 MM N68711-03-D-5104 52	11-22-2004 **09-21-2004** 00010	SULTECH NAVFAC - SOUTHWEST DIVISION	21 SEPTEMBER 2004 FINAL BASE REALIGNMENT AND CLOSURE (BRAC) CLEANUP TEAM (BCT) MONTHLY TRACKING MEETING AFTER ACTION REPORT (INCLUDES AGENDA AND VARIOUS HANDOUTS) [CD COPY ENCLOSED]	ADMIN RECORD INFO REPOSITORY	007 015 022 032 OU 1 OU 2 OU 2A OU 2B SITE 00001	FRC - PERRIS IMAGED APNT_003	181-08-0082 40095306 SAN BOX 0025
N00236 / 001902 8554 & SWDIV BPMOW.CXD/0076 CORRESPONDENC N62474-98-D-2076 21	12-06-2004 **11-10-2004** NONE	NAVFAC - SOUTHWEST DIVISION PLASEIED, R. US EPA - SAN FRANCISCO COOK, A.	TRANSMITTAL OF GROUNDWATER MONITORING REPORTS FOR SUMMER 2003 TO SPRING 2004 [INCLUDES SUMMARY OF SIGNIFICANT CHANGES TO ANNUAL 2003 TO 2004 ALAMEDA BASEWIDE GROUNDWATER MONITORING PROGRAM] (W/OUT ENCLOSURES) {PORTION OF THE MAILING LIST IS SENSITIVE}	ADMIN RECORD INFO REPOSITORY SENSITIVE	OU 002C SITE 00001 SITE 00002 SITE 00003 SITE 00005 SITE 00006 SITE 00007 SITE 00008 SITE 00009 SITE 00027 SITE 00032	FRC - PERRIS IMAGED APNT_030	181-08-0082 40095306 SAN BOX 0025
N00236 / 001901 SWDIV SER BPMOW.CXD/0129 MISC NONE 88	12-02-2004 **11-22-2004** NONE	NAVFAC - SOUTHWEST DIVISION PLASEIED, R. EPA - SAN FRANCISCO COOK, A.	TRANSMITTAL OF 1) RESPONSE TO REGULATOR COMMENTS FOR THE SPRING 2003 ALAMEDA POINT QUARTERLY GROUNDWATER REPORTS, AND 2) REPLACEMENT PAGES {PORTION OF THE MAILING LIST IS SENSITIVE} (W/ ENCLOSURES)	ADMIN RECORD INFO REPOSITORY SENSITIVE	SITE 00001 SITE 00002 SITE 00005 SITE 00007 SITE 00008 SITE 00025	FRC - PERRIS IMAGED APNT_035	181-09-0008 30099217 SAN BOX 0025

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N00236 / 001896 FWSD-RAC-05-0037 & BRAC SER BPMOW\0164 REPORT N68711-98-D-5713 182	12-02-2004 **12-01-2004** 00087	TETRA TECH FW, INC. L. MALO BRAC PMO WEST	WETLAND DELINEATION REPORT FOR THE 1943-1956 DISPOSAL AREA AND 1952-1978 WEST BEACH LANDFILL [INCLUDES BRAC PMO WEST TRANSMITTAL LETTER BY R. PLASEIED]	ADMIN RECORD INFO REPOSITORY	SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_003	181-08-0082 40095306 SAN BOX 0025
N00236 / 001935 BRAC SER BPMOW.CG/0197 CORRESPONDENC NONE 3	01-11-2005 **12-08-2004** NONE	BRAC PMO WEST T. MACCHIARELLA DTSC - BERKELEY M. LIAO	REQUEST FOR THE IDENTIFICATION OF POTENTIAL STATE CHEMICAL-SPECIFIC, LOCATION-SPECIFIC AND ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARAR) FOR THE FEASIBILITY STUDY	ADMIN RECORD INFO REPOSITORY	SITE 00001	FRC - PERRIS IMAGED APNT_003	181-08-0082 40095306 SAN BOX 0026
N00236 / 001823 8823 AND 6971 REPORT N62474-98-D-2076 619	04-29-2004 **12-17-2004** 00103	SHAW ENVIRONMENTAL, INC. J. MCGUIRE BRAC PMO WEST	GROUNDWATER MONITORING REPORT, SUMMER 2003 TO SPRING 2004 (INCLUDES REPLACEMENT COVER, TITLE AND SIGNATURE PAGES THAT REFLECT SUMMER 2003 TO SPRING 2004) [PORTION OF THE MAILING LIST IS SENSITIVE; CD COPY OF APPENDICES A THROUGH E ENCLOSED]	ADMIN RECORD INFO REPOSITORY SENSITIVE	SITE 00001 SITE 00032	FRC - PERRIS IMAGED APNT_017	181-08-0082 40095306 SAN BOX 0018
N00236 / 000774 8836 AND BRAC SER BPMOW.CD/0238 REPORT N62474-98-D-2076 667	08-04-2003 **12-22-2004** 0078 & 0103	SHAW ENVIRONMENTAL, INC. J. MCGUIRE BRAC PMO WEST	GROUNDWATER MONITORING REPORT FOR INSTALLATION RESTORATION SITE 1, SUMMER 2002 TO SPRING 2003 (CD COPY OF APPENDICES A AND B ENCLOSED) [INCLUDES REPLACEMENT PAGES ISSUED ON DIFFERENT DATES WITH DIFFERENT DOCUMENT CONTROL NUMBERS] {***SEE COMMENTS}	ADMIN RECORD INFO REPOSITORY	SITE 00001	FRC - PERRIS IMAGED APNT_026	181-03-0188 41031858 BOX 0016
N00236 / 001963 8836 & SWDIV SER BPMOW.CD\0238 REPORT N62474-98-D-2076 200	03-02-2005 **12-22-2004** 0078 & 0103	SHAW ENVIRONMENTAL, INC. J. MCGUIRE BRAC - SAN DIEGO	GROUNDWATER MONITORING REPORT FOR INSTALLATION RESTORATION SITE 1, SUMMER 2002 TO SPRING 2003 (DOCUMENT WAS ISSUED WITH REVISED SECTIONS 7 & 8 ONLY AND REPLACEMENT PAGES) [***SEE COMMENTS]	ADMIN RECORD INFO REPOSITORY	SITE 00001	NAVFAC SOUTHWEST - BLDG. 110	

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N00236 / 001958 8974 & BRAC SER BPMOW.CD/0388 REPORT N62474-98-D-2076 54	02-16-2005 **02-10-2005** 00103	SHAW ENVIRONMENTAL, INC. BRAC PMO WEST	FALL 2004 TIDAL STUDY (INCLUDES SWDIV TRANSMITTAL LETTER BY T. MACCHIARELLA) [PORTION OF THE MAILING LIST IS SENSITIVE	ADMIN RECORD INFO REPOSITORY SENSITIVE	SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_003	181-08-0082 40095306 SAN	BOX 0028
N00236 / 003004 PROJECT NO. 02-125.11 REPORT N68711-02-D-8213 513	02-13-2008 **03-01-2005** 00016	INNOVATIVE TECHNICAL SOLUTIONS, INC. BRAC PMO WEST	FINAL FALL/WINTER 2004 QUARTERLY GROUNDWATER MONITORING DATA REPORT (INCLUDES ANALYTICAL DATA)	ADMIN RECORD	SITE 00001 SITE 00002 SITE 00003 GROUP SITE 00005 GROUP SITE 00006 SITE 00007 SITE 00008 SITE 00009 GROUP SITE 00014 SITE 00016 SITE 00025 GROUP SITE 00027 SITE 00028 SITE 00032	FRC - PERRIS IMAGED APNT_037	181-09-0008 30099217 SAN	BOX 0044 BOX 0045 BOX 0046 BOX 0047 BOX 0048 BOX 0049 BOX 0050 BOX 0051
N00236 / 001994 BRAC SER BPMOW.CD\0464 CORRESPONDENC NONE 3	03-14-2005 **03-02-2005** NONE	BRAC PMO WEST T. MACCHIARELLA U.S. EPA - SAN FRANCISCO M. RIPPERDA	REQUEST FOR A THIRTY DAY EXTENSION ON THE DRAFT RADIOLOGICAL SURVEY CHARACTERIZATION REPORT	ADMIN RECORD INFO REPOSITORY	OU 3 SITE 00001	FRC - PERRIS IMAGED APNT_005	181-08-0082 40095306 SAN	BOX 0028

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N00236 / 001993 BRAC SER BPMOW.CD\0462 CORRESPONDENC NONE 3	03-14-2005 **03-08-2005** NONE	BRAC PMO WEST T. MACCHIARELLA U.S. EPA - SAN FRANCISCO M. RIPPERDA	REQUEST FOR EXTENSION ON THE REVISED DRAFT FEASIBILITY STUDY REPORT	ADMIN RECORD INFO REPOSITORY	OU 3 SITE 00001	FRC - PERRIS IMAGED APNT_005	181-08-0082 40095306 SAN	BOX 0028
N00236 / 001998 BRAC SER BPMOW.CD\0519 REPORT N68711-01-D-6009 236	03-23-2005 **03-11-2005** 00007	BATTELLE BRAC PMO WEST	FINAL EXPEDITED FIELD SAMPLING WORK PLAN [INCLUDES BRAC PMO WEST TRANSMITTAL LETTER BY T. MACCHIARELLA] {PORTION OF MAILING LIST IS CONFIDENTIAL, CD COPY ENCLOSED}	ADMIN RECORD INFO REPOSITORY SENSITIVE	015 SITE 00001	FRC - PERRIS IMAGED APNT_005	181-08-0082 40095306 SAN	BOX 0029
N00236 / 002039 CTO-0068/0066 & SWDIV SER BPMOW.CD/0684 REPORT N68711-95-D-7526 962	05-26-2005 **05-05-2005** 00068	BECHTEL ENVIRONMENTAL, INC. YAMANE, C. BRAC - SAN DIEGO	REVISED DRAFT FEASIBILITY STUDY REPORT, 1943 - 1956 DISPOSAL AREA - VOLUME I OF I, PART A AND B (CD COPY OF PART B TABLES IS ENCLOSED) [INCLUDES SWDIV TRANSMITTAL LETTER BY T. MACCHIARELLA] {PORTION OF THE MAILING LIST IS SENSITIVE} (***SEE COMMENTS)	ADMIN RECORD INFO REPOSITORY SENSITIVE	SITE 00001	FRC - PERRIS IMAGED APNT_027	181-08-0082 40095306 SAN	BOX 0032
N00236 / 002716 NONE CORRESPONDENC NONE 2	03-22-2007 **05-23-2005** NONE	DTSC - BERKELEY LIAO, M. NAVFAC - SOUTHWEST DIVISION MACCHIARELLA, T.	REVIEW AND COMMENTS ON DRAFT RADIOLOGICAL CHARACTERIZATION SURVEY REPORTS [SEE AR # 2005 AND AR # 2009 - FINAL RADIOLOGICAL SURVEY REPORTS] {***SEE COMMENTS}	ADMIN RECORD	SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_029	181-08-0082 40095306 SAN	BOX 0071
N00236 / 002062 NONE CORRESPONDENC NONE 30	07-14-2005 **05-24-2005** NONE	VARIOUS AGENCIES BRAC PMO WEST	COMPILATION OF AGENCY COMMENTS ON THE DRAFT INSTALLATION RESTORATION SITES AND RADIOLOGICAL CHARACTERIZATION SURVEY REPORT REVISION 0, INCLUDES RESPONSE TO COMMENTS (PORTION OF THE COMMENT - PRIVATE HOME ADDRESS IS SENSITIVE)	ADMIN RECORD INFO REPOSITORY SENSITIVE	SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_003	181-08-0082 40095306 SAN	BOX 0034

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N00236 / 002103 NONE CORRESPONDENC NONE 4	08-23-2005 **06-23-2005** NONE	DTSC - SACRAMENTO LANDIS, A. NAVFAC - SOUTHWEST DIVISION T. MACCHIARELLA	NO FURTHER ACTION (NFA) ON THE DRAFT RECORD OF DECISION (ROD) FOR SKEET RANGE (PORTION OF THE MAILING LIST IS SENSITIVE)	ADMIN RECORD INFO REPOSITORY SENSITIVE	029 SITE 00001	FRC - PERRIS IMAGED APNT_006	181-08-0082 40095306 SAN	BOX 0037
N00236 / 002492 NONE CORRESPONDENC NONE 4	08-28-2006 **07-01-2005** NONE	CITY OF ALAMEDA D. POTTER BRAC PMO WEST T. MACCHIARELLA	REVIEW AND COMMENTS ON REVISED DRAFT FEASIBILITY STUDY (FS) REPORT, 1943 - 1956 DISPOSAL AREA	ADMIN RECORD INFO REPOSITORY	SITE 00001	FRC - PERRIS IMAGED APNT_025	181-03-0179 41074200	BOX 0004
N00236 / 002005 FSWD-RAC-05-1503 & BRAC SER BPM.CD\1024 REPORT N68711-98-D-5713 397	04-11-2005 **08-05-2005** 00087	TETRA TECH FW INC. STEPHAN, C. BRAC PMO WEST	FINAL INSTALLATION RESTORATION, RADIOLOGICAL CHARACTERIZATION SURVEY REPORT, REVISION 0, (REPLACEMENT PAGES ISSUED 06/30/05 CONVERTING DRAFT DATED 03/31/05 (SWDIVSER BPMOW.CD\0565) TO A DRAFT FINAL) [***SEE COMMENTS]	ADMIN RECORD INFO REPOSITORY SENSITIVE	SITE 00001	NAVFAC SOUTHWEST - BLDG. 1 SW060907-03 IMAGED APNT_003		
N00236 / 002436 NONE CORRESPONDENC NONE 36	08-22-2006 **08-20-2005** NONE	DTSC - BERKELEY M. LIAO NAVFAC - SOUTHWEST DIVISION T. MACCHIARELLA	REVIEW AND COMMENTS ON REVISED DRAFT FEASIBILITY STUDY (FS) REPORT, 1943 -1956 DISPOSAL AREA (INCLUDES GSU COMMENTS DATED 12 AUGUST 2005, HERD COMMENTS DATED 08 AUGUST 2005 AND ESU COMMENTS DATED 15 JULY 2005)	ADMIN RECORD INFO REPOSITORY	SITE 00001	FRC - PERRIS IMAGED APNT_025	181-03-0179 41074200	BOX 0025
N00236 / 002185 BRAC SER BPMOW.AB\1394 CORRESPONDENC NONE 3	01-05-2006 **11-15-2005** NONE	BRAC PMO WEST T. MACCHIARELLA USEPA - SAN FRANCISCO A. COOK	REQUEST FOR EXTENSION ON THE RESPONSES TO COMMENTS SUBMITTAL DATE FOR THE OPERABLE UNIT 3, SITE 1 AND ON THE DRAFT FINAL FEASIBILITY STUDY REPORT	ADMIN RECORD INFO REPOSITORY	OU 3 SITE 00001	FRC - PERRIS IMAGED APNT_019	181-08-0082 40095306 SAN	BOX 0047

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N00236 / 002172 DS.B012.13729 & BRAC SER BPMOW.LAO\1417 REPORT N68711-03-D-5104 294	12-07-2005 **11-29-2005** 00012	SULTECH BRAC PMO WEST	DRAFT COMPILATION OF OUTSTANDING SOLID WASTE MANAGEMENT UNIT (SWMU) EVALUATION REPORTS, HAZARDOUS WASTE PERMIT EPA ID NUMBER CA 2170023236 (INCLUDES BRAC PMO WEST TRANSMITTAL LETTER BY T. MACCHIARELLA)	ADMIN RECORD INFO REPOSITORY	014 026 027 032 034 OU 1 OU 3 OU 4A OU 6 PARCEL 12 PARCEL 17 PARCEL 1A PARCEL 9 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_019	181-08-0082 BOX 0046 40095306 SAN
N00236 / 002193 CTO-0068/0099-1 & BRAC SER BPMOW.AB\0015 REPORT N68711-95-D-7526 1240	01-19-2006 **02-08-2006** 00068	BECHTEL ENVIRONMENTAL, INC. BRAC PMO WEST	FINAL FEASIBILITY STUDY REPORT, 1943-1956 DISPOSAL AREA, VOLUME I OF I, PART A & B (INCLUDES REPLACEMENT PAGES CONVERTING DRAFT FINAL DATED 1/12/2006 TO FINAL AND BRAC PMO WEST TRANSMITTAL LETTER BY T. MACCHIARELLA)	ADMIN RECORD INFO REPOSITORY SENSITIVE	SITE 00001	FRC - PERRIS IMAGED APNT_019	181-08-0082 BOX 0048 40095306 SAN
N00236 / 002211 BRAC SER BPMOW.AB\0105 CORRESPONDENC NONE 5	02-14-2006 **02-13-2006** NONE	BRAC PMO WEST T. MACCHIARELLA VARIOUS AGENCIES	TRANSMITTAL OF FINAL FEASIBILITY STUDY REPORT , 1943-1956 DISPOSAL AREA (SEE AR # 2193 - FINAL FEASIBILITY STUDY REPORT, 1943-1956 DISPOSAL AREA) [PORTION OF THE MAILING LIST IS CONFIDENTIAL]	ADMIN RECORD INFO REPOSITORY SENSITIVE	SITE 00001	FRC - PERRIS IMAGED APNT_018	181-08-0082 BOX 0048 40095306 SAN

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N00236 / 002963 PROJECT NO. 02-125.11 REPORT N68711-02-D-8213 2	01-07-2008 **03-01-2006** 00016	INNOVATIVE TECHNICAL SOLUTIONS, INC. BRAC PMO WEST	SUMMER 2005 QUARTERLY GROUNDWATER MONITORING DATA REPORT (INCLUDES ANALYTICAL DATA)	ADMIN RECORD INFO REPOSITORY	SITE 00001 SITE 00002 SITE 00003 SITE 00005 SITE 00006 SITE 00007 SITE 00008 SITE 00009 SITE 00014 SITE 00016 SITE 00025 SITE 00027 SITE 00028 SITE 00032	FRC - PERRIS IMAGED APNT_035	181-08-0082 40095306 SAI	BOX 0090 BOX 0091 BOX 0092 BOX 0093 BOX 0094 BOX 0095 BOX 0096 BOX 0097
N00236 / 002264 NONE REPORT N68711-02-D-6009 81	04-10-2006 **03-29-2006** 00007	BATTELLE BRAC PMO WEST	FIELD SUMMARY REPORT, EXPEDITED FIELD SAMPLING (CD COPY ENCLOSED) [SEE AR #2265 - BRAC TRANSMITTAL LETTER BY T. MACCHIARELLA]	ADMIN RECORD INFO REPOSITORY	015 SITE 00001	FRC - PERRIS IMAGED APNT_006	181-08-0082 40095306 SAI	BOX 0050
N00236 / 002265 BRAC SER BPMOW.AB\0307 CORRESPONDENC NONE 4	04-10-2006 **03-29-2006** NONE	BRAC PMO WEST T. MACCHIARELLA VARIOUS AGENCIES	TRANSMITTAL OF FIELD SUMMARY REPORT, EXPEDITED FIELD SAMPLING (PORTION OF THE MAILING LIST IS CONFIDENTIAL) [SEE AR #2264 - FIELD SUMMARY REPORT, EXPEDITED FIELD SAMPLING]	ADMIN RECORD INFO REPOSITORY SENSITIVE	015 SITE 00001	FRC - PERRIS IMAGED APNT_006	181-08-0082 40095306 SAI	BOX 0050
N00236 / 001008 NOSSA SER N539/663 CORRESPONDENC NONE 2	08-07-2008 **04-24-2006** NONE	NAVAL ORDNANCE SAFETY & SECURITY ACTIVITY - INDIAN HEAD, MD CLEMENTS, P. BRAC PMO WEST	APPROVAL OF REQUEST FOR WAIVER OF EXPLOSIVE SAFETY SUBMISSION (ESS)	ADMIN RECORD	SITE 00001 SITE 00002	NAVFAC SOUTHWEST - BLDG. 1 SW-20090213-1/5 IMAGED APNT_043		

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N00236 / 002416 BRAC SER BPMOW.AB\0429 CORRESPONDENC NONE 4	08-21-2006 **05-15-2006** NONE	BRAC PMO WEST T. MACCHIARELLA VARIOUS AGENCIES	TRANSMITTAL OF DRAFT PROPOSED PLAN (PP), 1943-1956 DISPOSAL AREA (W/OUT ENCLOSURE) [SEE AR #2417 - DRAFT PP]	ADMIN RECORD	SITE 00001	FRC - PERRIS IMAGED APNT_016	181-03-0179 41074200	BOX 0025
N00236 / 002417 DS.B119.20632 REPORT N68711-03-D-5104 27	08-21-2006 **05-15-2006** 00119	TETRA TECH EM INC. S. BRADLEY BRAC PMO WEST	DRAFT PROPOSED PLAN, 1943 - 1956 DISPOSAL AREA (SEE AR #2416 - BRAC PMO WEST TRANSMITTAL LETTER BY T. MACCHIARELLA)	ADMIN RECORD	SITE 00001	FRC - PERRIS IMAGED APNT_016	181-03-0179 41074200	BOX 0025
N00236 / 002512 FILE NO. 2199.9285(JCH) CORRESPONDENC NONE 3	09-06-2006 **06-12-2006** NONE	CRWQCB - OAKLAND J. HUANG BRAC PMO WEST T. MACCHIARELLA	REVIEW AND COMMENTS ON DRAFT PROPOSED PLAN (PP), 1943 - 1956 DISPOSAL AREA (PORTION OF THE MAILING LIST IS SENSITIVE)	ADMIN RECORD SENSITIVE	SITE 00001	FRC - PERRIS IMAGED APNT_016	181-03-0179 41074200	BOX 0004
N00236 / 002511 NONE CORRESPONDENC NONE 4	09-06-2006 **06-22-2006** NONE	DTSC - SACRAMENTO LOFSTROM, D. BRAC PMO WEST T. MACCHIARELLA	REQUEST FOR THIRTY (30) DAY EXTENSION FOR REVIEW OF PROPOSED PLAN (PP), 1943 - 1956 DISPOSAL AREA (PORTION OF THE MAILING LIST IS SENSITIVE)	ADMIN RECORD SENSITIVE	SITE 00001	FRC - PERRIS IMAGED APNT_008	181-03-0179 41074200	BOX 0004
N00236 / 002514 NONE CORRESPONDENC NONE 3	09-06-2006 **07-18-2006** NONE	DTSC - SACRAMENTO LOFSTROM, D. BRAC PMO WEST T. MACCHIARELLA	REVIEW AND COMMENTS ON DRAFT PROPOSED PLAN (PP), 1943 - 1956 DISPOSAL AREA	ADMIN RECORD	SITE 00001	FRC - PERRIS IMAGED APNT_016	181-03-0179 41074200	BOX 0004

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N00236 / 002513 NONE CORRESPONDENC NONE 4	09-06-2006 **07-27-2006** NONE	CITY OF ALAMEDA D. POTTER BRAC PMO WEST T. MACCHIARELLA	REVIEW AND COMMENTS ON DRAFT PROPOSED PLAN (PP), 1943 - 1956 DISPOSAL AREA	ADMIN RECORD	SITE 00001	FRC - PERRIS IMAGED APNT_016	181-03-0179 41074200	BOX 0004
N00236 / 002497 NONE CORRESPONDENC NONE 4	08-29-2006 **08-09-2006** NONE	DTSC - SACRAMENTO LOFSTROM, D. BRAC PMO WEST T. MACCHIARELLA	REVIEW AND COMMENTS ON DRAFT PROPOSED PLAN (PP), 1943 - 1956 DISPOSAL AREA	ADMIN RECORD	SITE 00001	FRC - PERRIS IMAGED APNT_016	181-03-0179 41074200	BOX 0004
N00236 / 002419 DS.B119.20633 REPORT N68711-03-D-5104 39	08-21-2006 **08-11-2006** 00119	TETRA TECH EM INC. S. BRADLEY BRAC PMO WEST	DRAFT FINAL PROPOSED PLAN (PP), 1943 - 1956 DISPOSAL AREA (INCLUDES RESPONSE TO AGENCY AND RESPONSE TO CITY COMMENTS) [CD COPY ENCLOSED] {SEE AR #2418 - BRAC PMO WEST TRANSMITTAL LETTER BY T. MACCHIARELLA}	ADMIN RECORD	SITE 00001	FRC - PERRIS IMAGED APNT_016	181-03-0179 41074200	BOX 0025
N00236 / 002500 FILE NO. 06-0405 REPORT N62473-06-D-2201 19	08-29-2006 **08-11-2006** 00008	TETRA TECH EC INC. N. HART NAVFAC - SOUTHWEST DIVISION	FINAL VEGETATION CLEARANCE PLAN, RADIOLOGICAL SURVEY, AND SHORELINES (SEE AR #2499 - BRAC PMO WEST TRANSMITTAL LETTER BY T. MACCHIARELLA)	ADMIN RECORD INFO REPOSITORY	032 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_008	181-03-0179 41074200	BOX 0004
N00236 / 002418 BRAC SER BPMOW.AB\0692 CORRESPONDENC NONE 3	08-21-2006 **08-14-2006** NONE	BRAC PMO WEST T. MACCHIARELLA VARIOUS AGENCIES	TRANSMITTAL OF DRAFT FINAL PROPOSED PLAN (PP), 1943 - 1956 DISPOSAL AREA (W/OUT ENCLOSURE) [SEE AR #2419 - DRAFT FINAL PP]	ADMIN RECORD	SITE 00001	FRC - PERRIS IMAGED APNT_016	181-03-0179 41074200	BOX 0025

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N00236 / 003129 BRAC SER BPMOW.GL/0703 CORRESPONDENC NONE 6	05-21-2008 **08-14-2006** NONE	BRAC PMO WEST MACCHIARELLA, T. VARIOUS AGENCIES	TRANSMITTAL OF THE DRAFT FINAL AMENDMENT TO THE SITE MANAGEMENT PLAN (W/OUT ENCLOSURE)	ADMIN RECORD INFO REPOSITORY SENSITIVE	OU 0000001 OU 0000002A OU 0000004B OU 0000004C PARCEL EDC-12 PARCEL EDC-17 SITE 00001 SITE 00002 SITE 00014 SITE 00015 SITE 00024 SITE 00026 SITE 00030 SITE 00031 SITE 00034 SITE 00035	NAVFAC SOUTHWEST - BLDG. 1 SW-20090130-4/6 IMAGED APNT_043		
N00236 / 002501 ECSD-RACIV-06-0406 REPORT N62473-06-D-2201 544	08-29-2006 **08-22-2006** 00008	TETRA TECH EC INC. STEPHAN, C. BRAC PMO WEST	FINAL RADIOLOGICAL SURVEY WORK PLAN, RADIOLOGICAL SURVEY, AND SHORELINES (CD COPY ENCLOSED) [SEE AR #2499 - BRAC PMO WEST TRANSMITTAL LETTER BY T. MACCHIARELLA]	ADMIN RECORD INFO REPOSITORY	032 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_008	181-03-0179 41074200	BOX 0004
N00236 / 002499 BRAC SER BPMOW.AIB/0737 CORRESPONDENC NONE 2	08-29-2006 **08-23-2006** NONE	BRAC PMO WEST T. MACCHIARELLA VARIOUS AGENCIES	TRANSMITTAL OF 1) VEGETATION CLEARANCE PLAN, RADIOLOGICAL SURVEY AT SITE 32 AND SHORELINES AND 2) RADIOLOGICAL SURVEY WORK PLAN (WP), RADIOLOGICAL SURVEY, AND SHORELINES (W/OUT ENCLOSURES) [SEE AR #2500 - ENCLOSURE 1 AND AR #2501 - ENCLOSURE 2]	ADMIN RECORD INFO REPOSITORY	032 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_008	181-03-0179 41074200	BOX 0004
N00236 / 002582 DS.B119.20634 REPORT N68711-03-D-5104 31	10-31-2006 **09-01-2006** 00119	SULTECH S. BRADLEY NAVFAC - SOUTHWEST L. SILI	FINAL PROPOSED PLAN (PP), 1943-1956 DISPOSAL AREA (INCLUDES EPA RESPONSES TO COMMENTS ON DRAFT FINAL PP) [SEE AR #2581 - BRAC PMO WEST TRANSMITTAL LETTER]	ADMIN RECORD INFO REPOSITORY	SITE 00001	FRC - PERRIS IMAGED APNT_027	181-08-0082 40095306 SAI	BOX 0061

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)	
N00236 / 002517 BRAC SER BPMOW.AB\0765 CORRESPONDENC NONE 3	09-12-2006 **09-05-2006** NONE	BRAC PMO WEST T. MACCHIARELLA DTSC - SACRAMENTO D. LOFSTROM	RESPONSE TO DTSC LETTER DATED 9 AUGUST 2006, REGARDING DRAFT PROPOSED PLAN (PP), 1943 - 1956 DISPOSAL AREA	ADMIN RECORD	SITE 00001	FRC - PERRIS IMAGED APNT_008	181-03-0179 41074200	BOX 0004
N00236 / 002530 NONE CORRESPONDENC NONE 3	09-14-2006 **09-06-2006** NONE	DTSC - SACRAMENTO LOFSTROM, D. BRAC PMO WEST T. MACCHIARELLA	REVIEW AND COMMENTS ON DRAFT FINAL PROPOSED PLAN (PP), 1943 - 1956 DISPOSAL AREA	ADMIN RECORD	SITE 00001	FRC - PERRIS IMAGED APNT_016	181-03-0179 41074200	BOX 0005
N00236 / 002581 BRAC SER BPMOW.AB\0809 CORRESPONDENC NONE 3	10-31-2006 **09-27-2006** NONE	BRAC PMO WEST T. MACCHIARELLA VARIOUS AGENCIES	TRANSMITTAL OF FINAL PROPOSED PLAN (PP), 1943-1956 DISPOSAL AREA (W/OUT ENCLOSURE) [SEE AR #2582 - FINAL PP]	ADMIN RECORD INFO REPOSITORY	SITE 00001	FRC - PERRIS IMAGED APNT_027	181-08-0082 40095306 SAI	BOX 0061
N00236 / 002565 BRAC SER BPMOW.AB/0014 CORRESPONDENC NONE 6	10-19-2006 **10-11-2006** NONE	BRAC PMO WEST T. MACCHIARELLA VARIOUS AGENCIES	TRANSMITTAL OF DRAFT ACTION MEMORANDUM (AM), CERCLA TIME-CRITICAL REMOVAL ACTION (TCRA) [W/OUT ENCLOSURE] {SEE AR #2566 - DRAFT AM}	ADMIN RECORD INFO REPOSITORY	032 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_008	181-03-0179 41074200	BOX 0007
N00236 / 002566 ECSD-RACIV-06-0443 REPORT N62473-06-D-2201 198	10-19-2006 **10-11-2006** 00015	TETRA TECH EC INC. NAVFAC - SOUTHWEST	DRAFT ACTION MEMORANDUM (AM), CERCLA TIME-CRITICAL REMOVAL ACTION (TCRA) [SEE AR #2565 - BRAC PMO WEST TRANSMITTAL LETTER BY T. MACCHIARELLA]	ADMIN RECORD INFO REPOSITORY	032 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_008	181-03-0179 41074200	BOX 0007

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)	
N00236 / 002567 BRAC SER BPMOW.AB/0015 CORRESPONDENC NONE 7	10-19-2006 **10-11-2006** NONE	BRAC PMO WEST T. MACCHIARELLA VARIOUS AGENCIES	TRANSMITTAL OF DRAFT TIME-CRITICAL REMOVAL ACTION (TCRA) WORK PLAN (WP) [W/OUT ENCLOSURE] {PORTION OF THE MAILING LIST IS SENSITIVE} (SEE AR #2568 - DRAFT TCRA WP)	ADMIN RECORD INFO REPOSITORY SENSITIVE	032 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_008	181-03-0179 41074200	BOX 0007
N00236 / 002568 ECSD-RACIV-06-0442 REPORT N62473-06-D-2201 794	10-19-2006 **10-11-2006** 00015	TETRA TECH EC, INC. ELOSKOF, A. BRAC PMO WEST	DRAFT TIME-CRITICAL REMOVAL ACTION (TCRA) WORK PLAN (WP) [SEE AR #2567 - BRAC PMO WEST TRANSMITTAL LETTER BY T. MACCHIARELLA]	ADMIN RECORD INFO REPOSITORY	032 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_008	181-03-0179 41074200	BOX 0007
N00236 / 002617 FILE NO. 2199.9285(EWS) CORRESPONDENC NONE 4	11-22-2006 **11-07-2006** NONE	CRWQCB - OAKLAND E. SIMON BRAC PMO WEST T. MACCHIARELLA	REVIEW AND COMMENTS ON DRAFT ACTION MEMORANDUM (AM) FOR CERCLA TIME-CRITICAL REMOVAL ACTION (TCRA)	ADMIN RECORD INFO REPOSITORY	032 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_028	181-08-0082 40095306 SAI	BOX 0061
N00236 / 002628 NONE CORRESPONDENC NONE 1	12-14-2006 **11-08-2006** NONE	DHS - SACRAMENTO P. LEINWANDER DTSC - SACRAMENTO D. LOFSTROM	REVIEW AND NO COMMENTS ON DRAFT ACTION MEMORANDUM (AM) FOR CERCLA TIME-CRITICAL REMOVAL ACTION (TCRA)	ADMIN RECORD INFO REPOSITORY	032 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_028	181-08-0082 40095306 SAI	BOX 0062
N00236 / 002625 NONE CORRESPONDENC NONE 4	12-08-2006 **11-09-2006** NONE	CITY OF ALAMEDA D. POTTER BRAC PMO WEST T. MACCHIARELLA	REVIEW AND COMMENTS ON FINAL PROPOSED PLAN (PP), 1943 - 1956 DISPOSAL AREA	ADMIN RECORD INFO REPOSITORY	SITE 00001	FRC - PERRIS IMAGED APNT_028	181-08-0082 40095306 SAI	BOX 0062

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N00236 / 003165 NONE CORRESPONDENC NONE 15	06-04-2008 **11-10-2006** NONE	PM STRAUSS & ASSOCIATES STRAUSS, P. BRAC PMO WEST MACCHIARELLA, T.	COMMENTS ON THE PROPOSED PLAN (INCLUDES COMMENTS ON BEHALF OF THE ALAMEDA POINT RESTORATION ADVISORY BOARD DATED 06 NOVEMBER 2006)	ADMIN RECORD INFO REPOSITORY	SITE 00001	NAVFAC SOUTHWEST - BLDG. 1 SW-20090130-5/6 IMAGED APNT_042	
N00236 / 003166 NONE CORRESPONDENC NONE 4	06-04-2008 **11-10-2006** NONE	RAB CO-CHAIR HUMPHREYS, G. BRAC PMO WEST MACCHIARELLA, T.	RESPONSE TO COMMENTS ON THE PROPOSED PLAN	ADMIN RECORD INFO REPOSITORY SENSITIVE	SITE 00001	NAVFAC SOUTHWEST - BLDG. 1 SW-20090130-5/6 IMAGED APNT_042	
N00236 / 002677 NONE CORRESPONDENC NONE 11	01-29-2007 **11-13-2006** NONE	DTSC - SACRAMENTO LOFSTROM, D. BRAC PMO WEST T. MACCHIARELLA	REVIEW AND COMMENTS ON DRAFT ACTION MEMORANDUM (AM) TIME CRITICAL REMOVAL ACTION (TCRA) WORK PLAN	ADMIN RECORD INFO REPOSITORY	032 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_028	181-08-0082 40095306 SAN BOX 0063
N00236 / 002629 NONE CORRESPONDENC NONE 3	12-14-2006 **11-17-2006** NONE	DHS - SACRAMENTO P. LEINWANDER DTSC - SACRAMENTO D. LOFSTROM	REVIEW AND COMMENTS ON DRAFT TIME-CRITICAL REMOVAL ACTION (TCRA)	ADMIN RECORD INFO REPOSITORY	032 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_028	181-08-0082 40095306 SAN BOX 0062
N00236 / 002678 NONE CORRESPONDENC NONE 10	01-29-2007 **12-22-2006** NONE	DTSC - SACRAMENTO LOFSTROM, D. BRAC PMO WEST T. MACCHIARELLA	REVIEW AND COMMENTS ON DRAFT TIME CRITICAL REMOVAL ACTION (TCRA) WORK PLAN (PORTION OF THE MAILING LIST IS SENSITIVE)	ADMIN RECORD INFO REPOSITORY SENSITIVE	032 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_028	181-08-0082 40095306 SAN BOX 0063

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N00236 / 002979 NONE CORRESPONDENC NONE 4	01-24-2008 **12-27-2006** NONE	DTSC - SACRAMENTO, CA LOFSTROM, D. BRAC PMO WEST MACCHIARELLA, T.	COMMENTS ON THE DRAFT SPRING 2006, ALAMEDA BASEWIDE, ANNUAL GROUNDWATER MONITORING REPORT	ADMIN RECORD SENSITIVE	SITE 00001 SITE 00002 SITE 00003 SITE 00005 SITE 00006 SITE 00007 SITE 00008 SITE 00009 SITE 00014 SITE 00016 SITE 00027 SITE 00028 SITE 00032	NAVFAC SOUTHWEST - BLDG. 1 SW-20081219-2/8 IMAGED APNT_039		
N00236 / 002741 TC.B130.12389 MINUTES N68711-03-D-5104 100	04-25-2007 **01-23-2007** 00130	SULTECH NAVFAC - SOUTHWEST DIVISION	23 JANUARY 2007 BASE REALIGNMENT AND CLOSURE (BRAC) CLEANUP TEAM (BCT) FINAL MONTHLY TRACKING MEETING MINUTES AFTER ACTION REPORT (INCLUDES AGENDA, HANDOUT MATERIALS, AND VARIOUS ATTACHMENTS)	ADMIN RECORD INFO REPOSITORY	OU 00001 OU 00005 OU 0002A OU 0002B SITE 00001 SITE 00002 SITE 00004 SITE 00005 SITE 00032	FRC - PERRIS IMAGED APNT_032	181-08-0082 40095306 SAN	BOX 0079
N00236 / 002705 BRAC SER BPMOW.AB/0282 CORRESPONDENC NONE 3	03-14-2007 **01-26-2007** NONE	BRAC PMO WEST MACCHIARELLA, T. VARIOUS AGENCIES	REQUEST FOR THIRTY (30) DAY EXTENSION ON THE SUBMITTAL OF DRAFT RECORD OF DECISION (ROD)	ADMIN RECORD INFO REPOSITORY	OU 3 SITE 00001	FRC - PERRIS IMAGED APNT_030	181-08-0082 40095306 SAN	BOX 0065
N00236 / 002689 BRAC SER BPMOW.AB/0284 CORRESPONDENC NONE 2	02-08-2007 **01-31-2007** NONE	BRAC PMO WEST T. MACCHIARELLA VARIOUS AGENCIES	TRANSMITTAL OF FINAL ACTION MEMORANDUM (AM), CERCLA TIME-CRITICAL REMOVAL ACTION (TCRA) [W/OUT ENCLOSURE] {SEE AR #2690 - FINAL ACTION MEMORANDUM}	ADMIN RECORD INFO REPOSITORY	032 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_028	181-08-0082 40095306 SAN	BOX 0063

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N00236 / 002690 07-0231 REPORT N62473-06-D-2201 229	02-08-2007 **01-31-2007** 00015	TETRA TECH EC, INC. BRAC PMO WEST	FINAL ACTION MEMORANDUM (AM), CERCLA TIME-CRITICAL REMOVAL ACTION (TCRA) [INCLUDES RESPONSES TO COMMENTS ON DRAFT ACTION MEMORANDUM AND CD COPY] {SEE AR #2689 - BRAC PMO WEST TRANSMITTAL LETTER}***SEE COMMENTS	ADMIN RECORD INFO REPOSITORY	032 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_028	181-08-0082 40095306 SAN	BOX 0063
N00236 / 002691 BRAC SER BPMOW.AB/0283 CORRESPONDENC NONE 2	02-08-2007 **01-31-2007** NONE	BRAC PMO WEST T. MACCHIARELLA VARIOUS AGENCIES	TRANSMITTAL OF DRAFT FINAL TIME-CRITICAL REMOVAL ACTION (TCRA) WORK PLAN [W/OUT ENCLOSURE] {SEE AR #2692 - DRAFT FINAL TCRA WORK PLAN}	ADMIN RECORD INFO REPOSITORY	032 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_028	181-08-0082 40095306 SAN	BOX 0063
N00236 / 002965 NO. 02-125.11.06 REPORT N68711-02-D-8213 1493	01-07-2008 **02-01-2007** 00016	INNOVATIVE TECHNICAL SOLUTIONS, INC. LEONARD, K. BRAC PMO WEST	FINAL SPRING 2006 BASEWIDE ANNUAL GROUNDWATER MONITORING REPORT, VOLUMES 1 AND 2 OF 2 (INCLUDES ANALYTICAL DATA, CD COPY, AND RESPONSE TO COMMENTS ON THE DRAFT) {***SEE COMMENTS***}	ADMIN RECORD INFO REPOSITORY	SITE 00001 SITE 00002 SITE 00003 SITE 00005 SITE 00006 SITE 00007 SITE 00008 SITE 00009 SITE 00014 SITE 00016 SITE 00027 SITE 00028 SITE 00032	FRC - PERRIS IMAGED APNT_033	181-08-0082 40095306 SAN	BOX 0097 BOX 0098 BOX 0099 BOX 0100 BOX 0101 BOX 0102
N00236 / 002695 BRAC SER BPMOW.AB/0333 CORRESPONDENC NONE 2	02-27-2007 **02-07-2007** NONE	BRAC PMO WEST T. MACCHIARELLA NAVAL ORDNANCE SAFETY & SECURI	TRANSMITTAL OF FINAL EXPLOSIVES SAFETY SUBMISSION (ESS) [W/OUT ENCLOSURE] {SEE AR #2696 - FINAL ESS}	ADMIN RECORD INFO REPOSITORY	SITE 00001	FRC - PERRIS IMAGED APNT_028	181-08-0082 40095306 SAN	BOX 0064

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N00236 / 002696 07-0327 REPORT N62473-06-D-2201 100	02-27-2007 **02-07-2007** 00015	TETRA TECH EC, INC. ELOSKOF, A. BRAC PMO WEST	FINAL EXPLOSIVES SAFETY SUBMISSION (ESS) [SEE AR #2695 - BRAC PMO WEST TRANSMITTAL LETTER, AR# 2750 - REVISION 1, AR# 2775 - REVISION 2, AND AR# 2797 - REVISION 3] {***SEE COMMENTS}	ADMIN RECORD INFO REPOSITORY	SITE 00001	FRC - PERRIS IMAGED APNT_028	181-08-0082 BOX 0064 40095306 SAN
N00236 / 002708 BRAC SER BPMOW.AB/0392 CORRESPONDENC NONE 3	03-14-2007 **02-26-2007** NONE	BRAC PMO WEST MACCHIARELLA, T. VARIOUS AGENCIES	REQUEST FOR EXTENSION OF THE SUBMITTAL OF THE DRAFT RECORD OF DECISION	ADMIN RECORD INFO REPOSITORY	OU 0003 SITE 00001	FRC - PERRIS IMAGED APNT_030	181-08-0082 BOX 0065 40095306 SAN
N00236 / 002987 NONE CORRESPONDENC NONE 5	01-28-2008 **02-27-2007** NONE	DTSC - SACRAMENTO, CA LOFSTROM, D. BRAC PMO WEST MACCHIARELLA, T.	REVIEW AND COMMENTS ON THE DRAFT SPRING 2006, ANNUAL GROUNDWATER MONITORING REPORT	ADMIN RECORD INFO REPOSITORY SENSITIVE	SITE 00001 SITE 00002 SITE 00003 SITE 00005 SITE 00006 SITE 00007 SITE 00008 SITE 00009 SITE 00014 SITE 00016 SITE 00027 SITE 00028 SITE 00032	NAVFAC SOUTHWEST - BLDG. 1 SW-20081219-2/8 IMAGED APNT_039	
N00236 / 002692 ECSD-RACIV-07-0232 & 0748 REPORT N62473-06-D-2201 814	02-08-2007 **03-02-2007** 00015	TETRA TECH EC, INC. ELOSKOF, A. BRAC PMO WEST	FINAL TIME-CRITICAL REMOVAL ACTION (TCRA) WORK PLAN (INCLUDES REPLACEMENT PAGES CONVERTING DRAFT FINAL DATED 31 JANUARY 2007 TO FINAL, RESPONSES TO COMMENTS ON DRAFT TCRA WORK PLAN, AND A CD COPY) [***SEE COMMENTS.]	ADMIN RECORD INFO REPOSITORY	SITE 00001 SITE 00002 SITE 00032	FRC - PERRIS IMAGED APNT_028	181-08-0082 BOX 0063 40095306 SAN

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)
N00236 / 002750 07-0327-1 REPORT N62473-06-D-2201 98	05-07-2007 **03-02-2007** 00015	TETRA TECH EC, INC. BRAC PMO WEST	FINAL EXPLOSIVES SAFETY SUBMISSION, REVISION 1 (SEE AR# 2696 FINAL EXPLOSIVES SAFEETY SUBMISSION AND AR# 2775 - REVISION 2)	ADMIN RECORD INFO REPOSITORY	SITE 00001	FRC - PERRIS IMAGED APNT_028	181-08-0082 40095306 SAI BOX 0080
N00236 / 002825 BRAC SER BPMOW.AB/0390 CORRESPONDENC NONE 6	09-07-2007 **03-02-2007** NONE	BRAC PMO WEST T. MACCHIARELLA VARIOUS AGENCIES	TRANSMITTAL OF FINAL TIME-CRITICAL REMOVAL ACTION (TCRA) WORK PLAN (W/OUT ENCLOSURE) [SEE AR# 2692 - FINAL TCRA WORK PLAN] {PORTION OF THE MAILING LIST IS SENSITIVE}	ADMIN RECORD INFO REPOSITORY SENSITIVE	032 SITE 00001 SITE 00002	FRC - PERRIS IMAGED APNT_028	181-08-0082 40095306 SAI BOX 0086
N00236 / 002775 07-0327.R2 REPORT N62473-06-D-2201 48	06-04-2007 **03-09-2007** 00015	TETRA TECH EC, INC. ELOSKOF, A. BRAC PMO WEST	FINAL EXPLOSIVE SAFETY SUBMISSION, REVISION 2 (SEE AR# 2696 - FINAL EXPLOSIVES SAFETY SUBMISSION AND AR# 2750 - REVISION 1)	ADMIN RECORD INFO REPOSITORY	SITE 00001	FRC - PERRIS IMAGED APNT_028	181-08-0082 40095306 SAI BOX 0081
N00236 / 002802 SER N539/418 CORRESPONDENC NONE 2	08-02-2007 **03-15-2007** NONE	NAVAL ORDNANCE SAFETY & SECURITY ACTIVITY - INDIAN HEAD CLEMENTS, P. BRAC PMO WEST	REVIEW AND CONCURRENCE ON THE EXPLOSIVES SAFETY SUBMISSION (ESS) INTERIM APPROVAL [SEE AR # 2696 - FINAL EXPLOSIVES SAFETY SUBMISSION INTERIM APPROVAL]	ADMIN RECORD INFO REPOSITORY	SITE 00001	FRC - PERRIS IMAGED APNT_045	181-08-0082 40095306 SAI BOX 0082
N00236 / 002761 DS.B119.20636 REPORT N68711-03-D-5104 390	05-18-2007 **04-01-2007** 00119	SULTECH BRAC PMO WEST	DRAFT RECORD OF DECISION (ROD), 1943-1956 DISPOSAL AREA (CD COPY ENCLOSED)	ADMIN RECORD INFO REPOSITORY	SITE 00001	FRC - PERRIS IMAGED APNT_030	181-08-0082 40095306 SAI BOX 0080

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N00236 / 002760 BRAC SER BPMOW.AB/0467 CORRESPONDENC NONE 4	05-18-2007 **04-11-2007** NONE	BRAC PMO WEST MACCHIARELLA, T. VARIOUS AGENCIES	TRANSMITTAL OF DRAFT RECORD OF DECISION (ROD), 1943-1956 DISPOSAL AREA (W/OUT ENCLOSURE) [SEE AR #2761 - DRAFT RECORD OF DECISION]	ADMIN RECORD INFO REPOSITORY	SITE 00001	FRC - PERRIS IMAGED APNT_030	181-08-0082 40095306 SAI	BOX 0080
N00236 / 002985 NONE CORRESPONDENC NONE 24	01-28-2008 **05-08-2007** NONE	DTSC - SACRAMENTO, CA GOSS, S. BRAC PMO WEST MACCHIARELLA, T.	REVIEW AND COMMENTS ON THE DRAFT SITE INSPECTION REPORT, WESTERN BAYSIDE AND BREAKWATER BEACH (INCLUDES GSU COMMENTS DATED 27 APRIL 2007, DEPT. OF FISH AND GAME COMMENTS DATED 11 MAY 2007, AND HERD COMMENTS DATED 07 MAY 2007)	ADMIN RECORD INFO REPOSITORY SENSITIVE	SITE 00001 SITE 00002	NAVFAC SOUTHWEST - BLDG. 1 SW-20081219-2/8 IMAGED APNT_039		
N00236 / 002929 SER N539/823 CORRESPONDENC NONE 7	11-05-2007 **05-22-2007** NONE	NAVAL ORDNANCE SAFETY AND SECURITY ACTIVITY (NOSSA) CLEMENTS, P. BRAC PMO WEST	NAVAL ORDNANCE SAFETY AND SECURITY ACTIVITY (NOSSA) AUDIT REPORT OF THE MUNITIONS RESPONSE PROJECT	ADMIN RECORD INFO REPOSITORY	SITE 00001	FRC - PERRIS IMAGED APNT_032	181-08-0082 40095306 SAI	BOX 0088
N00236 / 002805 NONE CORRESPONDENC NONE 2	08-02-2007 **06-13-2007** NONE	DTSC - SACRAMENTO LOFSTROM, D. BRAC PMO WEST MACCHIARELLA, T.	REQUEST FOR THIRTY DAY EXTENSION FOR REVIEW OF DRAFT RECORD OF DECISION, 1943-1956 DISPOSAL AREAS [SEE AR # 2761 - DRAFT RECORD OF DECISION]	ADMIN RECORD INFO REPOSITORY	SITE 00001	FRC - PERRIS IMAGED APNT_031	181-08-0082 40095306 SAI	BOX 0082
N00236 / 002797 ECSD-RACIV-07-0327.R3 REPORT N62473-06-D-2201 11	08-02-2007 **06-18-2007** 00015	BRAC PMO WEST ELOSKOF, A. TETRA TECH EC, INC.	FINAL EXPLOSIVES SAFETY SUBMISSION (ESS), REVISION 3 (SEE AR # 2796 - BRAC PMOW TRANSMITTAL LETTER AND 2696 - FINAL EXPLOSIVES SAFETY SUBMISSION] [CD COPY IS ENCLOSED]	ADMIN RECORD INFO REPOSITORY	SITE 00001	FRC - PERRIS IMAGED APNT_045	181-08-0082 40095306 SAI	BOX 0082

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)
N00236 / 001408 SULT-5104-0012-0002 REPORT N68711-03-D-5104 694	08-29-2008 **06-22-2007** CTO 0012	SULTECH HUNTER, C. BRAC PMO WEST	INFORMATIONAL DRAFT - COMPENDIUM OF SOLID WASTE MANAGEMENT UNIT (SWMU) EVALUATION REPORTS, HAZARDOUS WASTE PERMIT 2170023236 (CD COPY ENCLOSED)	SITE FILE (SF)	OU 0000001 OU 0000002A OU 0000002B OU 0000002C OU 0000003 OU 0000004A OU 0000006 PARCEL 001A PARCEL 003 PARCEL 005 PARCEL 009 PARCEL 012 PARCEL 017 SITE 00001 SITE 00002 SITE 00003 SITE 00004 SITE 00005 SITE 00006 SITE 00007 SITE 00008 SITE 00009 SITE 00010 SITE 00011 SITE 00012 SITE 00013 SITE 00014 SITE 00019 SITE 00021 SITE 00022 SITE 00023 SITE 00026 SITE 00027 SITE 00032 SITE 00034	NAVFAC SOUTHWEST - BLDG. 1 SW-20081219-2/8 IMAGED APNT_039	

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N00236 / 002803 FILE: 2199.9285(EWS) CORRESPONDENC NONE 5	08-02-2007 **07-10-2007** NONE	CRWQCB - OAKLAND SIMON, E. BRAC PMO WEST MACCHIARELLA, T.	COMMENTS ON THE DRAFT RECORD OF DECISION, 1943-1956 DISPOSAL AREA [SEE AR # 2761 - DRAFT RECORD OF DECISION]	ADMIN RECORD INFO REPOSITORY	SITE 00001	FRC - PERRIS IMAGED APNT_031	181-08-0082 BOX 0082 40095306 SAN
N00236 / 002930 NONE CORRESPONDENC NONE 8	11-05-2007 **07-10-2007** NONE	US EPA - SAN FRANCISCO TRAN, X. BRAC PMO WEST MACCHIARELLA, T.	REQUEST FOR A 30-DAY EXTENSION FOR THE REVIEW PERIOD OF THE DRAFT RECORD OF DECISION (INCLUDES DRAFT COMMENTS) [SEE AR # 2761 - RECORD OF DECISION]	ADMIN RECORD INFO REPOSITORY	SITE 00001	FRC - PERRIS IMAGED APNT_031	181-08-0082 BOX 0088 40095306 SAN
N00236 / 002928 BRAC SER BPMOW.VCW/0018 CORRESPONDENC NONE 3	11-05-2007 **07-16-2007** NONE	BRAC PMO WEST DUCHNAK, L. NAVAL ORDNANCE SAFETY AND SECURITY ACTIVITY	RESPONSE TO THE NAVAL ORDNANCE SAFETY & SECURITY ACTIVITY (NOSSA) AUDIT REPORT FOR THE TIME-CRITICAL REMOVAL ACTION (TCRA) WORK PLAN [SEE AR # 2692 - FINAL TIME-CRITICAL RA WORK PLAN] (SEE COMMENTS)	ADMIN RECORD INFO REPOSITORY	SITE 00001 SITE 00002 SITE 00032	FRC - PERRIS IMAGED APNT_045	181-08-0082 BOX 0088 40095306 SAN
N00236 / 002796 BRAC SER BPMOW.AB/0678 CORRESPONDENC NONE 2	08-02-2007 **07-18-2007** NONE	BRAC PMO WEST MACCHIARELLA, T. NAVAL ORDNANCE SAFETY AND SECURITY ACTIVITY	TRANSMITTAL OF FINAL EXPLOSIVES SAFETY SUBMISSION (ESS), REVISION 3 (W/OUT ENCLOSURE) [SEE AR # 2797 - FINAL EXPLOSIVES SAFETY SUBMISSION (ESS), REVISION 3]	ADMIN RECORD INFO REPOSITORY	SITE 00001	FRC - PERRIS IMAGED APNT_045	181-08-0082 BOX 0082 40095306 SAN
N00236 / 002812 ECSD-2201-0015-0001 REPORT N62473-06-D-2201 18	08-20-2007 **08-08-2007** 00015	TETRA TECH EM INC. G. JOYCE BRAC PMO WEST	DRAFT ADDENDUM 1 TO THE FINAL SAMPLING AND ANALYSIS PLAN (FIELD SAMPLING PLAN QUALITY ASSURANCE PROJECT PLAN) {CD COPY ENCLOSED} [SEE RA # 2692 - FINAL TIME-CRITICAL REMOVAL ACTION WORK PLAN]	ADMIN RECORD INFO REPOSITORY	SITE 00001 SITE 00002 SITE 00032	FRC - PERRIS IMAGED APNT_034	181-08-0082 BOX 0082 40095306 SAN

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N00236 / 002840 SULT.5104.0130.004 2 REPORT N68711-03-D-5104 23	09-17-2007 **08-08-2007** 00130	SULTECH HUNTER, C. BRAC PMO WEST	APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARS) TEMPLATE (CD COPY IS ENCLOSED)	ADMIN RECORD INFO REPOSITORY	OU 0001 SITE 00001 SITE 00002 SITE 00005 SITE 00006 SITE 00008 SITE 00010 SITE 00011 SITE 00012 SITE 00014 SITE 00015 SITE 00017 SITE 00020 SITE 00021 SITE 00024 SITE 00026 SITE 00027 SITE 00028 SITE 00029 SITE 00032 SITE 00034 SITE 00035	FRC - PERRIS IMAGED APNT_045	181-08-0082 BOX 0086 40095306 SAI
N00236 / 002938 NONE CORRESPONDENC NONE 17	11-07-2007 **08-16-2007** NONE	DTSC - SACRAMENTO LOFSTROM, D. BRAC PMO WEST MACCHIARELLA, T.	REVIEW AND COMMENTS ON DRAFT RECORD OF DECISION (ROD) 1943 - 1956 DISPOSAL AREA (INCLUDES DTSC OFFICE OF MILITARY FACILITIES COMMENTS AND DPH COMMENTS DATED 06 JULY 2007) [SEE AR # 2761 - DRAFT ROD]	ADMIN RECORD INFO REPOSITORY	SITE 00001	FRC - PERRIS IMAGED APNT_031	181-08-0082 BOX 0088 40095306 SAI
N00236 / 002817 ECSD-2201-0015- 0002 REPORT N62473-06-D-2201 18	08-24-2007 **08-20-2007** 00015	TETRA TECH EM INC. WEINGARDT, K. BRAC PMO WEST	DRAFT ADDENDUM TO THE FINAL TIME-CRITICAL REMOVAL ACTION WORK PLAN (CD COPY ENCLOSED) [SEE AR #2692 - FINAL TIME-CRITICAL REMOVAL ACTION WORK PLAN]	ADMIN RECORD INFO REPOSITORY	SITE 00001 SITE 00002 SITE 00032	FRC - PERRIS IMAGED APNT_032	181-08-0082 BOX 0084 40095306 SAI

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N00236 / 002948 BRAC SER BPMOW.ALB/0805 CORRESPONDENC NONE 5	11-14-2007 **08-28-2007** NONE	BRAC PMO WEST MACCHIARELLA, T. VARIOUS AGENCIES	TRANSMITTAL OF FINAL ADDENDUM TO THE FINAL TIME-CRITICAL REMOVAL ACTION WORK PLAN (W/OUT ENCLOSURE) [SEE AR # 2949 - FINAL ADDENDUM] {PORTION OF MAILING LIST IS SENSITIVE}	ADMIN RECORD INFO REPOSITORY SENSITIVE	SITE 00001 SITE 00002 SITE 00032	FRC - PERRIS IMAGED APNT_032	181-08-0082 BOX 0089 40095306 SAN
N00236 / 002949 ECSD-2201-0015-0003 REPORT N62473-06-D-2201 25	11-14-2007 **08-30-2007** 00015	TETRA TECH EC INC. WEINGARDT, K. BRAC PMO WEST	FINAL ADDENDUM TO THE FINAL TIME-CRITICAL REMOVAL ACTION WORK PLAN (CD COPY ENCLOSED) [SEE AR # 2948 - BRAC PMOW TRANSMITTAL LETTER AND AR # 2692 - FINAL TIME-CRITICAL REMOVAL ACTION WORK PLAN]	ADMIN RECORD INFO REPOSITORY	SITE 00001 SITE 00002 SITE 00032	FRC - PERRIS IMAGED APNT_032	181-08-0082 BOX 0089 40095306 SAN
N00236 / 002933 NONE CORRESPONDENC NONE 1	11-05-2007 **09-17-2007** NONE	US EPA - SAN FRANCISCO MONTGOMERY, M. BRAC PMO WEST MACCHIARELLA, T.	REVIEW OF AND CONCURRENCE WITH THE TIME CRITICAL REMOVAL ACTION MEMORANDUM (SEE AR #2690 - FINAL ACTION MEMORANDUM)	ADMIN RECORD INFO REPOSITORY	SITE 00001 SITE 00002 SITE 00032	FRC - PERRIS IMAGED APNT_032	181-08-0082 BOX 0088 40095306 SAN

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N00236 / 002968 SULT.5104.0130.005 2 MINUTES N68711-03-D-5104 61	01-09-2008 **09-18-2007** 00130	SULTECH BRAC PMO WEST	18 SEPTEMBER 2007 FINAL BASE REALIGNMENT AND CLOSURE (BRAC) CLEANUP TEAM (BCT), MONTHLY TRACKING MEETING, AFTER ACTION REPORT (CD COPY ENCLOSED)	ADMIN RECORD INFO REPOSITORY	SITE 00001 SITE 00002 SITE 00003 SITE 00004 SITE 00005 SITE 00006 SITE 00007 SITE 00008 SITE 00009 SITE 00010 SITE 00011 SITE 00012 SITE 00013 SITE 00014 SITE 00016 SITE 00017 SITE 00019 SITE 00020 SITE 00021 SITE 00022 SITE 00023 SITE 00024 SITE 00025 SITE 00026 SITE 00027 SITE 00028 SITE 00030 SITE 00031 SITE 00032 SITE 00034 SITE 00035	FRC - PERRIS IMAGED APNT_034	181-08-0082 BOX 0103 40095306 SAN

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N00236 / 002966 BRAC SER BPMOW.AB/0859 CORRESPONDENC NONE 6	01-07-2008 **09-28-2007** NONE	BRAC PMO WEST MACCHIARELLA, T. VARIOUS AGENCIES	TRANSMITTAL OF RADIOLOGICAL CHARACTERIZATION REPORT SURVEY, RADIOLOGICAL SURVEY AT THE SHORELINES (W/OUT ENCLOSURE) [PORTION OF MAILING LIST IS SENSITIVE]	ADMIN RECORD INFO REPOSITORY SENSITIVE	SITE 00001 SITE 00002 SITE 00032	CHOICE IMAGING SOLUTIONS SW-20090213-5/5 IMAGED APNT_045	
N00236 / 002967 ECSD-2201-0008-0001 REPORT N62473-06-D-2201 478	01-07-2008 **09-28-2007** 00008	TETRA TECH EC, INC. ELOSKOF, A. BRAC PMO WEST	RADIOLOGICAL CHARACTERIZATION SURVEY REPORT, RADIOLOGICAL SURVEY AT THE SHORELINES (CD COPY ENCLOSED)	ADMIN RECORD INFO REPOSITORY	SITE 00001 SITE 00002 SITE 00032	FRC - PERRIS IMAGED APNT_033	181-08-0082 40095306 SAI BOX 0103
N00236 / 003159 ECSD-RACIV-07-0748.A1 REPORT N62473-06-D-2201 18	06-03-2008 **10-17-2007** CTO 0015	TETRA TECH EC, INC. JOYCE, G. BRAC PMO WEST	FINAL ADDENDUM 1 TO THE FINAL SAMPLING AND ANALYSIS PLAN (FIELD SAMPLING PLAN AND QUALITY ASSURANCE PROJECT PLAN) [CD COPY ENCLOSED] (SEE COMMENTS.)	ADMIN RECORD INFO REPOSITORY	SITE 00001 SITE 00002 SITE 00032	NAVFAC SOUTHWEST - BLDG. 1 SW-20090130-5/6 IMAGED APNT_042	
N00236 / 002905 ECSD-2201-0015-0004 REPORT N62473-06-D-2201 69	10-25-2007 **10-19-2007** 00015	TETRA TECH EM INC. WEINGARDT, K. BRAC PMO WEST	DRAFT SUMMARY OF FINDINGS EXPLORATORY TRENCHES (CD COPY ENCLOSED) [APPENDIX B VIDEO LOG IS ON CD ONLY]	ADMIN RECORD INFO REPOSITORY	SITE 00001 SITE 00002 SITE 00032	FRC - PERRIS IMAGED APNT_032	181-08-0082 40095306 SAI BOX 0088
N00236 / 002973 SULT.5104.0130.005 6 MINUTES N68711-03-D-5104 47	01-11-2008 **11-01-2007** 00130	SULTECH BRAC PMO WEST	01 NOVEMBER 2007 FINAL RESTORATION ADVISORY BOARD MEETING SUMMARY (INCLUDES AGENDA AND VARIOUS HANDOUTS) [CD COPY ENCLOSED]	ADMIN RECORD INFO REPOSITORY	SITE 00001 SITE 00003 SITE 00005 SITE 00010	FRC - PERRIS IMAGED APNT_034	181-08-0082 40095306 SAI BOX 0103

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N00236 / 003106 SULT-5104-0130-0058 MINUTES N68711-03-D-5104 14	05-01-2008 **11-20-2007** DO 0130	SULTECH PEARSON, L. BRAC PMO WEST BROOKS, P.	20 NOVEMBER 2007 FINAL BASE REALIGNMENT AND CLOSURE (BRAC) CLEANUP TEAM (BCT) MONTHLY TRACKING MEETING AFTER ACTION REPORT (INCLUDES AGENDA AND VARIOUS HANDOUTS) [CD COPY ENCLOSED]	ADMIN RECORD INFO REPOSITORY	SITE 00001 SITE 00002 SITE 00031 SITE 00032 SITE 00035	NAVFAC SOUTHWEST - BLDG. 1 SW080523-10 IMAGED APNT_035	
N00236 / 003148 BRAC SER BPMOW.DR/0166 CORRESPONDENC NONE 3	05-30-2008 **12-18-2007** NONE	BRAC PMO WEST MACCHIARELLA, T. VARIOUS AGENCIES	FEDERAL FACILITY AGREEMENT (FFA) EXTENSION REQUEST FOR THE DRAFT RECORD OF DECISION REPORT AND RESPONSES TO COMMENTS	ADMIN RECORD INFO REPOSITORY	OU 0000003 SITE 00001	NAVFAC SOUTHWEST - BLDG. 1 SW-20090130-4/6 IMAGED APNT_042	

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N00236 / 003081 BEI-7526-0088-0032 & BEI-7526-0088-0032-1 REPORT N68711-95-D-7526 627	04-21-2008 **01-01-2008** CTO 0088	BECHTEL ENVIRONMENTAL, INC. HARRIS, V. BRAC PMO WEST	FINAL FEASIBILITY STUDY (FS) REPORT, NORTHWESTERN ORDINANCE STORAGE AREA (INCLUDES REPLACEMENT PAGES CONVERTING THE DRAFT FINAL DATED 01 DECEMBER 2007 TO FINAL AND CD COPY) {REPLACEMENT PAGES ISSUED ON 01 JANUARY 2008}	ADMIN RECORD INFO REPOSITORY SENSITIVE	BLDG 00082 BLDG 00497 BLDG 00594 OU 0000001 OU 0000002 PARCEL 005D PARCEL 005E PARCEL 008A PARCEL C SITE 00001 SITE 00002 SITE 00009 SITE 00011 SITE 00014 SITE 00016 SITE 00021 SITE 00032 UST 0594-1 UST 0594-2 WELL IR32-MW-01 WELL IR32-MW-02 WELL IR32-MW-03 WELL IR32-MW-04 WELL IR32-MW-05 WELL M003-A WELL M003-B WELL M005-A WELL M030-A WELL M030-C WELL M032-A	NAVFAC SOUTHWEST - BLDG. 1 SW-20081219-4/8 IMAGED APNT_039	

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N00236 / 003030 BATL-6009-0020-0002 REPORT N68711-01-D-6009 1344	03-11-2008 **03-01-2008** CTO 0020	BATTELLE ROSANSKY, S. NAVFAC - SOUTHWEST PECK, S.	DRAFT FINAL REMEDIAL DESIGN/REMEDIAL ACTION WORK PLAN (CD COPY ENCLOSED) [INCLUDES RESPONSE TO COMMENTS ON THE PRELIMINARY REMEDIAL DESIGN DRAFT REMEDIAL ACTION WORK PLAN DATED 14 AUGUST 2007] {SEE COMMENTS}	ADMIN RECORD INFO REPOSITORY SITE FILE (SF)	BLDG 00020 BLDG 00021 BLDG 00022 BLDG 00023 BLDG 00024 SITE 00001 SITE 00005 SITE 00026	NAVFAC SOUTHWEST - BLDG. 1 SW-20081219-3/8 IMAGED APNT_039	
N00236 / 003036 BRAC SER BPMOW.DR/0327 CORRESPONDENC NONE 5	03-20-2008 **03-13-2008** NONE	BRAC PMO WEST MACCHIARELLA, T. VARIOUS AGENCIES	TRANSMITTAL OF THE FINAL SUMMARY OF FINDINGS, EXPLORATORY TRENCHES (W/OUT ENCLOSURE)	ADMIN RECORD INFO REPOSITORY SENSITIVE	SITE 00001	NAVFAC SOUTHWEST - BLDG. 1 SW-20081219-4/8 IMAGED APNT_039	
N00236 / 003037 ECSD-2201-0015-0005 REPORT N62473-06-D-2201 71	03-20-2008 **03-13-2008** CTO 0015	TETRA TECH EC, INC. WEINGARDT, K. BRAC PMO WEST	FINAL SUMMARY OF FINDINGS, EXPLORATORY TRENCHES (CD COPY ENCLOSED; INCLUDES DVD VIDEO)	ADMIN RECORD INFO REPOSITORY	SITE 00001 SITE 00002 SITE 00032	NAVFAC SOUTHWEST - BLDG. 1 SW-20081219-4/8 IMAGED APNT_039	

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N00236 / 003054 SULT-5104-0130-0059 MINUTES N68711-03-D-5104 40	04-10-2008 **03-14-2008** CTO 0130	SULTECH PEARSON, L. BRAC PMO WEST MACCHIARELLA, T.	06 DECEMBER 2007 FINAL RESTORATION ADVISORY BOARD MEETING SUMMARY (INCLUDES AGENDA AND VARIOUS HANDOUT MATERIALS) [CD COPY ENCLOSED]	ADMIN RECORD INFO REPOSITORY	AOC 000023G BLDG 00071 CAA 000003A CAA 000003B CAA 000003C CAA 000004C CAA A OU 0000001 OU 0000002A OU 0000004 OU 0000005 PARCEL 012 SITE 00001 SITE 00002 SITE 00004 SITE 00005 SITE 00010 SITE 00014 SITE 00017 SITE 00020 SITE 00026 SITE 00027 SITE 00028 SITE 00031 SITE 00032 SITE 00033 SITE 00035	NAVFAC SOUTHWEST - BLDG. 1 SW-20081219-4/8 IMAGED APNT_039	
N00236 / 003109 SULT-5104-0130-0067 MINUTES N68711-03-D-5104 36	05-01-2008 **03-18-2008** CTO 0130	SULTECH PEARSON, L. BRAC PMO WEST BROOKS, P.	18 MARCH 2008 FINAL BASE REALIGNMENT AND CLOSURE (BRAC) CLEANUP TEAM (BCT) MONTHLY TRACKING MEETING AFTER ACTION REPORT (INCLUDES AGENDA AND VARIOUS HANDOUTS) [CD COPY ENCLOSED]	ADMIN RECORD INFO REPOSITORY	AOC 000023G SITE 00001 SITE 00002 SITE 00033	NAVFAC SOUTHWEST - BLDG. 1 SW080523-10 IMAGED APNT_035	

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N00236 / 003189 SULT-5104-0130-0068 MINUTES N68711-03-D-5104 25	07-01-2008 **04-03-2008** CTO 0130	SULTECH BRAC PMO WEST	03 APRIL 2008 FINAL RESTORATION ADVISORY BOARD (RAB) MEETING MINUTES (INCLUDES AGENDA AND VARIOUS HANDOUTS) [CD COPY ENCLOSED]	ADMIN RECORD INFO REPOSITORY	PARCEL 182 SITE 00001 SITE 00002 SITE 00017 SITE 00033 SITE 00034	NAVFAC SOUTHWEST - BLDG. 1 SW-20081219-6/8 IMAGED APNT_041	
N00236 / 003190 SULT-5104-0130-0069 MINUTES N68711-03-D-5104 45	07-01-2008 **04-15-2008** CTO 0130	SULTECH BRAC PMO WEST	15 APRIL 2008 FINAL BASE REALIGNMENT AND CLOSURE (BRAC) CLEANUP TEAM 9BCT) MONTHLY TRACKING MEETING ACTION REPORT (AAR) [INCLUDES AGENDA AND VARIOUS HANDOUTS] {CD COPY ENCLOSED}	ADMIN RECORD INFO REPOSITORY	BLDG 00163 OU 0000002A OU 0000002B SITE 00001 SITE 00004 SITE 00009 SITE 00013 SITE 00019 SITE 00033 SITE 00034	NAVFAC SOUTHWEST - BLDG. 1 SW-20081219-6/8 IMAGED APNT_041	
N00236 / 003191 SULT-5104-0130-0071 MINUTES N68711-03-D-5104 38	07-01-2008 **05-01-2008** CTO 0130	SULTECH BRAC PMO WEST	01 MAY 2008 FINAL RESTORATION ADVISORY BOARD (RAB) MEETING SUMMARY (INCLUDES AGENDA AND VARIOUS HANDOUTS) [CD COPY ENCLOSED]	ADMIN RECORD INFO REPOSITORY	BLDG 00001 BLDG 00163 BLDG 00360 BLDG 0163A OU 0000002A OU 0000002B SITE 00001 SITE 00002	NAVFAC SOUTHWEST - BLDG. 1 SW-20081219-6/8 IMAGED APNT_041	
N00236 / 003123 BRAC SER BPMOW.DJR/0452 CORRESPONDENC NONE 5	05-21-2008 **05-16-2008** NONE	BRAC PMO WEST BROOKS, G. VARIOUS AGENCIES	TRANSMITTAL OF THE FINAL SUMMARY OF FINDINGS EXPLORATORY TRENCHES, REVISION 1 (W/OUT ENCLOSURE)	ADMIN RECORD INFO REPOSITORY SENSITIVE	SITE 00001	NAVFAC SOUTHWEST - BLDG. 1 SW-20090130-4/6 IMAGED APNT_043	

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N00236 / 003124 ECSD-2201-0015-0005.R1 REPORT N62473-06-D-2201 71	05-21-2008 **05-16-2008** CTO 0015	TETRA TECH EC, INC. WEINGARDT, K. BRAC PMO WEST	FINAL SUMMARY OF FINDINGS, EXPLORATORY TRENCHES, REVISION 1 (CD COPY ENCLOSED; INCLUDES DVD VIDEO)	ADMIN RECORD INFO REPOSITORY	SITE 00001	NAVFAC SOUTHWEST - BLDG. 1 SW-20090130-4/6 IMAGED APNT_043	
N00236 / 003136 ECSD-2201-0015-0006 CORRESPONDENC N62473-06-D-2201 6	05-22-2008 **05-16-2008** CTO 0015	TETRA TECH EC, INC. NAVFAC - SOUTHWEST	RESPONSE TO COMMENTS ON THE DRAFT SUMMARY OF FINDINGS, EXPLORATORY TRENCHES (CD COPY ENCLOSED)	ADMIN RECORD INFO REPOSITORY	SITE 00001	NAVFAC SOUTHWEST - BLDG. 1 SW-20090130-4/6 IMAGED APNT_042	
N00236 / 003236 SULT-5104-0130-0074 MINUTES N68711-03-D-5104 48	10-28-2008 **06-05-2008** CTO 0130	SULTECH PEARSON, L. BRAC PMO WEST BROOKS, P.	05 JUNE 2008 FINAL RESTORATION ADVISORY BOARD MEETING SUMMARY (INCLUDES AGENDA AND VARIOUS HANDOUTS) [CD COPY ENCLOSED]	ADMIN RECORD INFO REPOSITORY	BLDG 00002 BLDG 00005 OU 0000002C OU 0000005 SITE 00001 SITE 00002 SITE 00010 SITE 00012 SITE 00025 SITE 00035	NAVFAC SOUTHWEST - BLDG. 1 SW-20090213-3/5 IMAGED APNT_044	
N00236 / 003238 SULT-5104-0130-0075 MINUTES N68711-03-D-5104 52	10-28-2008 **06-17-2008** CTO 0130	SULTECH PEARSON, L. BRAC PMO WEST BROOKS, P.	17 JUNE 2008 FINAL BASE REALIGNMENT AND CLOSURE (BRAC) CLEANUP TEAM (BCT) MONTHLY TRACKING MEETING AFTER ACTION REPORT (AAR) [INCLUDES AGENDA AND VARIOUS HANDOUTS] {CD COPY ENCLOSED}	ADMIN RECORD INFO REPOSITORY	BLDG 00162 BLDG 00163 SITE 00001 SITE 00001A SITE 00001B SITE 00002 SITE 00004 SITE 00005 SITE 00010 SITE 00014 SITE 00017 SITE 00032	NAVFAC SOUTHWEST - BLDG. 1 SW-20090213-3/5 IMAGED APNT_044	

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)
N00236 / 000735 BRAC SER BPMOW.DR/0535 CORRESPONDENC NONE 8	07-15-2008 **06-25-2008** NONE	BRAC PMO WEST BROOKS, G. VARIOUS AGENCIES	PROPOSED CHANGES TO CLOSURE STRATEGIES FOR SITES	ADMIN RECORD INFO REPOSITORY SENSITIVE	SITE 00001 SITE 00032	NAVFAC SOUTHWEST - BLDG. 1 SW-20090130-4/6 IMAGED APNT_043	
N00236 / 003193 BRAC SER BPMOW.JCK/0543 CORRESPONDENC NONE 5	07-02-2008 **06-26-2008** NONE	BRAC PMO WEST BROOKS, G. VARIOUS AGENCIES	TRANSMITTAL OF THE DRAFT 2009 AMENDMENT TO THE SITE MANAGEMENT PLAN (W/OUT ENCLOSURE)	ADMIN RECORD INFO REPOSITORY SENSITIVE	OU 0000002A OU 0000002B SITE 00001 SITE 00027 SITE 00028 SITE 00032 SITE 00034	NAVFAC SOUTHWEST - BLDG. 1 SW-20090213-2/5 IMAGED APNT_043	

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)
N00236 / 003194 NONE REPORT NONE 19	07-02-2008 **06-26-2008** NONE	BRAC PMO WEST NAVFAC - SOUTHWEST	DRAFT 2009 AMENDMENT TO THE SITE MANAGEMENT PLAN	ADMIN RECORD INFO REPOSITORY	OU 0000001 OU 0000002A OU 0000002B OU 0000002C OU 0000003 OU 0000004A OU 0000004B OU 0000004C OU 0000005 OU 0000006 PARCEL FED 1A PARCEL FED 2B PARCEL FED 2C SITE 00001 SITE 00002 SITE 00003 SITE 00004 SITE 00005 SITE 00006 SITE 00007 SITE 00008 SITE 00009 SITE 00010 SITE 00011 SITE 00012 SITE 00013 SITE 00014 SITE 00016 SITE 00017 SITE 00019 SITE 00020 SITE 00021 SITE 00022 SITE 00023 SITE 00024	NAVFAC SOUTHWEST - BLDG. 1 SW-20090213-2/5 IMAGED APNT_043	

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)
					SITE 00026		
					SITE 00027		
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UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)
N00236 / 003237 SULT-5104-0130-0077 MINUTES N68711-03-D-5104 78	10-28-2008 **08-14-2008** CTO 0130	SULTECH PEARSON, L. BRAC PMO WEST BROOKS, P.	14 AUGUST 2008 FINAL RESTORATION ADVISORY BOARD MEETING SUMMARY (INCLUDES AGENDA AND VARIOUS HANDOUTS) [CD COPY ENCLOSED] {PORTION OF DOCUMENT IS SENSITIVE}	ADMIN RECORD INFO REPOSITORY SENSITIVE	OU 0000001 OU 0000002A OU 0000002B OU 0000002C OU 0000003 OU 0000004B OU 0000004C OU 0000005 SITE 00001 SITE 00002 SITE 00003 SITE 00004 SITE 00004 SITE 00006 SITE 00007 SITE 00008 SITE 00009 SITE 00011 SITE 00013 SITE 00014 SITE 00016 SITE 00017 SITE 00019 SITE 00019 SITE 00020 SITE 00021 SITE 00022 SITE 00023 SITE 00026 SITE 00027 SITE 00028 SITE 00030 SITE 00031 SITE 00032 SITE 00034 SITE 00035	NAVFAC SOUTHWEST - BLDG. 1 SW-20090213-3/5 IMAGED APNT_044	

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)
N00236 / 003240 SULT-5104-0130-0078 MINUTES N68711-03-D-5104 60	10-28-2008 **08-19-2008** DO 0130	SULTECH PEARSON, L. BRAC PMO WEST BROOKS, P.	19 AUGUST 2008 FINAL BASE REALIGNMENT AND CLOSURE (BRAC) CLEANUP TEAM (BCT) MONTHLY TRACKING MEETING AFTER ACTION REPORT (AAR) [INCLUDES AGENDA AND VARIOUS HANDOUTS] {CD COPY ENCLOSED}	ADMIN RECORD INFO REPOSITORY	SITE 00001 SITE 00005 SITE 00010 SITE 00017	NAVFAC SOUTHWEST - BLDG. 1 SW-20090213-3/5 IMAGED APNT_044	
N00236 / 003275 CHAD-3213-0048-0001 MINUTES N62473-07-D-3213 45	01-15-2009 **09-04-2008** CTO 0048	CHADUXTT JV RAB MEMBERS	04 SEPTEMBER 2008 FINAL RESTORATION ADVISORY BOARD (RAB) MEETING SUMMARY (INCLUDES AGENDA AND VARIOUS HANDOUTS) [CD COPY ENCLOSED]	ADMIN RECORD INFO REPOSITORY	AOC 00023G BLDG 00005 OU 00005 SITE 00001 SITE 00002 SITE 00017 SITE 00026 SITE 00032	NAVFAC SOUTHWEST - BLDG. 1 SW-20090213-4/5 IMAGED APNT_044	

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)
N00236 / 003208 NONE REPORT NONE 24	10-01-2008 **09-15-2008** NONE	BRAC PMO WEST NAVFAC - SOUTHWEST	DRAFT FINAL 2009 AMENDMENT TO THE SITE MANAGEMENT PLAN (SMP) [INCLUDES RESPONSES TO COMMENTS ON THE DRAFT]	ADMIN RECORD INFO REPOSITORY	AREA 1 AREA 1A BASEWIDE BLDG 00005 BLDG 00010 BLDG 00041 BLDG 00114 BLDG 00162 BLDG 00301 BLDG 00360 BLDG 00389 BLDG 00400 BLDG 00410 BLDG 00530 BLDG 00547 OU 00001 OU 00002A OU 00002B OU 00002C OU 00003 OU 00004A OU 00004B OU 00004C OU 00005 OU 00006 PARCEL 00001A PARCEL 00002B PARCEL 00002C PIER 1 PIER 2 SITE 00001 SITE 00002 SITE 00003 SITE 00004 SITE 00005	NAVFAC SOUTHWEST - BLDG. 1 SW-20090213-2/5 IMAGED APNT_044	

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)
					SITE 00006		
					SITE 00007		
					SITE 00008		
					SITE 00009		
					SITE 00010		
					SITE 00011		
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UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)
N00236 / 003276 CHAD-3213-0048-0003 MINUTES N62473-07-D-3213 91	01-15-2009 **10-02-2008** CTO 0048	CHADUXTT RAB MEMBERS	02 OCTOBER 2008 FINAL RESTORATION ADVISORY BOARD (RAB) MEETING SUMMARY (INCLUDES AGENDA AND VARIOUS HANDOUTS) [CD COPY ENCLOSED]	ADMIN RECORD INFO REPOSITORY	CAA C OU 00002A OU 00002B OU 00002C OU 00005 SITE 00001 SITE 00002 SITE 00014 SITE 00015 SITE 00017 SITE 00024 SITE 00026 SITE 00033	NAVFAC SOUTHWEST - BLDG. 1 SW-20090213-4/5 IMAGED APNT_044	
N00236 / 003347 NONE CORRESPONDENC NONE 8	06-08-2009 **10-20-2008** NONE	ALAMEDA REUSE AND REDEVELOPMENT AUTHORITY - ALAMEDA, CA POTTER, D. BRAC PMO WEST BROOKS, G.	LETTER DOCUMENTING DEFICIENCIES WITH THE CONCEPTUAL MODEL	ADMIN RECORD INFO REPOSITORY	AREA 00001A SITE 00001	NAVFAC SOUTHWEST - BLDG. 1	
N00236 / 003273 CHAD-3213-0048-0004 MINUTES N62473-07-D-3213 54	01-15-2009 **10-21-2008** CTO 0048	CHADUXTT JV BRAC PMO WEST	21 OCTOBER 2008 FINAL BASE REALIGNMENT AND CLOSURE (BRAC) CLEANUP TEAM (BCT) MONTHLY TRACKING MEETING AFTER ACTION REPORT (AAR) (INCLUDES AGENDA AND VARIOUS HANDOUTS] {CD COPY ENCLOSED}	ADMIN RECORD INFO REPOSITORY	OU 00002C OU 00005 SITE 00001 SITE 00002 SITE 00017 SITE 00024 SITE 00026 SITE 00028 SITE 00030	NAVFAC SOUTHWEST - BLDG. 1 SW-20090213-4/5 IMAGED APNT_044	

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N00236 / 003277 CHAD-3213-0048-0005 MINUTES N62473-07-D-3213 34	01-15-2009 **11-06-2008** CTO 0048	CHADUXTT RAB MEMBERS	06 NOVEMBER 2008 FINAL RESTORATION ADVISORY BOARD (RAB) MEETING SUMMARY (INCLUDES AGENDA AND VARIOUS HANDOUTS) [CD COPY ENCLOSED]	ADMIN RECORD INFO REPOSITORY	OU 00002A OU 00002B OU 00002C OU 00005 SITE 00001 SITE 00002 SITE 00005 SITE 00026 SITE 00030	NAVFAC SOUTHWEST - BLDG. 1 SW-20090213-4/5 IMAGED APNT_044	
N00236 / 003365 CHAD-3213-0048-0007 MINUTES N62473-07-D-3213 40	06-30-2009 **12-04-2008** DO 0048	CHADUXTT JV PEARSON, L. BRAC PMO WEST BROOKS, G.	04 DECEMBER 2008 FINAL RESTORATION ADVISORY BOARD (RAB) MEETING SUMMARY [INCLUDES AGENDA AND VARIOUS HANDOUTS] {CD COPY ENCLOSED}	ADMIN RECORD INFO REPOSITORY	AOC 000003 AOC 000010 AOC 000012 BLDG 00410 CAA-3 CAA-5B CAA-C OU 0000001 OU 0000002A OU 0000002B OU 0000002C OU 0000005 SITE 00001 SITE 00002 SITE 00014 SITE 00017 SITE 00024 SITE 00026 SITE 00027 SITE 00028 SITE 00030 SITE 00032 SITE 00034 SITE 00035	NAVFAC SOUTHWEST - BLDG. 1	

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)
N00236 / 003260 BRAC SER BPMOW.JCK/1126 CORRESPONDENC NONE 22	12-09-2008 **12-05-2008** NONE	BRAC PMO WEST BROOKS, G. VARIOUS AGENCIES	TRANSMITTAL OF THE FINAL 2009 AMENDMENT TO THE SITE MANAGEMENT PLAN (SMP) [PORTION OF THE MAILING LIST IS SENSITIVE] {W/ENCLOSURE}	ADMIN RECORD INFO REPOSITORY SENSITIVE	OU 00001 OU 00002A OU 00002B OU 00002C OU 00003 OU 00004A OU 00004B OU 00005 OU 00006 SITE 00001 SITE 00002 SITE 00003 SITE 00004 SITE 00005 SITE 00006 SITE 00007 SITE 00008 SITE 00009 SITE 00010 SITE 00011 SITE 00012 SITE 00013 SITE 00014 SITE 00016 SITE 00017 SITE 00019 SITE 00020 SITE 00021 SITE 00022 SITE 00023 SITE 00024 SITE 00025 SITE 00026 SITE 00027 SITE 00028	NAVFAC SOUTHWEST - BLDG. 1 SW-20090213-3/5 IMAGED APNT_044	

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					SITE 00030 SITE 00031 SITE 00032 SITE 00034 SITE 00035		
N00236 / 003348 BRAC SER BPMOW.DJR/1138 CORRESPONDENC NONE 4	06-08-2009 **12-15-2008** NONE	BRAC PMO WEST BROOKS, G. ALAMEDA REUSE AND REDEVELOPMENT AGENCY - ALEMDA, CA POTTER, D.	RESPONSE TO THE LETTER DOCUMENTING DEFICIENCIES WITH THE CONCEPTUAL MODEL	ADMIN RECORD INFO REPOSITORY SENSITIVE	AREA 00001A SITE 00001	NAVFAC SOUTHWEST - BLDG. 1	

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)
N00236 / 003366 CHAD-3213-0048-0009 MINUTES N62473-07-D-3213 50	06-30-2009 **01-08-2009** DO 0048	CHADUXTT JV PEARSON, L. BRAC PMO WEST BROOKS, G.	08 JANUARY 2009 FINAL RESTORATION ADVISORY BOARD (RAB) MEETING SUMMARY [INCLUDES AGENDA AND VARIOUS HANDOUTS] {CD COPY ENCLOSED}	ADMIN RECORD INFO REPOSITORY	AST 000360E BLDG 00014 BLDG 00112 BLDG 00113 BLDG 00118 BLDG 00162 BLDG 00163 BLDG 00265 BLDG 00360 BLDG 00372 BLDG 00398 OU 0000002A OU 0000002B OU 0000002C OU 0000005 OWS 000014A OWS 000014B OWS 000014C OWS 000014D OWS 000014E OWS 000163 OWS 000360 OWS 000372A SITE 00001 SITE 00002 SITE 00002A SITE 00002B SITE 00003 SITE 00003B SITE 00004 SITE 00009 SITE 00011 SITE 00013 SITE 00014 SITE 00019	NAVFAC SOUTHWEST - BLDG. 1	

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					SITE 00021 SITE 00022 SITE 00026 SITE 00032 SWMU 00372		
N00236 / 003367 CHAD-3213-0048-0011 MINUTES N62473-07-D-3213 50	06-30-2009 **02-05-2009** DO 0048	CHADUXTT JV PEARSON, L. BRAC PMO WEST BROOKS, G.	05 FEBRUARY 2009 FINAL RESTORATION ADVISORY BOARD (RAB) MEETING SUMMARY [INCLUDES AGENDA AND VARIOUS HANDOUTS] {CD COPY ENCLOSED}	ADMIN RECORD INFO REPOSITORY	OU 0000002A OU 0000002B OU 0000002C OU 0000005 SITE 00001 SITE 00002 SITE 00014 SITE 00026 SITE 00027	NAVFAC SOUTHWEST - BLDG. 1	
N00236 / 003307 CHAD-3213-0046-0001 CORRESPONDENC N62473-07-D-3213 70	03-03-2009 **02-23-2009** CTO 0046	CHADUXTT BRAC PMO WEST	RESPONSE TO COMMENTS ON THE DRAFT RECORD OF DECISION (ROD), 1943-1956 DISPOSAL AREA (CD COPY ENCLOSED)	ADMIN RECORD INFO REPOSITORY	AREA 00001A AREA 00001B AREA 00002A AREA 00002B AREA 00003A AREA 00003B AREA 00004 AREA 00005A AREA 00005B SITE 00001 SITE 00032	NAVFAC SOUTHWEST - BLDG. 1	

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)
N00236 / 003364 CHAD-3213-0048-0012 MINUTES N62473-07-D-3213 90	06-30-2009 **02-24-2009** DO 0048	CHADUXTT JV PEARSON, L. BRAC PMO WEST BROOKS, G.	24 FEBRUARY 2009 FINAL BASE REALIGNMENT AND CLOSURE (BRAC) CLEANUP TEAM (BCT) MONTHLY TRACKING MEETING AFTER ACTION REPORT (AAR) [INCLUDES AGENDA AND VARIOUS HANDOUTS] {CD COPY ENCLOSED}	ADMIN RECORD INFO REPOSITORY	BLDG 00118 BLDG 00163 BLDG 00360 OU 0000001 OU 0000002B SITE 00001 SITE 00002 SITE 00003 SITE 00004 SITE 00006 SITE 00007 SITE 00008 SITE 00011 SITE 00014 SITE 00016 SITE 00016 NORTH SITE 00016 SOUTH SITE 00017 SITE 00021 SITE 00025 SITE 00026 SITE 00027 SITE 00028 SITE 00030 SITE 00034 SITE 00035	NAVFAC SOUTHWEST - BLDG. 1	
N00236 / 003309 BRAC SER BPMOW.HMW\0054 CORRESPONDENC NONE 2	03-05-2009 **03-02-2009** NONE	BRAC PMO WEST BROOKS, G. VARIOUS AGENCIES	FEDERAL FACILITY AGREEMENT (FFA) SCHEDULE EXTENSION REQUEST FOR 1) DRAFT TIME CRITICAL REMOVAL ACTION (TCRA) COMPLETION REPORT, 2) DRAFT FINAL RECORD OF DECISION (ROD) / RESPONSE TO COMMENTS (RTCS), AND 3) DRAFT PRE-DESIGN SAMPLING AND ANALYSIS PLAN (SAP)	ADMIN RECORD INFO REPOSITORY	SITE 00001	NAVFAC SOUTHWEST - BLDG. 1	

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)
N00236 / 003346 ECSD-2201-0028-0008 REPORT N62473-06-D-2201 4200	06-04-2009 **04-08-2009** CTO 0028	TETRA TECH EC, INC. BRAC PMO WEST	DRAFT TIME-CRITICAL REMOVAL ACTION (TCRA) POST-CONSTRUCTION REPORT [CONTAINS SENSITIVE MAPS]	ADMIN RECORD INFO REPOSITORY SENSITIVE	SITE 00001 SITE 00002 SITE 00032	NAVFAC SOUTHWEST - BLDG. 1	
N00236 / 003345 BRAC SER BPMOW.HMW/0202 CORRESPONDENC NONE 3	06-04-2009 **04-09-2009** NONE	BRAC PMO WEST BROOKS, G. VARIOUS AGENCIES	TRANSMITTAL OF THE DRAFT TIME-CRITICAL REMOVAL ACTION (TCRA) POST-CONSTRUCTION REPORT [W/OUT ENCLOSURE] {PORTION OF MAILING LIST IS SENSITIVE}	ADMIN RECORD INFO REPOSITORY SENSITIVE	SITE 00001 SITE 00002 SITE 00032	NAVFAC SOUTHWEST - BLDG. 1	
N00236 / 003336 CHAD-3213-0046-0006 CORRESPONDENC N62473-07-D-3213 5	05-11-2009 **04-21-2009** CTO 0046	CHADUXTT NAVFAC - SOUTHWEST DIVISION	RESPONSE TO COMMENTS ON THE DRAFT RECORD OF DECISION (ROD), 1943-1956 DISPOSAL AREA [CD COPY ENCLOSED]	ADMIN RECORD INFO REPOSITORY	AREA 00001A AREA 00001B SITE 00001 SITE 00002 SITE 00032	NAVFAC SOUTHWEST - BLDG. 1	
N00236 / 003411 CHAD-3213-0048-0017 MINUTES N62473-07-D-3213 51	09-09-2009 **05-07-2009** CTO 0048	CHADUXTT JV RAB MEMBERS	07 MAY 2009 FINAL RESTORATION ADVISORY BOARD (RAB) MEETING MINUTES (INCLUDES AGENDA, VARIOUS HANDOUTS, AND CD COPY)	ADMIN RECORD INFO REPOSITORY SENSITIVE	OU 0000002A OU 0000002B OU 0000002C OU 0000005 SITE 00001 SITE 00002 SITE 00017 SITE 00025 SITE 00026 SITE 00032 SITE 00034 SITE 00035	NAVFAC SOUTHWEST - BLDG. 1	

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N00236 / 003357 BRAC SER BPMOW.CH/0336 CORRESPONDENC NONE 2	06-29-2009 **06-02-2009** NONE	BRAC PMO WEST BROOKS, G. VARIOUS AGENCIES	FEDERAL FACILITY AGREEMENT (FFA) SCHEDULE EXTENSION REQUEST FOR 1) DRAFT PRE-DESIGN WORK PLAN AND PRE-DESIGN SAP, 2) DRAFT REMEDIAL DESIGN / REMEDIAL ACTION WORK PLAN, AND 3) DRAFT FINAL RECORD OF DECISION	ADMIN RECORD INFO REPOSITORY	SITE 00001	NAVFAC SOUTHWEST - BLDG. 1	
N00236 / 003410 CHAD-3213-0048-0019 MINUTES N62473-07-D-3213 59	09-09-2009 **06-04-2009** CTO 0048	CHADUXTT JV RAB MEMBERS	04 JUNE 2009 FINAL RESTORATION ADVISORY BOARD (RAB) MEETING MINUTES (INCLUDES AGENDA, VARIOUS HANDOUTS, AND CD COPY)	ADMIN RECORD INFO REPOSITORY SENSITIVE	OU 0000001 OU 0000002C SITE 00001 SITE 00002 SITE 00005 SITE 00010 SITE 00012 SITE 00024 SITE 00034 SITE 00035	NAVFAC SOUTHWEST - BLDG. 1	
N00236 / 003413 CHAD-3213-0048-0020 MINUTES N62473-07-D-3213 43	09-09-2009 **06-16-2009** CTO 0048	CHADUXTT JV BRAC PMO WEST	16 JUNE 2009 FINAL BASE REALIGNMENT AND CLOSURE (BRAC) CLEANUP TEAM (BCT) MONTHLY TRACKING MEETING AFTER ACTION REPORT (AAR) [INCLUDES AGENDA, VARIOUS HANDOUTS, AND CD COPY]	ADMIN RECORD INFO REPOSITORY SENSITIVE	AOC 000023 BASEWIDE OU 0000001 OU 0000002A OU 0000002B OU 0000002C SITE 00001 SITE 00002 SITE 00004 SITE 00005 SITE 00006 SITE 00011 SITE 00027 SITE 00028 SITE 00030 SITE 00034 SITE 00035	NAVFAC SOUTHWEST - BLDG. 1	

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N00236 / 003402 TRVT-0609-0000-0003 MINUTES N62473-09-C-06096	08-19-2009 **07-08-2009** NONE	TREVET BRAC PMO WEST	08 JULY 2009 KICKOFF MEETING MINUTES (INCLUDES CD COPY, AGENDA, AND LIST OF ATTENDEES)	SITE FILE (SF)	SITE 00001 SITE 00032	NAVFAC SOUTHWEST - BLDG. 1	

Total Estimated Record Page Count: 43,967

Total - Administrative Records: 341

[UIC NUMBER]='N00236'
No Keywords
Sites=SITE 00001
No Classification

ATTACHMENT B
TRANSCRIPT FROM PUBLIC MEETING, SIGN-IN SHEET, AND PUBLIC NOTICE

26 pages.

PUBLIC MEETING

PROPOSED PLAN FOR

INSTALLATION RESTORATION (IR) SITE 1

AT ALAMEDA POINT

OCTOBER 24, 2006

REPORTED BY: MARY E. FERREIRA, RPR, CSR 10553

JAN BROWN & ASSOCIATES

CERTIFIED SHORTHAND REPORTERS

701 Battery St., 3rd Floor, San Francisco, CA 94111

(415) 981-3498

ALAMEDA POINT - OCTOBER 24, 2006

October 24, 2006 - Thursday 6:49 p.m.

P R O C E E D I N G S

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18:49:04 MR. MACCHIARELLA: Good evening and thank you for coming. This public meeting is hosted by the Department Of the Navy; specifically, the BRAC Program Management Office West. This is a meeting for the Navy to present to the public for the preferred alternative for Site 1, which is the 1943 to 1956 disposal area. My name is Thomas Macchiarella and I am your host.

I'd like to introduce the Navy's project manager, Mr. Andrew Baughman. He's the project manager for Site 1, and the two of us will be able to answer your questions tonight.

I'd like to run through the agenda real quick. We just concluded our informal discussion in the back of the room around the posters, and now I'm providing you with an introduction and overview of the Navy's Installation Restoration Program after which Mr. Baughman will run you through the proposed plan for Site 1. Then we'll open up for clarifying questions. After that we'll go into listening mode and afford any public comments that you have and those comments will be addressed in our upcoming records.

The Installation Restoration Program, what is it and how is it managed? The Installation Restoration Program at Alameda Point is managed by the BRAC Program Management

Office, with significant support from the Naval Facilities Engineering Command Southwest.

BRAC Program Management Office reports directly to

18:50:52 4 the Deputy Assistant Secretary of the Navy for Installations &
18:50:57 5 Environment. I am the BRAC environmental coordinator for
18:51:00 6 Alameda Point. I am also the Navy's representative on the
18:51:04 7 BRAC Cleanup Team. The BRAC Cleanup Team is composed of a
18:51:09 8 number of regulatory agencies with a goal of working towards
18:51:12 9 completing the Installation Restoration Program and satisfying
18:51:16 10 all necessary regulatory requirements.
18:51:18 11 The purpose of the Navy's Installation Restoration
18:51:25 12 Program is shown here in bullets. Installation Restoration
18:51:28 13 Program in other places would be known as "superfund." You
18:51:34 14 may have heard the term "CERCLA." This is the same thing.
18:51:39 15 Graphically, and in a flow chart form, here is a
18:51:47 16 diagram of the CERCLA process. It's a step-wise approach, and
18:51:51 17 right now we're on the figure about in the middle at the
18:51:54 18 proposed plan/remedy selection stage. Though it looks like
18:52:02 19 it's in the middle of the process by this figure, it's really
18:52:03 20 in terms of time and effort pretty far along in the process.
18:52:06 21 I'm going to describe the steps generally. The
18:52:14 22 Preliminary Assessment/Site Inspection is generally a site
18:52:19 23 discovery phase. It involves interviews, records research and
18:52:23 24 initial soil and groundwater sampling.
18:52:27 25 The RI/FS or Remedial Investigation/Feasibility

18:52:31 1 Study includes detailed investigation of sites, as well as
18:52:34 2 analysis of alternatives for cleanup.
18:52:37 3 The Proposed Plan, which is where we are now, is the
18:52:40 4 Navy's presentation of the preferred alternative and also
18:52:44 5 provides the public with an opportunity to comment on the
18:52:49 6 Navy's preferred alternative.

18:52:50 7 The Record of Decision documents the selected
18:52:54 8 alternative. Prior to selecting the alternative, the Navy
18:52:59 9 considers comments from the public and no decision will be
18:53:01 10 made until we receive public comments and address them in the
18:53:05 11 Record of Decision.
18:53:07 12 The reason I'm walking you through this process is
18:53:09 13 so that you can better understand where we are with Site 1,
18:53:12 14 which we're going to talk in detail about tonight.
18:53:17 15 Back to generalizing the Alameda Point Environmental
18:53:21 16 Program, there are 35 specific sites. The NAS Alameda is
18:53:27 17 listed on the National Priorities List and, therefore, the
18:53:32 18 United States EPA is the lead regulatory agency.
18:53:35 19 The BRAC Cleanup Team is composed of the US EPA, the
18:53:41 20 Navy, the California Department of Toxic Substances Control,
18:53:46 21 DTSC, and the Regional Water Quality Control Board of San
18:53:52 22 Francisco Bay. A representative from each of those agencies
18:53:56 23 is here tonight.
18:53:57 24 Between the BCT members and the Navy, we have what
18:54:00 25 is called a "Federal Facilities Agreement." The FFA and the

18:54:04 1 BCT here are really two concepts which streamline in that
18:54:09 2 process registering a timeline through coordination among
18:54:10 3 these parties.
18:54:12 4 We also have what's called the "Site Management
18:54:15 5 Plan," which is a schedule for all of the sites. We update
18:54:17 6 that annually. We update that based on site priorities and
18:54:23 7 funding and other resource availability.
18:54:27 8 Back to the current phase for Site 1. We're at the
18:54:37 9 Proposed Plan. The Proposed Plan, again, provides for

18:54:40 10 community involvement. It summarizes the environmental
18:54:45 11 efforts to date of a particular site. It proposes a decision;
18:54:50 12 i.e., the "Preferred Alternative"; and leads to the Record of
18:54:53 13 Decision. This is the Proposed Plan for Site 1, which I'm
18:54:57 14 sure all of you have seen by now (indicating).
18:55:02 15 The comment period for the Site 1 Proposed Plan has
18:55:06 16 been extended to close on November 10th instead of the earlier
18:55:14 17 date. You can submit comments this evening verbally or you
18:55:20 18 may submit them in writing by a number of methods. My
18:55:24 19 address, fax, and e-mail are clearly shown in the Proposed
18:55:27 20 Plan.
18:55:28 21 Before we continue, are there any questions on the
18:55:33 22 Installation Restoration Program or the CERCLA process?
18:55:38 23 Okay. With that, I will hand it off to
18:55:41 24 Mr. Baughman.
18:55:42 25 MR. BAUGHMAN: As Thomas said, I'm Andrew Baughman.

18:56:11 1 I'm the Remedial Project Manager for Site 1. I'm just going
18:56:16 2 to take you through the Proposed Plan, which is just a summary
18:56:18 3 of some previous investigations, the Feasibility Study, and
18:56:21 4 where we come and actually propose our remedy for cleaning up
18:56:24 5 the site.
18:56:25 6 A quick overview of what we're going to talk about.
18:56:35 7 I'm going to start with the site location, background, and
18:56:37 8 characteristics. I'm going to go through some of the past
18:56:39 9 investigations, talk about the risk assessment, and the
18:56:43 10 remedial action objectives. Then I'll go through the actual
18:56:46 11 remediation alternatives before we give the comparative
18:56:50 12 analysis and give you the preferred alternative, then talk

18:56:52 13 about the next steps and some additional information.
18:56:54 14 First off, just the location of the site, there's a
18:56:57 15 poster up for it as well. It's located in the northwestern
18:57:01 16 portion of the Alameda Point. Site 1 occupies 78 acres and
18:57:04 17 we're, like, right there, so it's just on the northwest
18:57:07 18 portion (indicating).
18:57:09 19 The background of the site is that it was a waste
18:57:13 20 disposal site from 1943 to 1956. There was also a pistol,
18:57:19 21 skeet and target ranges. There were some aircraft and engine
18:57:22 22 storage parts down there. From the site, there's also some
18:57:25 23 runways, and there was some radium dials disposed of in the
18:57:32 24 landfill itself. There's a baseball fields and three
18:57:34 25 above-ground storage tanks that have been closed.

18:57:37 1 This is kind of hard to see, but it's a general
18:57:40 2 location of where those things I just mentioned were at.
18:57:42 3 Right here is where the skeet range was at (indicating). They
18:57:46 4 stored aircraft storage parts right here (indicating). The
18:57:50 5 pistol range was in this area (indicating). The baseball
18:57:53 6 field was here (indicating). You can see the runways here
18:57:56 7 (indicating). We have the three storage tanks with the green
18:57:59 8 dots. There will be an easier picture later to see the main
18:58:04 9 areas.
18:58:04 10 For management purposes, we broke up Site 1 into
18:58:07 11 five areas. There's a description of each. I'm going to go
18:58:11 12 actually to the figure itself because that's probably the
18:58:13 13 easiest way for me to describe it.
18:58:15 14 The white area is what we call "Area 1." That's the
18:58:18 15 actual extent of waste where the actual landfill is. 1 is

broken into 1a and 1b. 1b is considered the burn area, former burn area. The white area is actually where the landfill itself is.

Area 2 is the orange and that's basically the pavement, the runway. The runway that is not -- there is some runway here, but it is inside the white. This is the runway that does not have any waste (indicating).

Then we go to Area 3, which is the green area, and that's all the unpaved area outside of the landfill.

Area 4, which is right here (indicating), is the

pistol range where they used to fire. It's just a small area where there's a burn right here.

Area 5 is the beach and shoreline. They're called 5a and 5b just to show you there's two parts. It's all one area of just the beach and shoreline.

The blue areas that say SW1, 2, 3, those are seasonal weapons. The white area is approximately 25.8 of the 78 acres.

As we did with soil, we also broke up the site into three groundwater areas. The first is what we call the unconfined, first water bearing zone. That is actually where the groundwater contamination is located; it's called a VOC plume. I'll show you that in just a few minutes.

We also have the unconfined, first water bearing zone, which is located outside of the VOC plume. Then we have the second water bearing zone, which underlies the first and there's no significant concentration of contaminants located in there.

18:59:57 19 This VOC I just mentioned in Area 1, this is the
19:00:02 20 first water bearing zone that contains the VOC plume. This is
19:00:06 21 showing you the high point is right here, a little over 200
19:00:10 22 ug/L, which is parts per billion. You can see the contours go
19:00:15 23 out, 10,000, 1,000, all the way to 10. These are inferred
19:00:20 24 areas, what we expect in those areas.
19:00:24 25 You can see that that's right there on the map of

19:00:29 1 the whole thing. This is the zoomed-in portion of this
19:00:31 2 section here. Some investigations on Site 1 that we use to
19:00:38 3 get to this point, there's an Initial Assessment Study, or
19:00:43 4 IAS, in 1983. They took the history, they interviewed people,
19:00:45 5 they tried to get a history of the base itself. That's the
19:00:51 6 IAS report.
19:00:53 7 We have the Environmental Baseline Survey, which is
19:00:55 8 a snapshot of the base in 1995. And then we have the two
19:00:59 9 newer documents, the final Remedial Investigation in 1999, and
19:01:02 10 the most recent, which is a Feasibility Study, FS, that's
19:01:08 11 finalized this year, in 2006. It gives the alternatives for
19:01:10 12 how to clean up the site in different areas.
19:01:12 13 Just a little bit of the human health and the eco
19:01:17 14 risks. We evaluate whether unacceptable risk was posed to
19:01:21 15 human health and our noncancer hazard index, HI is hazard
19:01:25 16 index, is below a 1. Also, that cancer exceeds the risk
19:01:30 17 management range for occupational and recreational uses.
19:01:31 18 We also evaluated whether there's risk posed to
19:01:36 19 plants, fish, retiles and mammals. There is a risk to small
19:01:38 20 mammals and birds from pesticides and metals and some aquatic
19:01:40 21 life from metals in the groundwater.

19:01:43 22 These are the Real Action Objectives or RAOs for the
19:01:51 23 soil. These actually came directly from the final Feasibility
19:01:54 24 Study Report that I mentioned earlier. It was finalized this
19:01:58 25 year in 2006. I'm not going to talk too much about the

19:02:01 1 numbers themselves. These are just our vehicles for cleanup
19:02:03 2 in the soil. We also have a similar figure for that of
19:02:08 3 groundwater, again it came from the Feasibility Study. These
19:02:12 4 are our cleanup bills for those which we consider the
19:02:17 5 chemicals concerned at the site.
19:02:19 6 Now we get to soil Area 1. If you remember that's
19:02:24 7 the white portion, the actual landfill portion of the site.
19:02:27 8 These are our alternatives that came out of the FS. No action
19:02:31 9 is in every alternative for each area; that's just for
19:02:34 10 comparative analysis, we have to use no action.
19:02:36 11 Then I'm going to go through what we call Area 1
19:02:40 12 goes S-1 and alternative 2. S1-2 is a soil cover, a Wetlands
19:02:47 13 Mitigation Plan, which is a plan now. There will be some
19:02:50 14 areas that will affect the wetlands and we have to compensate
19:02:54 15 for that and that will be in the Wetlands Mitigation Plan. We
19:03:01 16 have Institutional Controls, which limits land use or
19:03:01 17 activities that could be done to insure protectiveness and
19:03:04 18 effectiveness of the remedy to be applied.
19:03:04 19 S1-3 is an Engineered Alternative Cap. I'll show
19:03:09 20 you in it some -- the pictures will show you the difference
19:03:14 21 between the two.
19:03:14 22 Then we have S1-4a, which is excavation and off-site
19:03:19 23 disposal of one section. We do a soil cover, as mentioned in
19:03:24 24 S1-2, and then we have Radiological and MEC Sweep. MEC is

19:03:28 25 emissions and disposal concerns of any shells that might be

19:03:31 1 out there in the pistol ranges or things like that.
19:03:33 2 We have S1-4b, the difference between these two is
19:03:39 3 one is engineered alternative cap and one is the soil cover
19:03:43 4 over the remaining areas that's going to be excavated.
19:03:43 5 S1-5 is a complete removal of the 25.8 acres of
19:03:48 6 which is Area 1 in the white.
19:03:50 7 This is just a figure showing the differences. This
19:03:55 8 is the soil cover, it's a four-foot isolation layer. Existing
19:04:01 9 soil and waste will be down here (indicating). On an
19:04:04 10 Engineered Alternative Cap, we have a subgrade layer, there's
19:04:08 11 a cushion and barrier, which is a geomembrane, a liner.
19:04:11 12 There's a drainage layer and then you have an isolation layer
19:04:13 13 around two feet for this. That's the difference between a
19:04:17 14 soil cover and an Engineered Alternative Cap.
19:04:20 15 Now we get to soil area two, that would be the paved
19:04:25 16 areas, the orange part on the map. Again, no action. No
19:04:28 17 action is in every alternative because we have to compare it.
19:04:31 18 Then we have basically two alternatives for this,
19:04:35 19 it's Pavement Maintenance and Institutional Controls. That
19:04:38 20 just means they maintain the pavement so it doesn't get
19:04:41 21 cracked and break apart. Institutional Controls is to prevent
19:04:46 22 anyone else from doing that as well.
19:04:48 23 S2-4, which is where we demolish all of the runways
19:04:52 24 and excavate off-site doing a Radiological Screening and
19:04:54 25 Munitions and Explosives of Concern Sweep and removal of any

19:04:59 1 hot spots that might be underneath the pavement.
19:05:01 2 Now, we get to Area 3, that is the unpaved areas
19:05:04 3 outside of the landfill itself. It's one of the grassy areas
19:05:08 4 where most of the seasonal wetlands are located. We have no
19:05:12 5 action.
19:05:12 6 S3-4 and S3-5, the two alternatives that came
19:05:16 7 through the FS, are very similar. The difference comes in the
19:05:19 8 hot spot relocation. We're going to a Tier 2 Ecological Risk
19:05:25 9 Assessment under both alternatives. If anything comes up in
19:05:28 10 alternative S3-4, the hot spots will be relocated into the
19:05:31 11 landfill itself. In alternative S3-5, any hot spots that do
19:05:36 12 come up, will be removed and disposed of off-site.
19:05:40 13 Now we get to Area 4. It's the Firing Range Berm.
19:05:46 14 That's that little area where I showed you where the pistol
19:05:49 15 range is at. It's a very small, I think it's green maybe
19:05:53 16 yellow. Again, we have no action and there's only three
19:05:56 17 alternatives here. Removal, screening and relocation of the
19:06:00 18 burn. Removal, screening and relocation/off-site disposal.
19:06:05 19 Then we have removal, screening and off-site disposal for the
19:06:08 20 burn itself. We'll get into that later because we're going to
19:06:12 21 be doing actually a time-critical removal action which I'll
19:06:17 22 discuss a little bit later.
19:06:17 23 We get to Area 5, that's the beach area, the
19:06:20 24 shoreline area. Similar to the Area 3, the green areas, we're
19:06:27 25 going to do confirmation samplings and basically all of the

19:06:31 1 alternatives. There's ICs, hot spot relocation, whether we
19:06:36 2 relocate and do shoreline removal or off-site and do any

shoreline removal that needs to be done. These also have ICs, Institutional Controls, to protect the effectiveness of the remedy.

Site 6 is not really an area on the map, but it's an area were consider or call 6 or Radium-Impacted Waste. Again, we have no action and then we have two alternatives which came through, which are 4 and 5.

4 is removal of Radium-Impacted Waste in Areas 3 and 5, which is the unpaved areas outside the waste and the shoreline.

One location in Area 1b, that is the smaller area, if you remember the white, it's a small burn area that's located in the northwest section.

Then we cover remaining Radium-Impacted Waste in Area 1. The last is removing all Radium-Impacted Soil and items throughout the site.

We also have the Groundwater Alternatives. There were six Groundwater Alternatives that came through. We have no action, again, as it's compared to every one. We have Source Removal, a Wetlands Mitigation Plan, Monitoring, and Institutional Controls.

The third alternative is In Situ Chemical Oxidation. That's treatment of the soil to break down the contaminants by

injecting oxidized radium into the groundwater. Actually, it's a pretty fast cleanup. Later, you can have a look, there's a poster back there that describes it a little bit better.

The fourth alternative is In Situ Bioremediation and

19:08:06 6 Monitored Natural Attenuation, Monitoring, and ICs as well.
19:08:07 7 Groundwater 5a is Zero-valent iron powder injection
19:08:13 8 along with Monitored Natural Attenuation, Monitoring, and
19:08:15 9 Institutional Controls.
19:08:16 10 5b is similar to 5a except it has a source removal
19:08:19 11 along with the Zero-valent iron iowder injection.
19:08:26 12 Now we get to where we actually compare our
19:08:29 13 alternatives and choose our preferred. All alternatives,
19:08:34 14 other than no action, meets 1 and 2: Overall protection of
19:08:34 15 human health and the environment, and compliance with
19:08:37 16 Applicable or Relevant and Appropriate Requirements, ARARs.
19:08:40 17 In the comparative analysis section, we look at 3
19:08:43 18 through 7, which is long-term effectiveness and permanence;
19:08:48 19 reduction of toxicity, mobility, or volume through treatment;
19:08:52 20 short-term effectiveness; implementability and cost. We have
19:08:57 21 state acceptance; and this is the portion where we get
19:08:57 22 community acceptance, where you get your chance to comment and
19:09:02 23 have any questions you want answered.
19:09:02 24 The first thing as we went through earlier, we're
19:09:05 25 going to start with Area 1. I'm going to talk about the

19:09:08 1 alternative we chose. For Area 1, which is the landfill
19:09:13 2 itself, we chose S1-4a, which is Removal of Waste from Area
19:09:18 3 1b. It's a total excavation of the burn area, which you can
19:09:22 4 see on the map and I'll show you at the end. We put a
19:09:25 5 four-foot fill soil cover over the remaining portion of the
19:09:31 6 landfill and have Institutional Controls to make sure no one
19:09:33 7 digs in or disrupts our remedy. You can see an empty circle
19:09:38 8 is low, half is moderate, and a full is high. The cost for

the remedy we chose is 18.1 million.

Now we get to Area 2, which is the paved areas outside of the landfill. For this we chose the pavement maintenance and ICs. Make sure the pavement isn't cracked, there's some weed control, make sure no one else digs into it. You can see how they rated and that is for about .3 million or 300,000.

We go to Area 3. Area 3 is the unpaved areas outside of the waste, the green areas on the map on the back. For this we chose a Tier 2 Eco Risk Assessment which is S3-4. Any hot spots that do come up in our risk assessment, we will relocate underneath the cover proposed for Area 1. That is the cost, estimate of 500,000.

Area 4 is the Firing Range Berm. For this we chose the total removal screening and off-site disposal of the berm. That's actually going to be done in a little bit of advance in what we call a "Time Critical Removal Action" which I'm going

to discuss later. That's for a cost of about 1.9 million. That's basically digging out the entire area, screening it, and removing it off-site.

Area 5 is the Shoreline Area. For this area we chose S5-4, which is do confirmation sampling of the beach. We find anything that exceeds our remediation goals; we'll remove them and relocate them underneath the cover area in the landfill in Area 1, and there will be Institutional Controls. As you can see, it is 1.4 million dollars for the estimated cost for doing that.

Lastly, for soil we have the radium-impacted areas.

19:11:32 12 For this we chose removal of radium-impacted waste in Area 3
19:11:37 13 and 5, which is the area outside of the pavement and the
19:11:40 14 shoreline. And area 1b, where there is a former burn area,
19:11:43 15 that is the northwest portion of Area 1, the landfill area.
19:11:48 16 Then cover remaining Radium-Impacted Waste in Area 1. That's
19:11:56 17 part of the Area 1 remedy, so that's going to cancel that.
19:11:58 18 This will actually also be done under a
19:12:00 19 time-critical rule action that includes the Area 4, the pistol
19:12:04 20 range berm that I talked about earlier. It will be done
19:12:07 21 together in an expedited fashion. The cost to get this done
19:12:10 22 is 2.1 million.
19:12:12 23 Now we have the groundwater. For this with chose
19:12:21 24 ISCO, In Situ Chemical Oxidation. It's a pretty fast process
19:12:23 25 found effective on Alameda Point. You can see the ratings of

19:12:27 1 it were fairly high. It will be a cost of 6 million dollars.
19:12:33 2 That's for the VOC plume, and you can see the figure I showed
19:12:37 3 you back there earlier.
19:12:38 4 This is just a summary because I know it's a lot.
19:12:41 5 There's a summary of each area that I just mentioned. We'll
19:12:44 6 start again with Area 1. This is the actual landfill area
19:12:46 7 itself. It's 25.8 acres. That is where we propose to put a
19:12:52 8 four-foot soil cover over the white area, Area 1a.
19:12:58 9 Area 1b, which is this section right here, what I
19:13:01 10 talked about, the former burn area, that is going to be
19:13:04 11 totally excavated and backfilled with clean soil. This area
19:13:08 12 here is going to be completely excavated and this area will
19:13:13 13 have a four-foot soil cover over it.
19:13:15 14 Area 2 is maintain the pavement and keep it in good

order so it doesn't get too many cracks.

Then we go to Area 3, which is the areas outside of the landfill and outside of any paved area. This is all basically grass area where you find most of your seasonal wetlands. Basically, we're proposing just to do an Eco Risk Assessment, a Tier 2 Eco Risk Assessment. If we find anything that exceeds our remediation goals, we'll clean those spots up and pull them here where the landfill is and put them under the cover.

Then we get to area 4, which is the removal screening and off-site disposal of the soil. It's the Pistol

Range Berm that I mentioned. That's actually going to be done in an expedited fashion under a time-critical removal action. That is actually scheduled to start in December of this year.

Then we get to Area 5, which is the Shoreline Area. There we will do confirmation sampling. If we find any areas that exceed our remediation goals for the shoreline, we will relocate those spots underneath the proposed cover in Area 1.

Overall, there's the radium-impacted section, which along with the Pistol Range Berm which is going to be removed under a time-critical removal action, which will remove all impacted waste outside of this white here (indicating).

Here's the site I just mentioned. We're going to remove and dispose off site all soil impacted by radium except Area 1a, which is the landfill which is going to have a four-foot cover over it.

We're going to do a Final Status survey following the removal action to insure we got everything, and we'll get

what we call free clearance.

This will be done, as I said, under a time-critical removal action starting in December.

I mentioned the Groundwater Alternative. We're planning on treating the VOC groundwater plume using In Situ Chemical Oxidation and Monitored Natural Attenuation. There will be long-term monitoring of VOCs, the metals in the groundwater, and we'll have Institutional Controls to restrict

well installation and any construction that might affect our proposed remedy.

Now we get to the next step. We're on the portion right now of the public comment period. As Thomas said, it was extended to November 10th. It was supposed to be this Friday October 27th. We extended it to give everybody a little more time. November 10th is the date to have your comments in by.

We put the response to those comments in the Record Of Decision, the ROD. We have a responsiveness summary where we address all comments.

We document the preferred alternative in that Record Of Decision.

There will be a public notice in the newspaper to announce the availability of the signed ROD.

Once agreed upon, it goes through the forms and it's agreed upon by all the regulators and we sign it. There will be a public notice in the newspaper just letting you know that.

Then we get to the actual cleaning of the site. The

19:16:13 21 actual design of the remedy and then once that is approved, we
19:16:18 22 go out and actually do the work and implement the remedy.
19:16:21 23 Some additional information, these are just to let
19:16:25 24 you know the people that work on this project other than
19:16:28 25 myself. We have Thomas, who you heard from earlier. We have

19:16:34 1 Mark Ripperda from EPA. Can you raise your hand? Mark
19:16:37 2 Ripperda. We have Ms. Dot Lofstrom from DTSC, and Eric Simon
19:16:45 3 from the Water Board.
19:16:47 4 Here's the information Thomas mentioned earlier.
19:16:52 5 The public comment period started on September 27 and ends
19:16:56 6 November 10th. The public meeting is right now. You can
19:16:59 7 mail, e-mail or fax your comments to Thomas. Here's all the
19:17:01 8 information right here. We also have the web site for BRAC
19:17:06 9 PMO. That's where you can find an electronic copy of the
19:17:11 10 Proposed Plan, and that is it.
19:17:12 11 MR. MACCHIARELLA: Thank you, Mr. Baughman. Now
19:17:15 12 we're at the point of the agenda where we answer any
19:17:18 13 clarifying questions you may have. Any clarifying questions?
19:17:24 14 AUDIENCE MEMBER: We've got some questions. We're
19:17:27 15 probably the only community people here.
19:17:32 16 Comments we can submit questions and comments on
19:17:35 17 this form before the 10th?
19:17:37 18 MR. MACCHIARELLA: Yes.
19:17:38 19 AUDIENCE MEMBER: And then how does the process --
19:17:42 20 what's the decision, the process for deciding how to move
19:17:47 21 forward once the 10th has passed?
19:17:51 22 MR. MACCHIARELLA: What we do is we receive
19:17:53 23 comments. Typically, we receive anywhere from a couple to

19:17:57 24 half a dozen different parties' comments during a period.
19:18:02 25 Often times there aren't comments that suggest we make a major

19:18:06 1 change. Some are questions that we clarify and others could
19:18:09 2 be suggestions that we tweak in a certain way or remedy in the
19:18:14 3 proposal.
19:18:15 4 What we do is provide a written response to those
19:18:18 5 comments and go back on the Record Of Decision. Also, there's
19:18:21 6 a section in the ROD that describes if there were any changes
19:18:23 7 to the decision based on those comments that we received. All
19:18:28 8 the while, we're working with the regulatory agencies to
19:18:31 9 determine whether there should be any changes to the preferred
19:18:34 10 remedy.
19:18:36 11 AUDIENCE MEMBER: So then will the cleanup procedure
19:18:41 12 be put in place or does that still have to be negotiated with
19:18:44 13 the city?
19:18:45 14 MR. MACCHIARELLA: Independent of any deal with the
19:18:47 15 city or Navy, the Navy will continue to move forward until
19:18:51 16 such time as there may be a deal in the future with the city.
19:18:56 17 But the Navy intends to move forward with the remediation
19:19:00 18 schedule. So the reason to have a Record of Decision is the
19:19:05 19 remedial design and the Navy will move forward with that and
19:19:08 20 implement the remedial action.
19:19:08 21 Actually, for this site, the Navy has always
19:19:11 22 intended to complete the remedial action as opposed to having
19:19:14 23 some other party do it.
19:19:18 24 AUDIENCE MEMBER: Site 1?
19:19:19 25 MR. MACCHIARELLA: Correct.

19:19:19 1 AUDIENCE MEMBER: What would be the time line on
19:19:22 2 that? How long would it be before it would be cleaned up so
19:19:29 3 to speak?
19:19:29 4 MR. MACCHIARELLA: Once we sign the Record Of
19:19:31 5 Decision, it's our goal and responsibility to start the work
19:19:34 6 in the field about 15 months after that. So we have a
19:19:38 7 15-month period to get our plans together once we sign the
19:19:41 8 record of decision.
19:19:42 9 So the Record Of Decision will probably be signed
19:19:45 10 sometime in the next, oh, let's say six months or so by the
19:19:49 11 time it's all said and done. We're looking at a couple years
19:19:52 12 and the remedy should be on the way. As Andrew mentioned,
19:19:57 13 there are various facets to the remedy here so it could be
19:20:01 14 spread around and take some amount of time to get it all
19:20:04 15 complete.
19:20:05 16 MR. RIPPERDA: The two removal actions will start
19:20:07 17 soon.
19:20:11 18 MR. MACCHIARELLA: Thank you. In addition to the
19:20:12 19 remedial actions that were proposed in this Proposed Plan,
19:20:15 20 we're also off and running on what we call the removal action,
19:20:18 21 which we can start before the Record of Decision. That's what
19:20:21 22 Andrew was pointing out earlier about the time-critical
19:20:24 23 removal action. Actually, this December there will be some
19:20:26 24 work beginning for portions of this remedy for Site 1. So
19:20:31 25 actually, we'll be starting sooner than a couple years.

Thanks for bringing that up.

AUDIENCE MEMBER: Then how long does it take to complete?

MR. BAUGHMAN: The work in December is pretty quick to finish. It's the removal of the berm in the red-impacted spots will be six months.

AUDIENCE MEMBER: And the rest?

MR. BAUGHMAN: The rest will go through the CERCLA process and the action itself will be complete and I'm not sure of the exact time line for each of those for them to be actually designed.

AUDIENCE MEMBER: Is there somebody from the city here making input from this and have they made comments? Will this gentlemen introduce himself?

MR. RUSSELL: My name is Peter Russel I'm a consultant for the city.

AUDIENCE MEMBER: You work for the city or a consultant?

MR. RUSSELL: I'm a consultant actually for the Alameda Regional Development.

AUDIENCE MEMBER: For a private firm?

MR. RUSSELL: Yes.

AUDIENCE MEMBER: What's the firm?

MR. RUSSELL: Russel Resources.

AUDIENCE MEMBER: I see.

MR. RUSSELL: The city is planning on submitting written comments before November 10th.

AUDIENCE MEMBER: Who does that?

MR. RUSSELL: I write the draft on what I think the technical issues are and the people within the city discuss it. All of these documents are public documents.

MR. MACCHIARELLA: Any other questions? Okay. Then from now until the end of the meeting, we'll open up for public comments, which will be recorded, and will be responded to in our Record of Decision. Do we have any public comments at the moment?

AUDIENCE MEMBER: Can we ask a question?

MR. MACCHIARELLA: Certainly.

AUDIENCE MEMBER: So we're looking at Site 1, does that mean the next time around we'll be looking at Site 2? Is there a sequence?

MR. MACCHIARELLA: Very good question. I thought of that ahead of time.

AUDIENCE MEMBER: Or have you done something before this?

MR. MACCHIARELLA: This is Site 1 but in no way is this the beginning of the remedies. Earlier this year we held half a dozen meetings similar to this for other sites. The sites are scheduled not in numerical order.

AUDIENCE MEMBER: Okay.

MR. RIPPERDA: Do you know about the other meeting?

AUDIENCE MEMBER: I have some documents from those. Are you from the city?

MR. RIPPERDA: No, I'm from the EPA. The Navy meets every month with the community out here and there's typically 20 or so people from the community that come to those. So if

you really want to be involved in what's going on, you can talk to us after the meeting about when those meetings are.

AUDIENCE MEMBER: That's good.

MR. RIPPERDA: Because the meeting presents so much information at those meetings, the 20 or 25 people that are very interested in this site come to those meetings. The information that's presented tonight was also presented to the RAB.

MR. MACCHIARELLA: Thank you. We will adjourn for now if there are no other comments. If anybody shows up, we'll still be here and reconvene and take comments then. Thank you very much for coming.

(Meeting concluded at 7:28 p.m.)

COUNTY OF ALAMEDA.)
) ss.
STATE OF CALIFORNIA)

CERTIFICATE OF REPORTER

I, MARY E. FERREIRA, Certified Shorthand Reporter, do hereby certify that I am an Official Court Reporter of the Superior Court of the State of California, and that, as such, I reported the proceedings had in the above-entitled matter at

the time and place set forth herein.

I further certify that my stenographic notes were thereafter prepared by computer-assisted transcription into typewriting, and that the foregoing pages numbered 1-25 constitute a full, true, and correct transcription of said notes in the above-entitled proceedings to the best of my ability.

Dated at Hayward, California, this 20th day of November, 2006.

_____

MARY E. FERREIRA, CSR #10553, RPR

MARY E. FERREIRA, CSR #10553, RPR

Sign-In Sheet, Public Meeting for Operable Unit 3, Site 1
Alameda Point, California – October 24, 2006

Name Resident or Affiliation	**Address** (Optional)	How Did you Hear About this Meeting? (✓)				
		Mailer	**Notice in the Alameda Journal**	**Notice in the Oakland Tribune**	**Word of Mouth**	**Other (Please list)**
Name: Thomas Macchiarella, Navy	Street City, State and Zip					NAVY
Name: Andrew Baughman Navy	Street City, State and Zip					
Name: Doug DeLong	Street: 222 Haight City, State and Zip: Alameda, CA				X	
Name: Dot Lofstrom DTSC	Street City, State and Zip					
Name: Dr. & Mrs Ligow	Street: 2242 San Antonio Ave City, State and Zip: Ala. 94501					
Name: Peter Russell ARRA	Street: 440 Nova Albion Way City, State and Zip: San Rafael, CA 94903					
Name: Erich Simon Water Board	Street City, State and Zip					
Name: Mark Ripperda USEPA	Street City, State and Zip					

House OKs cash for military

■ Lawmakers provide another $70 billion down payment on war; total spent so far: $507 billion

By Andrew Taylor
ASSOCIATED PRESS

WASHINGTON — Despite intense partisan divisions over the course of the Iraq war, the House on Tuesday easily approved $70 billion more for military operations there and in Afghanistan. Lawmakers also adopted a record $448 billion budget for the Pentagon.

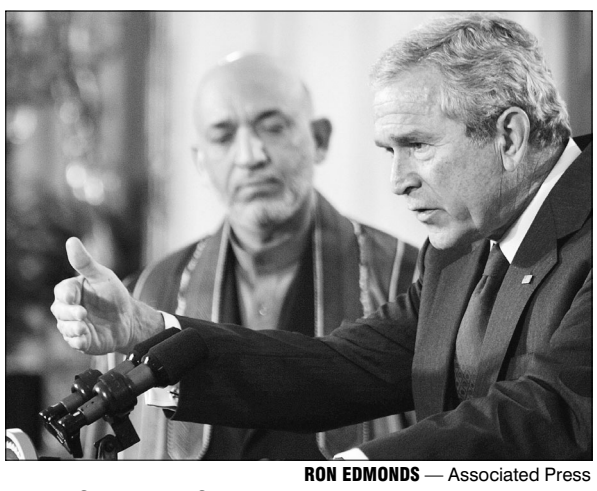
With Iraq alone costing about $8 billion a month, another infusion of money will be needed next spring.

The House passed the Pentagon appropriations bill by a 394-22 vote Tuesday night, and the Senate is due to act before adjourning this weekend for the fall campaign.

The House-Senate compromise bill provides $378 billion for core Pentagon programs, about a 5 percent increase, though not quite as much as President Bush asked for. The $70 billion for Iraq and Afghanistan is a down payment on war costs the White House has estimated will hit $110 billion for the budget year beginning Oct. 1.

With final passage of the bill, Congress will have approved $507 billion for Iraq, Afghanistan and heightened security at overseas military bases since the Sept. 11, 2001, attacks, according to the Congressional Research Service.

"If the president had told us the truth, that Iraq and Saddam Hussein . . . presented no real threat to us, that there was no likelihood of weapons of mass destruction, that there was no connection to al-Qaida . . . would this Congress have voted for war?" said Jerrold Nadler, D-N.Y. "I don't think so."



RON EDMONDS — Associated Press

PRESIDENT BUSH and Afghanistan's President Hamid Karzai hold a joint press conference Tuesday in the East Room of the White House.

Bush vows to aid Afghan leadership in face of setbacks

By Anne Gearan
ASSOCIATED PRESS

WASHINGTON — President Bush reassured Afghanistan's leader on Tuesday that the United States will stick by him five years into a democratic experiment that both men acknowledged has suffered setbacks.

Afghan President Hamid Karzai said the insurgent violence in his country can be tamed, and he called the staggering growth in Afghanistan's illegal drug production an embarrassment.

"You got a tough job," Bush told his guest at the start of a White House press conference.

"Sometimes it is," a slightly rueful Karzai agreed.

Karzai lives under constant threat of assassination and has seen his popularity slide at home while Taliban violence and illegal drug production spike. Suicide bombings, once unknown in Afghanistan, have spread to the capital, Kabul.

Afghanistan is a tough job for the Bush administration as well, as American support for the war slips and some of the hardfought democratic gains in Afghanistan appear threatened. The White House is trying to contain the damage ahead of midterm elections this fall.

Afghanistan is suffering its heaviest insurgent attacks since the Taliban was toppled in late 2001 for harboring al-Qaida leader Osama bin Laden.

According to an Associated Press count, based on reports from U.S., NATO and Afghan officials, at least 2,800 people have died so far this year in violence nationwide. The count, which includes militants and civilians, is about 1,300 more than the toll for all of 2005.

Bush declassifies report critical of Iraq war impact

■ Terrorism has spread across the globe, intel analysts write

By Katherine Shrader and Jennifer Loven
ASSOCIATED PRESS

WASHINGTON — The war in Iraq has become a "cause celebre" for Islamic extremists, breeding deep resentment of the U.S. that probably will get worse before it gets better, federal intelligence analysts concluded in a report at odds with President Bush's portrayal of a world growing safer.

In the bleak report, declassified and released Tuesday on Bush's orders, the nation's most veteran analysts conclude that despite serious damage to the leadership of al-Qaida, the threat from Islamic extremists has spread both in numbers and in geographic reach.

Bush and his top advisers have said the formerly classified assessment of global terrorism supported their arguments that the world is safer because of the war. But more than three pages of stark judgments warning about the spread of terrorism contrasted with the administration's glass-half-full declarations.

"If this trend continues, threats to U.S. interests at home and abroad will become more diverse, leading to increasing attacks worldwide," the document says. "The confluence of shared purpose and dispersed actors will make it harder to find and undermine jihadist groups."

The intelligence assessment, completed in April, has stirred a heated election-season argument over the course of U.S. national security in the years following the 2003 U.S.-led invasion of Iraq.

Virtually all assessments of the current situation were bad news. The report's few positive notes were couched in conditional terms, depending on successful completion of difficult tasks ahead for the U.S. and its allies. In one example, analysts concluded that more responsive political systems in Muslim nations could erode support for jihadist extremists.

Bush ordered a declassified section of the secret report released after several days of criticism sparked by portions that were leaked to the news media over the weekend.

At a news conference, Bush said critics who believe the Iraq war has worsened terrorism are naive and mistaken, noting that al-Qaida and other groups have found inspiration to attack for more than a decade. "My judgment is, if we weren't in Iraq, they'd find some other excuse, because they have ambitions," he said.

The unclassified document said:

— The increased role of Iraqis in opposing al-Qaida in Iraq might lead the terror group's veteran foreign fighters to refocus their efforts outside that country.

— While Iran and Syria are the most active state sponsors of terror, many other countries will be unable to prevent their resources from being exploited by terrorists.

— The underlying factors that are fueling the spread of the extremist Muslim movement outweigh its vulnerabilities. These factors are entrenched grievances and a slow pace of reform in home countries, rising anti-U.S. sentiment and the Iraq war.

— Groups "of all stripes" will increasingly use the Internet to communicate, train, recruit and obtain support.

In Brief

▸ WASHINGTON

House OKs bill on abortion for minors

Accompanying a minor across a state line to obtain an abortion and avoid parental notification in the girl's home state would become a federal crime under a bill the House passed Tuesday.

Republican supporters said the 264-153 vote confirmed public view that parental involvement supersedes a minor's right to an abortion. Democratic opponents foresaw the arrests of grandmothers and religious counselors trying to shield girls from abusive parents.

Chances are slim that the House and the Senate, which approved a more limited version of the bill in July, will devise a compromise they can send to the president before the end of this session of Congress.

But the House vote gives House conservatives something to showcase when they return home next week to campaign for the midterm elections.

The interstate abortion bill, long a priority of anti-abortion groups, joined limits on stem cell research among the top items on conservative agendas this year.

Drug cartel chiefs to forfeit billions

Two Colombians who headed the Cali cartel pleaded guilty Tuesday to drug trafficking and money laundering in a complex deal that U.S. officials said marked the end of the gang that once terrorized Colombia and dominated cocaine smuggling into the United States.

As part of their plea deal, Gilberto Orejuela, 67, and his brother Miguel Rodriguez Orejuela, 63, agreed to forfeit billions of dollars in assets linked to their drug trade.

Shackled at the ankles, each was sentenced to 30 years in a U.S. prison during the pleading in a Miami courtroom.

▸ MORGANTOWN, W.VA.

Suicide for two blast site miners

Two miners whose jobs included watching for safety hazards inside the Sago Mine before the deadly explosion last January committed suicide in the past month.

Neither man had been blamed for the disaster that killed 12 of their comrades, and neither one's family has definitively linked the suicides to the accident. But those who knew the men say there is little doubt the tragedy haunted them.

"I'm not sure anybody ever gets over it," said Vickie Boni, the ex-wife of one of them. "You live with it every day."

Both men were working at the Sago Mine on the day of the blast and had been questioned by investigators along with dozens of other witnesses. One former co-worker said at least one of the men felt investigators were treating him as if he had done something wrong.

FROM WIRE REPORTS

ATTACHMENT C
RESPONSIVENESS SUMMARY

47 pages.

REVISED RESPONSES TO PUBLIC COMMENTS ON THE FINAL PROPOSED PLAN FOR IR SITE 1, 1943-1956 DISPOSAL AREA, ALAMEDA POINT, ALAMEDA, CALIFORNIA

This document presents the U.S. Department of the Navy's (Navy) revised responses to public comments on the "Proposed Plan [Proposed Plan] for Installation Restoration [IR] Site 1, 1943-1956 Disposal Area, Alameda Naval Air Station, Alameda Point, Alameda, California," dated September 2006. Comments were received from the Alameda Reuse and Redevelopment Authority (ARRA) on November 9, 2006, and the Alameda Point Restoration Advisory Board (RAB) on November 10, 2006. The comments from the RAB included an attachment with comments from Peter Strauss of PM Strauss & Associates, who reviewed the Proposed Plan through a Technical Assistance for Public Participation (TAPP) grant on behalf of the RAB. The Navy's responses to comments received from ARRA, the RAB, and Mr. Strauss are provided below.

At the time the Proposed Plan was released to the public, IR Site 1 included Areas 1a, 1b, 2a, 2b, 3a, 3b, 4, 5a, 5b, site-wide radiological contamination, and the groundwater. The Proposed Plan presented a remedy for all of these areas and groundwater. The contamination at Area 4 and the site-wide radiological contamination were expected to be fully resolved in a Time Critical Removal Action (TCRA) completed in 2008. However, radiological contamination was found deeper than expected at Areas 3a and 3b and adjacent IR Site 32. The Navy with agreement of the Base Realignment and Closure Act (BRAC) Closure Team (BCT) has decided to address radiological and chemical contamination in Areas 3a, 3b, and 2a with Site 32 because of the similarity in radiological contamination between these areas and Site 32. Areas 3a, 3b, and 2a and Site 32 will be included in a revised remedial investigation (RI)/feasibility study (FS), and then proceed to the Proposed Plan and Record of Decision (ROD).

Therefore, the IR Site 1 boundary was revised from that presented in the Proposed Plan and the ROD for IR Site 1 will select a remedy for radiological and chemical contamination in Areas 1a, 1b, 2b, 4, 5a, 5b, and groundwater.

In addition, components of the remedy changed from the Proposed Plan to the ROD. These changes are discussed in Section 14.0 of the ROD.

RESPONSES TO COMMENTS FROM ARRA

1. Comment: Two of the Proposed Plan's proposed institutional controls are overly broad and should not be included in the ROD. The Proposed Plan proposes to establish institutional controls that would prohibit certain activities in areas where contamination has not been found. Specifically:

- ***"Prohibit* demolition activities (including paved surfaces), unless transferees gain regulatory and Navy approval and comply with a risk management plan [even outside the boundary of the landfill].**
- ***"Restrict* excavation and/or disturbance of soil in areas within the boundary of IR Site 1, but outside the boundary of Area 1A [the landfill], unless transferees gain regulatory and Navy approval and comply with a risk management plan. (Proposed Plan, p. 7)**

The Navy's Proposed Plan proposes removal of all soil contamination in areas outside the 1andfill:

- **Area 1 soil contamination is documented by historical aerial photographs of the landfill (Area 1A) and by sampling in the burn area (Area IB). Wastes in the burn area are proposed for excavation, but the Navy proposes to leave the landfilled wastes in place.**
- **In Area 2 (the runways, taxiways, and other paved areas) no soil contamination has been observed.**
- **In Area 3 (the unpaved areas outside of the former disposal areas) surface soil contamination by PAHs (polynuclear aromatic hydrocarbons), PCBs (polychlorinated biphenyls), metals, and radium is present in hot spots. No soil contamination was found in any of the eight deeper soil samples from this area. The Proposed Plan proposes removal of all Area 3 soil hot spots.**
- **Area 4 (the pistol range berm) is proposed for complete excavation. This remediation eliminates the PAHs, PCBs, and MEC (munitions and explosives of concern) contamination that has been observed in this area's soil.**
- **In Area 5 (the shoreline) surface soil is contaminated with VOCs (volatile organic compounds), SVOCs (semivolatile organic compounds), PCBs, metals, and radium in hot spots. None of the three deeper soil samples was contaminated. The Proposed Plan proposes excavation of all Area 5 soil hot spots.**
- **Radium contamination occurs in shallow soil across much of IR Site 1. The Proposed Plan proposes excavation of all radium hot spots beyond the landfill boundary.**

The Navy collected eight soil samples from Area 3 from below 2 feet bgs (below ground surface) and three soil samples from Area 5. Although the Navy analyzed these samples for a wide suite of analytes, none of the soil samples from deeper than two feet bgs in IR Site 1 (other than in Area 1) exceed any USEPA PRGs (Preliminary Remediation Goals). Therefore, the remedial investigation does not

provide a basis for any remediation, including institutional controls restricting or prohibiting disturbance of soil or pavement.

The remedial investigation provides no rationale for concluding subsurface soil in IR Site 1 is any different from subsurface soil elsewhere in the runways area. Significantly, neither the Navy nor any environmental regulatory agency has identified the need for similar institutional controls on any other portions of the runways area. If the Navy believes subsurface soil contamination might be present in IR Site 1 (outside of the landfill), from which public health should be protected, the Navy should investigate the issue, rather than simply impose institution controls. Potentially overly protective institutional controls should not substitute for thorough investigation. Remedial Alternatives S2-3 (a preferred alternative), S2-4, S3-4 (a preferred alternative), S5-4 (a preferred alternative), S5-5, and S5-6 are all impacted by this issue. These alternatives generally require institutional controls restricting contact with subsurface soils, even after the Navy remediates the surface soil, which contains all known soil contamination. Imposing the burden of institution controls on land that does not require remediation is not a cost-effective remedy, nor is it consistent with spirit or letter of the CERCLA process.

Response: The Navy believes that the use of institutional controls (IC) is an appropriate component of the remedial actions selected, and it is consistent with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Since issuance of the PP, the 2008 TCRA findings have indicated that radiological contamination is present throughout all areas of IR Site 1 and at depths greater than 2 feet bgs in many areas. Therefore, the remedy will include covers over all of IR Site 1. The covers are necessary to prevent exposure to chemical or radiological contamination that may remain in the subsurface of IR Site 1. ICs are necessary to maintain the integrity of the covers by restricting land uses and activities that could impair the integrity of the cover, thus resulting in uncontrolled and/or unintended exposure to chemical or radiological contamination.

It should also be noted, that Area 3 is no longer part of IR Site 1. This ROD will not select a remedy for chemical or radiological contamination at Area 3.

2. Comment: The Navy should remove all wastes from the IR Site 1 landfill, with off-site disposal. At its November 1, 2006 meeting, the ARRA Board acted to adopt two positions:

- **Alternative S 1-5 (complete removal of wastes in the landfill) is the preferred remediation for soil in Area 1, and**
- **Alternative S1-4a (soil cover on the landfill) is unacceptable remediation for soil in Area 1.**

Among the considerations favoring Alternative S 1-5 are:

1) The Navy has never characterized wastes buried in the Area 1 landfill by sampling or other observation. This landfill was the primary waste disposal location for the Naval Air Station Alameda from 1943 until 1956.

2) The landfill is very close to San Francisco Bay and the Oakland Inner Harbor. Earthquakes, tsunamis, storm surges, and long-term shoreline erosion could lead to hazardous wastes reaching these water bodies. If the wastes were disposed offsite, aquatic habitats in the area would be protected from these hazards.

3) The *Proposed Plan* proposes to remediate contaminated groundwater flowing from the landfill toward San Francisco Bay using in situ chemical treatment. However, buried wastes will continue to recontaminate the groundwater, unless the source of the groundwater contamination the landfill-is removed. The Navy likely will need to continue groundwater remediation for the foreseeable future because the source of contamination is still present. Excavating the landfill with offsite disposal allows permanent groundwater cleanup.

4) Future land use of the landfill footprint will be complicated and more costly because buried hazardous wastes are present. The planned future use of the landfill is a golf course. Design, maintenance, and operation of the golf course will be more difficult due to the wastes, for example, topographic contouring, irrigation, landscape planting, the acceptability and placement of water hazards, accommodation of wells for landfill monitoring, etc. If the landfill were excavated and disposed offsite, routine design, maintenance, and operation of the golf course could occur.

5) The public's enjoyment of this area will be lessened by the presence of a hazardous waste landfill. Some potential users of this planned segment of the Bay Trail may avoid the area for fear of the wastes. Regardless of whether such fears are justified, the public's recreational use of park areas should not be compromised by buried wastes, unless necessary.

Response:

1) The Navy completed a test pit investigation in 2007. The Navy, U.S. Environmental Protection Agency (EPA), California Environmental Protection Agency/Department of Toxic Substances Control (DTSC), and the Regional Water Quality Control Board for the San Francisco Bay Region (Water Board) all agreed that this test pit investigation was responsive to this data gap. The test pit investigation focused on characterizing the condition of any buried drums and increasing the accuracy of the waste volume estimate by excavating (a) two 25-foot-long pits in each of the five waste cells outside the runway, and (b) one 25-foot-long test pit in the waste cell partially covered by the runway. The results of the test pit investigation indicated that no intact drums were present in the areas investigated (Tetra Tech EC Inc. 2008). Additional investigation has been discussed with the BCT and Restoration Advisory Board (RAB) as part of the pre-design sampling. While the Navy proposes additional trenching, soil sampling, and groundwater sampling to support the remedial design, adequate characterization of Site 1 has been completed to support the selection of the proposed remedy.

2) The cover will be designed to meet landfill applicable and relevant or appropriate requirements (ARAR) regarding seismic stability in the remedial design. The BCT will be able to comment and ensure that the Navy follows these and all required ARARs.

3) The preferred groundwater alternative includes *in-situ* chemical oxidation (ISCO), or similar process treatment, and monitored natural attenuation (MNA). These technologies are anticipated to clean up groundwater within 5 years. There is no anticipated continuing source of groundwater contamination. All materials containing groundwater contaminants have been in place for over 50 years, and the potential for any further chemical releases is considered low. The test pit investigation, as discussed above, indicated that no intact drums were present in the areas investigated (Tetra Tech EC Inc. 2008). Pre-design sampling in the plume area will provide data regarding soil and groundwater conditions in the plume area, including the potential presence of source areas. In addition, groundwater monitoring is a component of the groundwater remedy. The Navy will monitor the groundwater to demonstrate the effectiveness of the groundwater corrective action and will continue groundwater monitoring after reaching groundwater remediation goals to demonstrate continued compliance with the groundwater remediation goals.

4) The proposed golf course would be located on top of the 4-foot-thick soil cover, and the soil cover would be maintained. Although the design, maintenance, and operation of the golf course is beyond the

scope of the CERCLA process, the soil cover is well-suited for recreational reuse as a golf course as described below.

5) The reviewer incorrectly alludes to the former waste disposal area, Area 1, as a hazardous waste landfill. The waste disposal area meets the definition of a former municipal landfill because it contains a combination of principally municipal and, to a lesser extent, hazardous wastes (EPA 1993). EPA's past experience with Superfund sites, including hazardous waste landfills, suggests that the public's enjoyment of this area will not be lessened because it contains on-site buried waste. EPA indicates that sites where wastes are contained on site are often well suited for recreational uses such as golf courses (EPA 2003). Covered waste disposal areas have not been shown to impact the Bay Trail. For example, Crissy Field, a covered former disposal area, is located along the Bay Trail and has not been shown to affect the use or popularity of the trail.

3. Comment: As stated in ARRA's comments on earlier IR Site 1 documents, an engineered cap (Alternative S 1-4b) is a better remedial alternative than a soil cover, An engineered cap is the standard method of topping a hazardous waste landfill.

Response: The Navy's evaluation of a soil cover, Soil Alternative S1-4a, and an engineered alternative cap (engineered cap), Soil Alternative S1-4b, showed that both are equally capable of meeting the threshold requirements of protecting human health and the environment and complying with ARARs. When comparing the alternatives using the National Oil and Hazardous Substances Contingency Plan (NCP) balancing criteria, both offer equivalent long term effectiveness and implementability, and the soil cover offers better short-term effectiveness and cost. Based on this evaluation, the soil cover is the preferred alternative. The BCT has agreed with this analysis.

4. Comment: It is highly uncertain that a soil cover will be effective into the future, especially if container failure releases drummed wastes into the groundwater. If groundwater migration from the landfill worsens for this or any other reason, the environmental regulatory agencies likely would require the Navy to upgrade the soil cover to an engineered cap. An engineered cap will be much more effective than a soil cover in preventing precipitation from percolating into the landfill. Excluding percolation of precipitation into the landfill is one important method of minimizing leachate formation and subsequent migration.

Response: Historical and technical information indicates that new releases to groundwater are highly unlikely and that groundwater migration will not worsen at the IR Site 1 landfill, where disposal activities ended over 50 years ago. Therefore, prevention of percolation into the landfill will not be a component of the cover design. The slope of the final cover will be designed to promote positive drainage, and be free of areas subject to ponding or run-on.

Drum failure is not expected. According to the initial assessment study, historical information indicates that drums were crushed during disposal (Ecology & Environment, Inc. 1983). In addition, wastes are buried beneath the current groundwater table, making it unlikely that drums remain intact within the disposal area. Because the waste is positioned primarily in the saturated zone, the Navy believes that over the years, significant decomposition has already occurred. Finally, the test pit investigation completed in 2007 indicated that no intact drums were present in the areas investigated (Tetra Tech EC Inc. 2008) Groundwater monitoring, as discussed above, is a component of the groundwater remedy. Furthermore, the Navy will conduct 5-year reviews as long as contaminants remain on IR Site 1 above levels that allow for unrestricted use and unlimited exposure to determine if the remedy remains protective of human health and the environment.

5. Comment: Retrofitting an engineered cap will severely disrupt golf course operations. The public will lose its use of the golf course, and the golf course will lose revenues. The proposed soil cover alternative (S1-4a) is only twenty-five percent less expensive than the engineered cap alternative (S 1-4b). This marginal cost is outweighed by the marginal benefit of uninterrupted golf course operations.

Response: The Navy has evaluated the alternatives based on a final recreational land use, which could include a golf course, and has included ICs within the alternative to ensure that the integrity of the soil cover is not compromised. Both the Navy and the BCT concur with the proposed remedy of a soil cover. The Navy and the regulatory agencies do not anticipate that the remedy will fail and that retrofitting will be required.

RESPONSES TO COMMENTS FROM THE RAB

GENERAL COMMENTS

1. **Comment:** **Mr. Strauss has done an outstanding job of reviewing the myriad documents and background materials, considering the limited time available. We are deeply appreciative to the Navy for financing this TAPP grant review. Without this help, it would have been virtually impossible for us to devote the time and effort which would have been necessary to review this proposal plan.**

   Response: The Navy appreciates the technical review of the Proposed Plan by the RAB and by the RAB's TAPP grantee, Peter Strauss. The TAPP grant review provides an independent professional examination of the Proposed Plan. The Navy is pleased to address the TAPP grantee review comments and expects that the clarifications will assist in community concurrence and acceptance of the preferred alternatives presented in the Proposed Plan.

2. **Comment:** **Mr. Strauss's insightful analysis has brought to light a number of data gaps and uncertainties, particularly with regard to soil in Area la and contaminated groundwater. By fragmenting its assessment into different areas and media, the Navy may have eliminated from consideration certain holistic approaches such as a low-permeability cap, combined with a hydraulic barrier around the waste cell area and groundwater treatment. Further, the Navy's reluctance to commit to specific design criteria at this point in the process makes it difficult to evaluate or accept its preferred alternatives. Therefore, we have reluctantly concluded that Alternative S-1-5, "Complete Removal" is the only acceptable solution for soil in Area 1a (the waste-cell area).**

   Response: The Navy combined all areas of IR Site 1 and evaluated remedial alternatives that would address contamination that poses risk to human health and the environment as required by CERCLA and the NCP. During the process, the Navy evaluated containment for both soil and groundwater. Containment, which can include a low-permeability cap combined with a hydraulic barrier around the waste disposal area, was examined as a potential technology for both soil and groundwater in the feasibility study ([FS] BEI 2006, Section 4.3). Containment for soil was carried forward into the detailed analysis of alternatives because containment was considered effective, implementable, and cost-effective. Hydraulic barriers were eliminated from detailed evaluation in the FS because of concerns over implementability and high cost. The level of design detail provided in the FS and Proposed Plan is appropriate for the

purposes these documents serve. More specific design criteria will be developed in the remedial design phase.

3. **Comment:** **Under Alternative S-1-5, it appears that the wastes removed would have to be scanned for radioactivity so that radium, and possibly other radioisotopes, could be separated out prior to the separate offsite disposal of radioactive and chemical hazardous wastes. This could circumvent the problem of disposing of ‘’mixed wastes”. During excavation it may be possible to identify and sort out inert, uncontaminated materials.**

Response: This comment is noted. Alternative S1-5 is not the preferred alternative. However, please note that under the preferred alternative (S1-4a), prior to placing the final cover at Area 1a, Area 2b, Area 4, and the inland areas of Area 5, the Navy will scan the surface using gamma radiation field screening instruments. Radiological hot spots will be identified and removed to a depth of one foot prior to placing the soil cover. The surface scan will be conducted using field screening instruments, which provide measurement results in counts per minute (cpm). For the purpose of this remedial action, the Navy will identify hot spots as material exhibiting gamma radiation readings approximately 2 times background, while recognizing that background radiation readings typically vary depending on whether the source material is soil, gravel, or concrete (all of which are present at Site 1), and that different field instruments will also influence the selected screening value. The final numerical screening values (in cpm) will be determined in the remedial design after field instrumentation has been selected. The remedial design will also describe the screening and removal procedures.

4. **Comment:** **“Complete removal” would include excavation and removal of hazardous wastes in cells or other areas underneath the runway(s). The concrete rubble created by demolition of that portion of the runway(s) over the wastes probably would have a significant salvage value.**

Response: This comment is noted. The financial returns from recycling of demolished concrete (runways) were assumed based on “remove and recycle concrete paving” in the cost estimates for Area 1 presented in the FS report (BEI 2006, Appendix D, Table D-10).

5. **Comment:** **The contaminated groundwater would have to be pumped out of the excavation pits and extensively treated prior to disposal. Appropriate protective measures would have to be taken to protect workers against any hazardous gases and vapors, such as vinyl chloride. Finally, the excavated area would have to be backfilled with clean soil.**

Response: This comment is noted. Full excavation of IR Site 1 is not the preferred remedy. However, excavation of portions of IR Site 1 is a component of the remedy. The Navy has identified the California Toxics Rule (CTR) and National Toxics Rule (NTR) as ARARs for the point source discharge to the bay that may be associated with dewatering the excavations.

In addition, the Navy fully intends that protective measures for worker health and safety will be implemented as part of the remedial action. Pumping and treating contaminated groundwater; implementing appropriate protective measures for workers, including protecting workers against hazardous gases and vapors; and backfilling removed materials with clean soil are included in Appendix D of the FS report for the various alternatives. These alternatives include protection of workers with appropriate health and safety planning and measures (BEI 2006, Appendix D).

6. Comment: The many uncertainties associated with the Navy's preferred solution will continue to haunt Site 1 remediation until the waste cell hazardous materials are excavated and removed offsite. These unresolved problems include: (1) Whether a soil cap and shoreline seismic stability barrier can be designed adequate to meet a design basis seismic event. (2) The difficulty of detecting cap failure and repairing it after the cap is covered up by the golf course. (3) Transference to the City and/or park district of unacceptable costs for future cleanup and repair of the cap and perimeter bank failure due to inadequate seismic design criteria. This would include the cost of environmental damage insurance. (4) Whether the preferred in-situ chemical oxidation (ISCO) will be able to achieve cleanup goals for all groundwater contaminants. (5) Whether the oxidative reagent (Fenton's reagent) or seawater will release other contaminants, such as radium and other metals, into the Bay. (6) The lack of a definitive survey to identify special status species. This could substantially affect cleanup goals. (7) Possible future lowering of cleanup level goals for certain chemicals such as TCE, DCE, and vinyl chloride. (8) There is a high probability that contaminated groundwater has been escaping into the Bay for many years ("Draft Alameda Basewide Annual Groundwater Monitoring Report, Spring 2006", Oct. 2006). The true mixing point at which these contaminants are mixing with Bay waters is apparently some distance inland from the shoreline. It is questionable whether the higher contaminant concentrations at this point were used in the ecological risk assessment. (9) Possible future damage to and release of Area la wastes due to global warming, rising sea levels and seismically generated tsunamis. (10) The wastes in Site 1 have not been adequately characterized as to types, quantities, or location.

Response: The Navy's responses to the specific numerical comments are provided below for each item.

- Items 1, 3 and 9. The Navy has identified California Code of Regulations (Cal. Code Regs.) Title (tit.) 22, Section (§) 66264.310(a)(5) as an ARAR for the soil cover. This ARAR requires that the cover be designed to lateral and vertical shear forces generated by the maximum credible earthquake so that integrity of the cover is maintained. Therefore, the Navy will design the cover to accommodate this requirement. In addition, the remedy for Site 5 (the shoreline areas) includes placement of additional riprap to stabilize the shoreline. There are no ARARs that require the inclusion of global warming or rising sea levels into the design of the covers. Should such requirements be promulgated in the future, the 5-year review process would evaluate whether or not the requirements were necessary to maintain the protectiveness of the remedy.
- Item 2. The cover will be designed to prevent exposure to underlying waste and potential contamination, and the presence of a golf course will not diminish this function. The additional presence of a golf course, should one be constructed, will enhance the ability of the cover to minimize potential exposure to wastes or contamination that may remain in underlying soil. Because the cover does not include a low-permeability layer, it avoids the most common cause of cover failure. EPA guidance indicates that cover failure occurs mostly from liner failures due to consolidation of waste and resulting settlement (EPA 2003). The Navy has identified Cal. Code Regs. tit. 22, § 66264.310(a)(4) for the soil cover, which requires that the final cover be designed to accommodate settling and subsidence so that the cover's integrity is maintained. Settlement will be addressed during the remedial design.
- Item 4. ISCO or similar process treatment will be combined with MNA to achieve the cleanup goals for organic chemicals in groundwater. The Navy has successfully used ISCO to remediate other plumes at Alameda Point containing chemicals similar to those found in the plume at IR Site 1.
- Item 5. Monitoring for the release of oxidative reagents and other chemicals into the San Francisco Bay is included as part of the relevant groundwater alternatives. From past experience at Alameda Point, the Navy has not observed off-site migration of oxidative reagents or metals when ISCO was used to remediate groundwater contaminated with volatile organic compounds (VOC) at Site 16. The Navy does not anticipate that the ISCO or similar process treatment will initiate migration of other contaminants into San Francisco Bay. However, the Navy will monitor the groundwater to evaluate if any reagent, radionuclides of concern (ROC)s, metal, VOC, or semi-

volatile organic compound (SVOC) has the potential to discharge to surface water above surface water remediation goals. Mobilization of radioisotopes is not expected given the chemical properties of the radioisotopes of concern at Site 1 so monitoring for the radioisotopes during the ISCO or other similar process treatment is not included in the groundwater remedy. However, baseline data will be collected from existing groundwater monitoring wells in the pre-design characterization of the VOC plume.

- Item 6. The Navy has conducted several surveys for special-status species at Alameda Point. The findings are summarized in a biological assessment prepared in consultation with the U.S. Fish and Wildlife Service (Navy and Tetra Tech, Inc. 1997). No special-status species have been observed at IR Site 1.
- Item 7.The ROD will establish final cleanup goals for groundwater and surface water. These goals will be evaluated in the 5-year review process to determine if they are still protective of human health and the environment.
- Item 8. Chemical concentrations outside the VOC plume and higher chemical concentrations within the VOC plume were addressed in the ecological risk assessment (Tetra Tech EM Inc. 1999).
- Item 10. The wastes types, quantities, and locations at IR Site 1 were adequately and appropriately characterized during the RI based on historical data (Tetra Tech EM Inc. 1999). In addition, the Navy conducted an extensive test pit investigation of the waste cells at Area 1, described above, which found no intact drums. The Navy believes that enough information and data have been collected to make an appropriate and effective remedial decision for this site that is protective of human health and the environment.

In general, the Navy will conduct 5-year reviews for IR Site 1, as discussed above. These reviews will evaluate the continued protectiveness of the remedy. If any conditions that affect the protectiveness of the remedy are found, such as the conditions described in the comment, the Navy will identify actions necessary to restore the protectiveness of the remedy.

7. Comment: In retrospect, the disposal of hazardous wastes and materials into Sites 1 and 2, immediately adjacent to San Francisco Bay, was extremely ill-advised. Certainly, such practices would never be seriously considered today. The alternatives proposed by the Navy for closure of Site 1 do not even meet closure standards for landfills containing municipal wastes.

Response: The Navy concurs that the regulations governing disposal of wastes have changed since 1956. The Navy has done a thorough evaluation of four sets of regulations governing landfill closure through its ARAR evaluation in the FS (BEI 2006). These potential sets of landfill closure ARARs included the hazardous waste landfill closure requirements promulgated at Cal. Code Regs. tit. 22; the hazardous waste landfill closure requirements promulgated at Cal. Code Regs. tit. 23, the solid waste landfill closure requirements at Cal. Code Regs. tit. 27; and the municipal solid waste landfill closure requirements at 40 CFR Part 258, Subpart F. Through this analysis, the Navy identified many requirements that were applicable or relevant and appropriate to Alternative S1-4a. The ARARs identified for Alternative S1-4a contain several closure and post-closure requirements (such as the seismic design requirement and settlement and subsidence requirements mentioned above). The Navy's ARAR analysis and identification has been reviewed and commented on by the BCT.

8. Comment: Now is the time to confront the inevitable conclusion that these wastes must be excavated and removed from the site. We are acutely aware that there are high costs associated with this approach, but further delaying hard decisions will, in the long run, make the costs even higher. This site closure will to be plagued with problems and questions, unless effective action is initiated soon.

Response: The Navy and the BCT have reviewed all documents that make up the CERCLA Administrative Record and have agreed that the Navy's proposed remedy best meets all NCP evaluation criteria.

RESPONSES TO COMMENTS FROM THE RAB (FROM PETER STRAUSS, TAPP CONSULTANT)

The RAB comments included an attached letter from Mr. Strauss. Mr. Strauss's comments are presented as general, major, and specific comments attached to his transmittal letter dated November 10, 2006. The Navy's responses are provided below after each comment.

GENERAL COMMENTS IN COVER LETTER

1. Comment: It is clear that a lot of work has gone into the Proposed Plan. However, based on my analysis, I do not believe it will assure protection to the public, the future landowners and the environment. I do believe that there are elements of the Proposed Plan that are important to begin. Therefore, my overarching recommendation is that this Plan become an interim Plan until certain information is developed.

Response: The Proposed Plan includes remedial alternatives that comprehensively address groundwater and soil contamination. The remedial alternatives are designed to satisfy the nine NCP criteria, which are designed to protect human health and the environment and to integrate with future land use. The Navy intends that the remedy selected in the ROD will be the final remedy. The remedy includes monitoring requirements, and the remedy will be reviewed every 5 years as required by CERCLA in order to ensure that it remains protective.

2. Comment: From years of environmental experience with cleanup, significant uncertainty about attaining deadlines and Remedial Action Objectives (RAOs) require adopting a flexible, adaptive approach for cleanup. There are always going to be some unknowns in a cleanup, but these should be limited to the extent possible. The Proposed Plan will lead to the Record of Decision, which is the key legal framework for cleanup of the site. The ROD is essentially the strategic plan for achieving the RAOs. That being stated, the Navy is placing too much emphasis on resolving issues in the remedial design phase, where public stakeholders have little or no say.

Response: The level of detail on the preferred alternative that was presented in the Proposed Plan is appropriate and sufficient for public to review and comment. The Proposed Plan also presented many requirements (ARARs) that upon incorporation into the ROD, must be complied with during the remedial design. This allowed the public to see with at least some specificity, several design requirements that must be met. The public had the opportunity to review and comment on the ARARs presented in the

Proposed Plan or to present information that other ARARs should be identified.

3. **Comment:** **Elements of the Plan that should begin without further investigation or delay include removal of the pistol range berm and removal of radioactively contaminated wastes in areas 3, 5, 1b, and the site of the radium disposal trench. However, if groundwater is encountered at Area 1b, it is my recommendation that work should be halted until one of the important data gaps is resolved; that is, an evaluation of dioxins and furans in groundwater in the former burn area. If results are positive, this should be followed by a determination of an appropriate treatment system for removing this contaminant from the dewatering activities. When this is completed, then full excavation of the burn area should proceed.**

Response: The Navy completed a TCRA that removed chemical and radiological material at the pistol range berm and radiological contamination in Areas 3, 5, and 1b, which included the radium disposal trench (Tetra Tech EC, Inc 2009). No groundwater was encountered during the TCRA activities (Tetra Tech EC, Inc. 2009).

MAJOR COMMENTS IN COVER LETTER

1. **Comment:** **Other potential groundwater constituents, as identified in data gaps in the Feasibility Study should be evaluated prior to a final ROD.**

Response: Please see the response to Specific Comment 1 in Specific Comments in Attachment regarding data gaps

2. **Comment:** **Geophysical surveys to determine the extent of waste in the landfill and proximity to San Francisco Bay should be evaluated prior to a final ROD.**

Response: The Navy will conduct soil borings and test pits activities as part of the remedial design to delineate the waste and to assess the underlying geotechnical properties. The Proposed Plan informed the public that the cover would comply with geotechnical requirements. Since the entire surface of Site 1 will be covered by a soil cover, riprap, or both, the Navy does not think it is necessary to fully delineate the waste nor is it necessary to determine specific design criteria for a geotechnical component prior to the final ROD. These data will be collected during the remedial design phase.

3. Comment: The entire issue of seismic stability should be revisited prior to a final ROD. Resolution of this involves the remedy selection and is not appropriate to be left to the design phase.

Response: The seismic stability of the remedy will be addressed as part of the remedial design. Engineering designs that ensure seismic stability have been employed for a variety of structures in the San Francisco Bay Area for many years. The proposed remedy will be designed to comply with Cal. Code Regs. tit. 22, § 66264.310(a)(5), which is identified as an ARAR. This ARAR requires that that the final cover be designed and constructed to accommodate lateral and vertical shear forces generated by the maximum credible earthquake. This requirement is entirely appropriate to address in the remedial design phase. The Proposed Plan informed the public that the design would comply with seismic requirements and identified this requirement as an ARAR.

4. Comment: A wetland mitigation ratio of 2:1 should be the minimum ratio allowed.

Response: An appropriate wetlands mitigation ratio will be developed. During the development of the FS, a conservative ratio of 1:1 was assumed in the development of the cost estimates (BEI 2006, Appendix D, Table D-4). The wetlands mitigation ratio for Area 1 will be determined during the remedial design phase of the project. During the remedial design, an evaluation of the functionality and extent of wetlands in Areas 1 will be conducted for mitigation planning purposes. The final mitigation ratio and amount of mitigation will also be determined at that time based on the location and type of wetlands (BEI 2006).

5. Comment: The scope of Site 1 should include sediments that are immediately adjacent to the landfill, for these potentially contain contaminants from past migration from the landfill. Offshore sediments are currently being addressed by the regional sediment work group and were not addressed in the Site 1 FS Report.

Response: Based on the results of extensive sampling of sediments from locations surrounding Alameda Point, the Navy and the BCT have identified IR Sites 17, 20, 24, and 29 as offshore sediment sites, which will be addressed separately from IR Site 1. IR Site 29 includes offshore contamination associated with the skeet range at IR Site 1. A ROD has been issued that determines that no action is necessary for offshore sediments (Navy 2005). The beach sampling data collected around IR Site 1 in 2005 are included in this remedial decision. The site investigation for Western Bayside concluded that no further action is necessary for this off-

shore area (Arcadis BBL 2007). Please note that the remedy includes additional riprap cover in the intertidal area.

6. **Comment:** **The groundwater plume to be treated needs a complete characterization before a final remedy is selected. Recent experience with the proposed remedy has indicated that the magnitude and location of contaminants are critical for successful implementation.**

Response: The Navy and the BCT have agreed that the plume has been adequately characterized to allow the selection of ISCO or similar process treatment as the remedy to address the VOC plume area. Further sampling of the groundwater plume will be conducted during the remedial design to determine design and operating parameters for the groundwater treatment system. The Navy has adopted this same approach basewide and has successfully treated VOC plumes at IR Sites 16 and 9.

7. **Comment:** **There is concern that the remedy may lead to the release of other contaminants, including radium and metals. The Plan should include a capture and monitoring system to be used when the groundwater is undergoing treatment so that excess oxidants and potentially released contaminants are not released beyond the treatment area. A network of "Guard wells" (i.e., extraction wells at the downstream boundary of the treatment zone) and "Sentinel Wells" (monitoring wells to ensure that the guard wells are capturing released contaminants) should be developed and included in the Plan.**

Response: Groundwater monitoring inside the VOC plume area will be conducted as part of the ISCO or similar process treatment technology included in the preferred remedial alternative (Alternative GW3). This groundwater monitoring will include monitoring for oxidative reagents, arsenic, ROCs, and other chemicals. Although, mobilization of ROCs is not expected given its chemical properties, groundwater samples will be analyzed for ROCs as part of the overall monitoring program, which includes characterization for waste disposal. The number and locations of samples to be collected will be detailed in the remedial design.

Groundwater monitoring outside the VOC plume area will be conducted for ROCs, arsenic, copper, mercury, nickel, silver, and zinc to determine the potential for the migration of these from groundwater to surface water at concentrations above background values. An overall groundwater monitoring program will be developed for Site 1 during the remedial design. It will include analysis for radium-226. A complete list of monitoring analytes and sampling locations will be developed during the remedial design.

8. Comment: **I think that the Navy should not rely on Monitored Natural Attenuation (MNA) for a major role in the groundwater remedy, especially since there are DNAPLs in the groundwater plume. Although the FS indicates that there is breakdown of TCE into Dichloroethene (DCE) and vinyl chloride, the attenuation process often stalls at this point, with a buildup of vinyl chloride, which is probably more toxic than TCE. Realizing that the proposed remedy removes some of the source through ISCO, I believe that the Navy must have an objective that at least 75 percent of the reduction takes place through biological or chemical destruction, not through dispersal and diffusion.**

Response: The proposed groundwater alternative will rely most heavily on an active ISCO or similar process treatment to reduce a significant mass of contaminant concentrations, which is assumed to approach 80 percent concentration reduction in the FS report (BEI 2006, p. 6-13). MNA would be used as a secondary treatment to reduce residual concentrations of some contaminants to meet the groundwater remediation goal. Dense non-aqueous phase liquids (DNAPL), although possibly present in the groundwater, have never been noted. The preferred groundwater treatment alternative is expected to be technically feasible and capable of achieving a permanent reduction of VOCs. At Alameda Point, ISCO has been successful at treating the types of VOCs encountered at IR Site 1.

9. Comment: **I recommend that along with ISCO, enhanced in-situ biological remediation be retained, especially if monitoring downstream indicates that there are still high levels of vinyl chloride.**

Response: The ROD will select ISCO or a similar process treatment as the groundwater remedy. This will provide the flexibility for the Navy to implement a similar treatment process should ISCO be incapable of meeting the performance objectives identified in the remedial design. ISCO has been successful at other sites at Alameda Point.

10. Comment: **There has not been a sufficient survey to identify special-status species. Habitat exists for a number of special status and rare and endangered species. There are rare and endangered and species of special status at Alameda Point, including but not limited to the Least Tern, the Alameda Song Sparrow, and possibly wetland and marsh species such as the Salt marsh harvest mouse and the Salt marsh wandering shrew, the Great Blue Heron, and the Clapper Rail. These species are often risk drivers at wetland and marsh sites.**

Response: The Navy has conducted several studies for special-status species at Alameda Point. Based on these studies and surveys, the Navy prepared a

biological assessment that was used to support a biological opinion from the U.S. Fish and Wildlife Service in accordance with the Endangered Species Act. No special-status species or their habitats have been identified at IR Site 1 (Navy and Tetra Tech, Inc. 1997). However, the Navy has identified the Federal Endangered Species Act (FESA) as an ARAR because the California clapper rail, a federal endangered species, is potentially present on Site 1. The Navy has also accept the California Endangered Species Act (CESA) as an ARAR because the California black rail, a state endangered species, is potentially present on Site 1. The selected remedial action will comply with these ARARs.

11. Comment: Little attention is paid in the documents about how radionuclides and other chemicals can be mobilized by changing environmental conditions. If waste is left in place, in what is an unlined pit, it is incumbent upon the Navy to further investigate factors that would mobilize contaminants and determine a mechanism for monitoring environmental change.

Response: The Navy has established a basewide groundwater monitoring program; the selected remedial action will also implement a robust monitoring program to monitor for changing environmental conditions. Mobilization of radioisotopes is not expected given the chemical properties of the radioisotopes of concern at Site 1. However, during sampling events, if environmental conditions are observed to be changing and radionuclides have been mobilized, data will be reviewed, and in compliance with the NCP, a determination will be made whether an Explanation of Significant Differences (ESD) or ROD amendment is appropriate.

12. Comment: Under the Navy's recommended alternative for soil in Area 1a, radium would be left in place. I recommend that the Navy establish a low threshold level for wastes that are left.

Response: The ROD will contain remediation goals for ROCs for residential and construction worker receptors. Placement of the soil cover will ensure that the remediation goals will meet or will be more protective than the 15 millirem/year residual dose level identified in the 1997 EPA OSWER directive 9200.4-18. It should be noted that ICs will be placed across all of IR Site 1 that will prohibit residential use. The ROCs are identified based on the Historical Radiological Assessment (Weston Solutions, Inc. 2007). In addition, the remedy for site-wide radiological contamination will include a scan of Areas 1a, 2b, 4, and 5 to identify any radiological hot spots. Radiological hot spots will be excavated and disposed of off-site.

13. Comment: I recommend that the Navy adopt a cleanup level for human health risk that is equivalent to a one-in-one million excess cancer risks.

Response: All human health remediation goals meet or are more protective than an incremental cancer risk of 10^{-6}, except for polynuclear aromatic hydrocarbons (PAH). The soil remediation goals for PAHs were calculated based on an incremental cancer risk of 10^{-5} consistent with the basewide risk management decision-making process for Alameda Point.

The groundwater remediation goal in Table 8-1 was calculated based on an incremental cancer risk of 10^{-6} using the maximum concentration of vinyl chloride as the EPC or 4×10^{-7} using the 95 upper confidence limit (UCL) of the average concentration calculatetd by ProUCL version 3.00.02 (BEI 2006).

The surface water remediation goals are based on identified ARARs and reflect an incremental cancer risk of 10^{-6}.

The development of the remediation goals is discussed in the FS Appendix C (BEI 2006).

14. Comment: The risk assessment should include the latest information, including the 2006 finding by the National Academy of Sciences (NAS) that EPA's 2001 draft health risk assessment for TCE was valid.

Response: This comment is noted. The risk assessment will not been updated to reflect the latest information from the National Academy of Sciences (NAS). Remedies selected in the CERCLA process are based on ARARS and to be considered (TBC) policies, regulations, guidance, or ordinances (Title 42 of the *United States Code* [USC] § 9621(d), Title 40 of the *Code of Federal Regulations* [CFR] 300.400). The NAS information does not qualify as a criterion TBC. As the reviewer notes, the allowable groundwater contamination standards and health risks for trichloroethylene (TCE) in air may change in the future based on reviews by NAS and others.

15. Comment: It is my opinion that if waste is going to remain in place, an engineered cap that limits water infiltration is necessary.

Response: Please see the response to ARRA General Comment 3.

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.

17. Comment: It is unclear whether the Navy has considered the re-use plan for golf course in its remedial design. The golf course would impose additional structural parameters in the case of a seismic event, and would require a great deal of irrigation water that would infiltrate the cap. Both of these elements need to be looked at in the cap /cover design.

Response: The Navy will implement a remedy that will allow for reuse of IR Site 1 as a recreational area. The specific recreational use of the property will not be decided by the Navy, it will be decided by the future property owner, ARRA.

The Navy has identified Cal. Code Regs. tit. 22, § 66264.310(a)(5) as an ARAR requiring the cover be designed and constructed to accommodate the lateral and vertical shear forces generated by the maximum credible earthquake so that the integrity of the cover is maintained.

The Navy has determined that the requirement to design and construct a cover that prevents the downward entry of water for 100 years was determined not to be an ARAR for IR Site 1. The IR Site 1 landfill has been closed for almost 50 years and is unlikely to be a threat to groundwater (groundwater does not have a beneficial use as a source of drinking water and the landfill does not appear to be a source of contamination that would cause surface water in the bay to exceed surface water criteria) . The Navy has identified the VOC plume, believed to be associated with other base operations, not the landfill, and will be actively treating the plume.

18. Comment: It is worth considering that climate change is expected to cause sea levels to rise by approximately 3 feet over the next 100 years. All proposed remedies that are adjacent to the Bay should take this into consideration.

Response: IR Site 1 will be subject to CERCLA 5-year reviews as long as the level of contamination prevents unrestricted use and unlimited exposure. The 5-year review process includes assessing if any other information has come to light that could call into question the protectiveness of the remedy (EPA 2001). If climate change becomes a relevant factor for the protectiveness of the remedy, the CERCLA process would require its consideration.

19. Comment: I agree that State Water Resource Control Board Resolution (SWRCB) 68-16 (i.e., the non-degradation policy) and SWRCB Resolution 92-49 apply to groundwater at this site.

Response: This comment is noted. The Navy and the State disagree on whether or not these Resolutions are ARARs. ROD explains in detail the Navy and the State's position on these Resolutions. The Navy has identified Cal. Code Regs. tit. 22 § 66264.94 as a federal ARAR for groundwater. The Navy's position is that these State Resolutions are not more stringent than this federal ARAR. The State believes the Resolutions are ARARs, but agrees that the proposed action would result in de facto compliance with the Resolutions.

20. Comment: It is crucial that the Plan state who will be responsible for maintaining the stability and performance of the cap once a golf course is put in place.

Response: The maintenance of the covers will be included as part of the Operations and Maintenance Plan. This will ensure that the remedy is not compromised by excavation or other activities. Although the Navy may later transfer the remedy operation and maintenance and/or responsibilities to another party by contract, property transfer agreement, or other means, the Navy shall retain ultimate responsibility for remedy integrity. If any of the performance objectives of the remedial action fail, the Navy shall ensure that appropriate actions are taken to re-establish the protectiveness of the remedy and may initiate legal action to either compel action by a third party(ies) and/or recover the Navy's costs for mitigating any discovered IC violation(s).

21. Comment: This is the most confusing Proposed Plan that I have read, and I think it would be helpful for all concerned that a better explanation of the Site 1 proposed remedy be rewritten.

Response: The Navy acknowledges that describing remedial actions for multiple media (soil and groundwater) at many individual areas in a necessarily brief document can lead to confusion. The Navy has used the ROD to provide a more detailed and organized discussion of the proposed remedy while at the same time meeting CERCLA and NCP requirements.

SPECIFIC COMMENTS IN ATTACHMENT

Data Gaps

1. Comment: The resolution of many data gaps is not addressed in the proposed plan; instead, they are planned for the remedial design stage. In 2004, the Environmental Protection Agency (EPA) Remedial Project Manager (RPM) expressed frustration with the lack of data used in the Remedial Investigation/Feasibility Study (RI/FS). He expressed concern that that the lack of information could compromise the ability of stakeholders to select a final alternative. If an alternative was selected that relied on extensive data collection during remedial design to verify assumptions, he cautioned that time-consuming Record of Decision (ROD) amendments could potentially be required. It is my opinion that each of the data gaps should be resolved before a final plan is completed. These include:

1. **Delineation of Trichloroethene (TCE) in groundwater at the north end of Site 1, adjacent to the inner harbor. The lateral extent of TCE in this area has not been defined. The FS reported that this will be investigated as part of the remedial design phase; however, it may be investigated sooner. At this time, we don't know if this analysis was completed and whether there will be additional groundwater remediation required.**
2. **Analysis for 1,4-dioxane in groundwater using lower detection limit. 1,4-dioxane is a solvent stabilizer that was added to Trichloroethane (TCA) and other solvents. The groundwater analysis used a high detection limit so that this contaminant was not fully characterized. Information about the presence of 1,4-dioxane in groundwater in the plume area will be available during the remedial design phase of the project. Yet, it is not clear whether the In-Situ Chemical Oxidation (ISCO) process fully works on this chemical.**
3. **Analysis of groundwater in the burn area for dioxins/furans. At the latest, groundwater samples will be collected during the remedial design phase from the monitoring wells in the burn area and analyzed for dioxins and furans. The presence of dioxins and furans will be an important consideration on how this area is remediated.**
4. **Analysis for explosive constituents in groundwater. Analysis of groundwater samples for constituents indicative of ordnance in first water-bearing zone (FWBZ) groundwater will be conducted during the remedial design phase of the project. Again, a treatment system for constituents indicative of explosives may require different treatment than ISCO.**

5. **Radiological survey of the riprap slope areas. Information about the presence of radium-impacted waste in the shoreline areas will be available during the remedial design phase of the project. This is a major concern for human and ecological health and may affect the scope of the remedy, and lead to further investigation whether radium has made its way into the Bay.**

6. **Assessment of residual impacts in the waste disposal area. Installation of four interior and/or perimeter wells has been included in all the active groundwater remedial alternatives. Groundwater data from these wells will be available during the remedial design phase of the project and will be used to evaluate groundwater quality in the waste disposal area and assess whether drummed liquids were disposed of at Site 1. One of the concerns is that there are drummed wastes in the landfill, which may require spot excavation. Covering it with a cap before this is known is premature.**

7. **Ecological risk assessment (ERA) for unpaved areas of Site 1 outside the disposal area. An ERA of the unpaved interior areas of Site 1 will be performed as part of the remedial alternatives for soil in Area 3. The ERA will be conducted during the remedial design stage of the project and the results of the ERA will be used to determine the extent of the hot spot removals in Area 3.**

8. **Wetlands evaluation. An evaluation of the functionality and extent of wetlands in Areas 1 and 3 will be conducted during the remedial design stage for mitigation planning purposes. The final mitigation ratio and amount of mitigation will also be determined at that time based on the location and type of wetlands. Again, this determination should be part of the proposed plan and vetted before the public.**

9. **Geophysical surveys. Geophysical surveys would be conducted to assess the limits of buried waste and the proximity of waste to the San Francisco Bay under preferred alternatives S1-4 and S5-4. This clearly is a characterization activity, and proposals or areas affected require this information prior to remedy selection. Additionally, depending on the results of the buried waste delineation activities, the recommended geotechnical remedy (3,000-foot-long soil cement gravity wall and stone columns) may not be the most feasible and cost-effective geotechnical remedy for Site 1.**

Response: In 2006, the BCT, including the EPA Remedial Project Manager (RPM), approved the IR Site 1 Proposed Plan, indicating that the frustrations expressed by the EPA RPM in 2004 have been resolved to a level that allowed remedy selection. The BCT has accepted the Navy's approach to resolve issues during the remedial design. The Navy believes that enough

information and data have been gathered to make an appropriate remedial decision, and both the Navy and the BCT concur with the proposed remedy. The responses below address the individual issues identified in this comment.

1. The Navy has not completed any additional delineation of the trichloroethene (TCE) plume at this time. The Navy will refine the plume extent during the remedial design.
2. EPA has recently published an engineering issues paper on ISCO (Huling and Pivetz 2006). This paper assesses the amenability of treatment using different contaminants and contaminant classes, including 1,4-dixoane. The assessment indicates that the amenability of treatment of 1,4-dixoane using ISCO with Fenton's reagent is excellent. There is little risk in deferring additional characterization of 1,4-dioxane in groundwater at IR Site 1.
3. This comment is noted. If dioxins and furans are detected in groundwater during removal of the burn area, the Navy will evaluate the data in coordination with the BCT to determine the need for additional action, if any, to resolve the issue. Please see the response to General Comment 3 in RAB Cover Letter.
4. The EPA engineering issues paper on ISCO also evaluates explosives (Huling and Pivetz 2006). The paper concludes that the amenability of explosives (as a class of contaminants) to oxidation transformations is good to excellent using ISCO.
5. The radiological characterization survey was completed in November 2006 and included the shoreline and riprap areas of IR Site 1. All data gathered during this survey have been included in the TCRA for IR Sites 1, 2, and 32 that has been completed (Tetra Tech EC, Inc 2009).
6. The Navy has addressed the data gap relating to intact drums in the waste area. The test pit investigation completed in 2007 indicated that no intact drums were present in the areas investigated (Tetra Tech EC Inc. 2008). Placement of the covers over IR Site 1 will result in the destruction of existing groundwater wells. The Navy will work with the BCT to determine appropriate locations for the construction of new wells.
7. Area 3 is no longer part of IR Site 1, so the Navy will not perform an ERA during the remedial design phase.
8. Area 3 is no longer part of IR Site 1, so the Navy will not evaluate wetlands that are located on Area 3 to determine mitigation ratio. The Proposed Plan provided information on the acreage of wetlands expected to be effected by the preferred alternative (2.1 acres) and informed the public that the Navy would mitigate wetland loss. The Navy does not believe that it is necessary to include an actual

mitigation ratio in the Proposed Plan. An appropriate wetlands mitigation plan will be developed during the remedial design phase.

9. As the reviewer notes, for Soil Alternative S1-4a, the spatial limits of buried waste and the proximity of waste to San Francisco Bay will be assessed using test pits, and soil borings. These activities will focus on identifying limits and not on characterizing the chemical composition of the waste. Data from these activities will be used to evaluate the geotechnical component of the remedy and to provide data to develop appropriate design criteria. These are appropriate activities for the remedial design phase. Other seismic stabilization techniques will be considered during the remedial design phase.

For Alternative S5-4, the Navy will conduct sampling in portions of Area 5 that are not currently covered with riprap to determine if there are any chemical concentrations above remediation goals. If the sampling shows chemical concentrations exceed the remediation goals, the soil will be excavated down to a maximum of two feet below ground surface. Area 5 is believed to be outside the waste disposal areas, so the Navy does not anticipate that the sampling will show concentrations above remediation goals; however, a limited amount of characterization data exists for Area 5 so the Navy determined this sampling was necessary. The public was informed of this in the Proposed Plan.

Scope

2. Comment: The proposed plan covers Site 1 but not the contamination that potentially has emanated from Site 1 into the Bay and the inner harbor. The FS and responses to comments on the FS all point out that the waste has been sitting in groundwater for some time, and much of it has probably been sorbed or has washed into the bay. During the mid-1990s, sediment samples were taken and at that time, the Navy determined that results were expected for ambient concentrations in the San Francisco Bay and unlikely to pose an increased health or ecological risk relative to the rest of the bay. Offshore sediments are currently being addressed by the regional sediment work group and are therefore not addressed in the Site 1 FS Report. Due to advances in the science of ecological risk and estimates of "ambient levels", this statement is no longer valid. The low tidal areas adjacent to Site 1 should be included in the scope of this plan, or an amendment to the plan.

Response: The Navy and the BCT identified a number of offshore IR sites around Alameda Point based on the analytical results associated with extensive sampling of offshore sediments. The sites include IR Site 17, Seaplane Lagoon; Site 20, Oakland Inner Harbor; Site 24, Pier Area; and Site 29, Skeet Range. In 2005, samples were collected in the former burn area and

proposed future park area to supplement previous data collected at IR Site 1 (Battelle 2005a). The Navy and the BCT have signed a No Action ROD for IR Site 29, which is located offshore of IR Site 1, on September 21, 2005 (Battelle 2005b). This ROD was supported by the historical data referenced by the reviewer and was supplemented by data collected over several recent years. The evaluation conducted using these data concludes that historical activities at the Skeet Range did not have a significant effect on ecological receptors in San Francisco Bay. Therefore, the No Action ROD was warranted. The Navy has determined that the existing data and evidence are sufficient to invalidate the contention that "advances in the science of ecological risk and estimates of 'ambient levels'…" would negate the previous evaluations or require additional consideration of tidal areas adjacent to IR Site 1.

The remedy for Area 5 includes placement of a riprap cover in portions of the Area where there is no riprap cover to stabilize the shoreline. The riprap cover will be placed from above the high tide line to approximately 2 feet below mean sea level.

Groundwater

3. Comment: **In-situ Chemical Oxidation (ISCO) works if the oxidizing agent comes into contact with the contaminant. Whether or not ISCO will work at the particular site depends on the soil/geology of that location, the source area characteristics and how well the VOC plume is characterized. Yet, the characterization of the VOC plume is incomplete, as shown on Figure 4 of the Proposed Plan. A recent experience with ISCO in Rhode Island has proven ineffective, probably because the magnitude of contamination was not yet fully understood.**

Response: The groundwater remedy will be ISCO or a similar process treatment. The plume is adequately characterized regarding its composition. However, further definition of the extent of contamination will be performed during the remedial design phase. The extent of contamination will not affect the success of ISCO or a similar process treatment. Based on the Navy's experience at other sites at Alameda Point, ISCO will successfully treat VOCs in the plume at IR Site 1.

4. Comment: **The common oxidants are hydrogen peroxide-based Fenton's Reagent, and potassium manganate ($KMnO_4$), better known as permanganate. Fenton's Reagent is produced on site by adding an iron catalyst to a hydrogen peroxide solution, and works best with a pH adjustment. The Regional Water Quality Control Board (RWQCB) RPM expressed concern that ISCO may cause the release**

of other contaminants now stabilized in the landfill (metals). The most common oxidant delivery method involves the injection of oxidants, and the targeted delivery of oxidants to the contaminant zones may require both injection and extraction wells. The Proposed plan must make clear that it will capture the oxidants if there is a release of other contaminants. T his will also require frequent sampling downstream after initial injection.

Response: The Proposed Plan describes that groundwater monitoring will be conducted to "assess if contaminants are migrating and to monitor changes in ambient conditions." The Navy thinks this is an appropriate level of detail for the Proposed Plan. Please see the response to Major Comment 7 in RAB Cover Letter above.

5. Comment: In a related point, the selection of the oxidizing agent should preclude activation or release of other contaminants (such as Radium-226) that may be trapped in the saturated and vadose zones. The Proposed Plan should indicate if this is a potential problem, and what would be done to mitigate it. Since the Radiological investigation only characterized surface anomalies, it is not certain whether parts of the area that are scheduled for ISCO would have radionuclides below the two foot depth.

Response: Please see the response to Major Comment 7 in RAB Cover Letter and Specific Comment 4 in RAB Attachment above.

6. Comment: The plan should include a capture and monitoring system to be used when the groundwater is undergoing treatment so that excess oxidants and potentially released contaminants are not released beyond the treatment area. A network of "Guard wells" (i.e., extraction wells at the downstream boundary of the treatment zone) and "Sentinel Wells" (monitoring wells to ensure that the guard wells are capturing released contaminants) should be developed and included in the plan.

Response: Please see the response to Major Comment 7 in RAB Cover Letter above.

7. Comment: I was struck by the somewhat lenient groundwater cleanup goals. The remediation goal for vinyl chloride, a known carcinogen, is three orders of magnitude greater than the drinking water standard; TCE is an order of magnitude higher than the drinking water standard. Although it is acknowledged by the regulators that the groundwater is a not potential drinking water source, these high contaminant levels are of concern as they make their way to the bay. It is important to note that a dispute exists between the RWQCB and the Navy over

whether it must comply with California's non-degradation policy (SWRB 68-16 and 92-49), which has as one of its objectives limiting polluted waters from contaminating less polluted waters. Additionally, as the groundwater is shallow and flows just under the"sandy beach", vapors from the underlying shallow groundwater may be released. In particular, vinyl chloride vapors should be assessed using the most recent scientific information.

Response: Groundwater at IR Site 1 has a beneficial use of freshwater replenishment. The ROD will identify a groundwater remediation goal for vinyl chloride calculated to protect the pathway for inhalation of volatiles released to outdoor air. The ROD will also identify surface water remediation goals based on the CTR (at 40 CFR § 131.38), NTR (at 40 CFR § 131.36[b]), and the Comprehensive Water Quality Control Plan for the San Francisco Region (Basin Plan) Table 3-3. The remedy for groundwater will include groundwater monitoring to evaluate the potential for contaminated groundwater to discharge to surface water at levels above the surface water remediation goals. In addition, the Navy has agreed to monitor groundwater the VOC plume area to evaluate the potential for contaminates in groundwater to discharge to surface water at concentrations above the CTR, NTR, and Basin Plan values.

Also, please see the response to Major Comment 19 in RAB Cover Letter above.

8. Comment: I think it is important that the Navy does not rely on Monitored Natural Attenuation (MNA) for a major role in the groundwater remedy. Public stakeholders at many sites view "natural attenuation" with skepticism and some view it as a do nothing approach. Although the FS indicates that there is breakdown of TCE into Dichloroethene (DCE) and vinyl chloride, the attenuation process often stalls at this point, with a buildup of vinyl chloride, which is probably more toxic than TCE. Realizing that the proposed remedy removes some of the source through ISCO, I believe that the Navy must have an objective that at least 75 percent of the reduction takes place through biological or chemical destruction, not through dispersal and diffusion. This may be achievable, as the FS points out that ISCO at the Naval Weapons Station Seal Beach reduced VOCs by 80%.

Response: Please see the response to Major Comment 8 in RAB Cover Letter above.

9. Comment: The high level of DCE in groundwater (3,900 ppb) and vinyl chloride (9,400 ppb) west of the former engine parts storage and cleaning area is probably the result of natural breakdown of TCE. It supports the conclusion that some attenuation is occurring; however, vinyl chloride

is more persistent, more mobile, and more toxic than its parent products (e.g., TCE). This "line of evidence" to demonstrate that natural attenuation is occurring is not sufficient by itself to persuade agencies that that MNA will continue to work as a remedy. EPA puts the burden of proof on the party that proposes natural attenuation as a cleanup remedy, and requires "multiple "lines of evidence". While natural attenuation in general has both advantages and disadvantages, the proponent must present convincing site-specific technical evidence that natural attenuation will effectively protect human health and the environment and, furthermore, that it will achieve remedial objectives within a reasonable time frame. Project proponents must demonstrate that human or environmental receptors will not be exposed to greater risks during the long natural attenuation process.

Response: The groundwater remedy will include corrective action monitoring one purpose of which is to determine if natural attenuation is a viable final step to meet remediation goals. The Navy will work with the BCT to make this determination.

10. Comment: **There is continued concern that ISCO is not effective at treating a large mass of volatile organic compounds (VOCs), such as is found in dense non-aqueous phase liquids (DNAPLs). Rebound, or the rise in contaminant levels after it was seemingly reduced, may be high if an appreciable DNAPL mass remains in the source zone and soil/groundwater. However, based on the literature, Fenton's Reagent is somewhat effective if it comes into contact with the DNAPL.**

Response: Please see the response to Major Comment 8 in RAB Cover Letter above.

11. Comment: **TCE, a common contaminant found in groundwater, is sold under about fifty different trade names. Some of these products contain additives used as stabilizers, which make up two to eight percent of the total weight. These stabilizers are numerous and they have not been considered when developing strategies for natural attenuation. For example, the most common stabilizer, 1,4-dioxane in TCA, does not readily attenuate, and is only going to be looked at in the remedial design phase. The matter of stabilizers, particularly 1,4-dioxane, should be analyzed as soon as possible, as it may lead to a different remedial strategy for groundwater.**

Response: Based on Thomas K.G. Mohr's white paper entitled "Solvent Stabilizers, White Paper," stabilizers were not commonly used during the time waste was disposed of at IR Site 1 (Mohr 2001). Therefore, it is highly unlikely that stabilizers, including 1,4-dioxane, are unknowingly persisting at IR

Site 1. Additionally, characterization of the extent of 1,4-dioxane will be addressed along with the other groundwater data gaps during the remedial design.

12. Comment: I recommend that along with ISCO, enhanced in-situ biological remediation be retained, especially if monitoring downstream indicates that there are still high levels of vinyl chloride.

Response: Please see the response to Major Comment 9 in RAB Cover Letter above.

Soil

13. Comment: Some of the soil remediation goals seem high. I anticipate that most of the remediation goals will be determined by ecological assessment, with some of the goals being determined for the seasonal wetlands. Realizing that the ecological assessment is species and habitat specific, I encourage the Navy to consult with all parties about species of concern. It should also be noted that the EPA, the RWQCB and the Navy agreed to cleanup goals at Moffett after considerable debate and community input. Below I have compared the Alameda Point soil remediation goals to sediment goals at Moffett Field, in the South Bay. I am particularly struck by the difference in goals for DDT in soil at Alameda Point and those at Moffett.

Comparison of Alameda Point Soil Cleanup Goals and Moffett Sediment Cleanup Goals

		Moffett – Salt Marsh		Moffett – Open Water	
Contaminant	**Alameda Pt.**	**Low TRV**	**High TRV**	**Low TRV**	**High TRV**
PCB µg/kg	380	59	210	97	1,179
DDT µg/kg	1,200	0.51	109	0.51	109
Lead mg/kg	56	0.01	93	0.38	151
Zinc mg/kg	300	6.5	314	66	664

Notes:

µg/kg	Micrograms per kilogram
mg/kg	Milligrams per kilogram
TRV	threshold reference value

Response: Area 3 is no longer part of IR Site 1. So the ecological risk assessment for Area 3 is no longer a part of the remedy. The ROD will present the final remediation goals for soil.

The table above should not be used to develop soil cleanup goals because it only provides information on salt marsh and open water habitat, both of

which contain a completely different medium (sediment) than soil. Site-specific soil remediation goals were developed to protect human health for future recreational visitors (or occupational/construction workers) and terrestrial ecological receptors. Based on the site-specific factors at Alameda Point, the regulatory agencies concur with the Navy's remediation goals. To address contaminants above the cleanup goals, the remedy provides a protective cover that prevents exposure to contaminants above remediation goals that were previously disposed during operation of Site 1.

Ecological Risk

14. Comment: There has not been a survey to identify special-status species. Brown pelicans have been seen flying to the beach area, and habitat exists for a number of special status and rare and endangered species.

Response: Please see the response to Major Comment 10 in RAB Cover Letter above.

15. Comment: Given that we know that there are rare and endangered and species of special status at Alameda Point, including but not limited to the Least Tern, the Alameda Song Sparrow, and possibly wetland and marsh species such as the Salt marsh harvest mouse and the Salt marsh wandering shrew, as well as species of special status, including the Great Blue Heron, and the Clapper Rail, these species should be considered in risk calculations. Below I have included a Table for cleanup goals for those species at Moffett Field, under a salt marsh scenario.

		Lead (mg/kg)	Zinc (mg/kg)	DDT (µg/kg)	PCB (µg/kg)
Alameda Song Sparrow	TRVhigh	**93.8**	518	251	881
	TRVlow	0.24	51.8	1.17	72.7
Clapper Rail	TRVhigh	202	886	356	1,574
	TRVlow	0.51	88.6	1.66	130
Great Blue	TRVhigh	209	803	**109**	2,856
	TRVlow	0.53	80.3	**0.51**	236
Salt Marsh Wandering Shrew	TRVhigh	1,416	**314**	513	**210**
	TRVlow	**0.01**	**6.5**	25.6	**59**

Response: Please see the response to Specific Comment 13 in RAB Attachment above.

16. Comment: It is important to note that polychlorinated biphenyls (PCBs), lead and cadmium were found in soils that are part of the seasonal wetlands. The seasonal wetlands provide rest, shelter, and forage for Canada geese and other migratory water fowl, as well as for raptors. Some of the marsh species may occupy those sites during part of the year. Identification of those species is a necessary step before soil cleanup goals should be adopted for soils within the seasonal wetlands. Special status species and some marsh species should be included in any revised ERA.

Response: Area 3 is no longer part of IR Site 1, therefore, the ecological risk assessment for Area 3 is no longer part of the remedy. The ROD will select the final remediation goals for ecological receptors at IR Site 1. Please see response to Major Comment 10 in RAB Cover Letter above.

17. Comment: VOCs and benzene are groundwater contaminants that underlie SW1 (i.e., seasonal wetland 1). It is important that any overlap of the wetlands and these plumes are fully characterized for eco-risk, including sediment and vapor transport.

Response: A large part of seasonal wetland 1 overlaps the VOC plume, which will undergo active remediation to remediate groundwater chemicals (including VOCs and benzene) and greatly reduce any risk.

18. Comment: Some of the wetlands will be affected or destroyed by the remedies, requiring the Navy to mitigate the wetlands. Most often this is done on at least a 2:1 ratio because creating a new wetland is difficult and often fails. The Navy has failed to commit to a mitigation ratio, and I recommend that it do so in the proposed plan.

Response: Please see the response to Major Comment 4 in RAB Cover Letter above.

Radiological Characterization and Cleanup

19. Comment: Albeit that radiological characterization is difficult and only detected near-surface anomalies, it is important to point out that little attention is paid in the documents about to how radionuclides (radium, strontium$_{90}$, and perhaps medical wastes that were disposed of from Oak Knoll Naval Hospital) can be mobilized by changing environmental conditions, as is pointed out in the concern about using an acidic oxidizer like Fenton's Reagent. Because this landfill is an

unlined pit, it is incumbent upon the Navy to further investigate factors that would mobilize contaminants and determine a mechanism for monitoring environmental change and ensuring that radionuclides will not be transported in the future.

Response: See the response to Major Comment 11 in RAB Cover Letter above. Groundwater treatment is not expected to mobilize ROCs given their chemical properties. However, baseline data will be collected from existing groundwater monitoring wells in the pre-design characterization of the VOC plume. An overall groundwater monitoring program will be developed for Site 1 during the remedial design. It will include analysis for radioisotopes. A complete list of monitoring analytes and sampling locations will be developed during the remedial design.

20. Comment: **As is noted in the Final Radiological Characterization Report "[O]ther naval installations, including Oak Knoll Naval Hospital, Naval Supply Center Oakland, and Treasure Island, also used the site for waste disposal." It is not clear whether any of these facilities also may have disposed of low level radioactive waste at Site 1, but a full record of what other wastes have been disposed of at Alameda Point should be fully investigated. There has been extensive information generated about disposal activities of radioactive waste at three other Bay Area Naval facilities (Hunter's Point, Treasure Island and Mare Island). For example, records were declassified in 2001 for the Naval Radiological Defense Laboratory, which was located at Hunter's Point Naval Shipyard. It is not clear from the background information in the RI/FS whether this information was reviewed to determine other sources of radioactive materials at Site 1.**

Response: Numerous studies cataloging the extent of elevated levels of radium have been conducted. In 2005, a comprehensive surface radiological survey of IR Site 1 was conducted whereby 100 percent of IR Site 1 was covered. The radiological survey results showed that most of the surface radiological anomalies reside within the former waste disposal area (Area 1), which will be addressed by the preferred remedial alternatives (Tetra Tech FW Inc. 2005). The Navy has prepared a historical radiological assessment report that has been reviewed by the BCT (Weston Solutions, Inc. [Weston] 2007). Extensive research into the use of radiological materials at Alameda Point was conducted involving extensive record reviews along with personal interviews of individuals that may have knowledge of their use at Alameda Point. The historical radiological assessment report should provide the best possible history of the use and disposal of radiological materials at IR Site 1.

21. Comment: **All radium-impacted waste in Areas 1b, 3 and 5 exceeding 4,000 counts per minute (cpm) above background would be removed, as described for Alternative S6-4. Area 1b and wastes that are near a suspected former radiological disposal trench contain all radium impacted waste exceeding 200,000 cpm that would be removed. The remainder of radium in Area 1a would be left in place. There appears that there is no threshold value given for radium contaminated wastes that are going to be left in Area 1a. I recommend that the Navy establish a threshold level for wastes which will remain on site.**

Response: Please see the response to Major Comment 12 in RAB Cover Letter above. All potential ROCs left in place would be under the protection of the covers that would prevent exposure to contaminants above the cleanup goals. After placement of the final covers, the Navy will conduct radiological surveying to ensure that the remediation goals for ROCs have been met and that the covers are protective of human health. An evaluation of potential external exposure from the remaining radiological anomalies is provided in Appendix A of the FS report (BEI 2006). ICs would be implemented across IR Site 1. The IC will prohibit residential use and activities that could compromise the integrity of the remedy, including land disturbing activities that could result in exposure to ROCs in the subsurface unless conducted according to an approved soil management plan.

22. Comment: **The Navy needs to establish a protocol for removal of radioactive substances and confirmation sampling. Specifically, when radioactive substances are encountered, it will be important to know how much waste and surrounding soil will be removed. For example, if a radioactive dial is encountered, how much soil around and beneath the dial will be removed? Also, please identify what type of confirmation/verification sampling will be conducted to ensure that soil left in place is clean. It is recommended that as the Navy begins excavation of any radioactive material, it confirm that the area is clean using the high-purity germanium detector (HPGe), along with confirmation samples that are sent to the laboratory for gamma spectroscopy.**

Response: Prior to placing the final cover at Area 1a, Area 2b, Area 4, and the inland areas of Area 5, the Navy will scan the surface using gamma radiation field screening instruments. Radiological hot spots will be identified and removed to a depth of one foot prior to placing the soil cover. The surface scan will be conducted using field screening instruments, which provide measurement results in counts per minute (cpm). For the purpose of this remedial action, the Navy will identify hot spots as material exhibiting gamma radiation readings approximately 2 times background, while recognizing that background radiation readings typically vary depending

on whether the source material is soil, gravel, or concrete (all of which are present at Site 1), and that different field instruments will also influence the selected screening value. The final numerical screening values (in cpm) will be determined in the remedial design after field instrumentation has been selected. The remedial design will also describe the screening and removal procedures.

23. Comment: **The field survey of radiological waste was done with using a sodium iodide (NaI) detector, and confirmed with an HPGe detector. Both detect gamma rays. HPGe detectors are "favored when definitive spectroscopic measurements are needed." (Technology Overview: Real Time Measurement of Radionuclides in Soil: Technology and Case Studies, Interstate Technology and Regulatory Council, February, 2006). Citing recent experience at the Fernald uranium processing facility in Ohio, the Department of Energy (DOE) recommended using the HPGe detector for Radium-226, which is a weak gamma emitter (i.e., alpha and beta are not picked up by either detector). An example of the different sensitivity (i.e., detection limits) of the two detectors is shown in the Table below.**

COC	Fernald Action Limit (pCi/g)	Minimum Detectable Concentration (pCi/g)	
		HPGe	NaI
Uranium	55	1.9	78
Ra-226	1.5	0.075	1.1

Response: During the 2004 characterization and the TCRA at IR Sites 1, 2, and 32, an HPGe detector was used to provide *in-situ* gamma spectroscopy measurements to help determine the types of radionuclides present at the locations where elevated counts were noted. A sample was collected and sent to a laboratory, where an HPGe detector was used to determine actual soil concentrations.

Burn Area

24. Comment: **For Area 1b, excavation activities are assumed to extend into groundwater, requiring a dewatering and sediment filtration system. Extracted groundwater is assumed to require treatment for removal of dissolved heavy metals and VOCs. A temporary treatment system would be brought on-site and operated with an ion exchange for metals removal and granular activated carbon (GAC) for VOC removal. The system is assumed to operate at 100 gallons per minute during excavation, and to discharge to the San Francisco Bay. Dewatering would require planning, treatment system oversight, and**

a sampling program for the duration of the dewatering program. Note that dioxins/furans are still being investigated; yet it is not clear whether GAC would be appropriate to remove these contaminants from the waste stream. This element of the remedy should be discussed in the proposed plan. More importantly, it suggests that almost all groundwater underlying Area 1 is contaminated with heavy metals and VOCs. Again, I can only conclude that contaminated groundwater and leachate are making their way to the Bay.

Response: Please see the response to RAB General Comment 6, items 5 and 8, and the response to Specific Comment 1, item 3, in RAB Attachment above. The Navy's approach (provided in the Proposed Plan) addresses dewatering and sediment filtration activities associated with the proposed remedy. These activities are mentioned to address all possible events that may occur. If dewatering and sediment filtration activities occur, the Navy will properly dispose of any sediment or groundwater. It should be noted that the details of the dewatering plan will be contingent on the investigation results for dioxins and furans.

Human Risk

25. Comment: **The National Contingency Plan [Section 300.430 (e)(2)(A)(2)]states that "For known or suspected carcinogens, acceptable exposure levels are generally concentration levels that represent an excess upper bound lifetime cancer risk to an individual of between 10^{-4} and 10^{-6} using information on the relationship between dose and response. The 10^{-6} risk level shall be used as the point of departure for determining remediation goals for alternatives when ARARs are not available or are not sufficiently protective because of the presence of multiple contaminants at a site or multiple pathways of exposure;". I recommend that the Navy adopt the "point of departure' as its remedial goal.**

Response: Please see the response to Major Comment 13 to RAB Cover Letter above.

26. Comment: **The risk assessment should include the latest information, including the 2006 finding by the National Academy of Sciences (NAS) that EPA's 2001 draft health risk assessment for TCE and the Science Advisory Board's review of the draft TCE Health Risk Assessment (http://www.epa.gov/sab/pdf/ehc03002.pdf). As such, I expect that allowable groundwater contamination standards and health risks for TCE in the air will change and be stricter in the future. TCE was only the first of many substances to be reviewed. I expect that the allowable standards for its daughter products (DCE and vinyl**

chloride) will also be reviewed and possibly changed. Although the effectiveness of remedies is evaluated in a Five Year Review, which includes changes in standards, it is important that the proposed remedy for groundwater take this new information into consideration. Most importantly, the question remains as to whether the proposed remedy can achieve those new standards. In August 2001, U.S. EPA's Office of Research and Development (ORD) released the draft Trichloroethylene Health Risk Assessment: Synthesis and Characterization (TCE Health Risk Assessment) for external peer review. The draft TCE Health Risk Assessment took into account recent scientific studies of the health risks posed by TCE. According to the draft TCE Health Risk Assessment, for those who have increased susceptibility and/or higher background exposures, TCE could pose a higher risk than previously considered. Standards for cleanup are expected to be even stricter than the preliminary remediation goal (PRG) for TCE (2.3 ppb). The Science Advisory Board, a team of outside experts convened by U.S. EPA, reviewed the draft TCE Health Risk Assessment in 2002, and concurred with the results. In 2003, Region IX promulgated a "provisional" PRG for air that was an order of 65 times stricter than had been applied prior to 2003. Both the Department of Defense and Department of Energy strongly objected and EPA backed off enforcement of the provisional PRG until NAS external review. This review was completed this year and concurred with the EPA Health Risk Assessment. Additionally, California has a Public Health Goal (PHG) that should become a "To-Be-Considered" Applicable or Relevant and Appropriate Requirement (ARAR). For TCE in groundwater, the PHG was changed from 2.3 ppb to 0.8 ppb. This is assumed to be equivalent to an increased risk of 1 in a million excess lifetime cancers. This latter number was adopted by the Office of Environmental Health Hazard Assessment, and is in conformance with the State Implementation Plan.

Response: **Health Risks from TCE in Air.** As the reviewer notes, the allowable groundwater contamination standards and health risks for TCE in air may change in the future based on reviews by NAS and others. The migration of contaminants from groundwater into buildings (groundwater vapor intrusion) is a relatively new consideration at sites where groundwater has been impacted by volatile chemicals. Groundwater vapor intrusion is a potential concern only if a complete exposure pathway exists. Factors to consider in evaluating the pathway include identification of chemicals in groundwater of sufficient volatility and toxicity, and the presence of inhabited buildings (or the potential for future buildings) near subsurface contamination (in general, within 100 feet). At IR Site 1, as indicated in Section 12.2.2.5 of the ROD, under restricted activities, construction of

buildings above the VOC plume is prohibited without prior approval from the Navy and DTSC. The preferred remedy will prevent a complete pathway from occurring. In addition, the Navy plans on actively treating the VOC plume using ISCO or a similar process treatment followed by MNA. TCE concentrations are anticipated to decrease significantly. The protectiveness of the remedy, including the prohibition of buildings above the plume, will be reevaluated during the 5-year review.

California Public Health Goals. Because it has been determined that groundwater in the uppermost aquifer at IR Site 1 is not currently used and is not likely to be used as a source of drinking water as indicated by the EPA (EPA 2000), the maximum contaminant levels (MCL) and maximum contaminant level goals (MCLG) are not potential ARARs (BEI 2006. p. 3-6). Similarly, the California Public Health Goals for TCE are for drinking water and are not ARARs or criteria TBC.

Cap Design and Remediation of Area 1

27. Comment: **It is my opinion that if waste is going to remain in place, then an engineered cap that limits water infiltration is necessary. It is not clear why the engineered cap has been rejected; or even why a soil only cap would meet regulatory requirements. There is not sufficient evidence to rule out that groundwater will continue to act as a transport mechanism for dissolved contaminants to the Bay. At Moffett, the Runway landfill was also first proposed as a soil cap; the RAB at Moffett and regulators requested that an engineered cap be constructed. The Navy has argued in its response to EPA comments on the FS that since the landfill stopped operating before cover requirements went into effect, it does have to meet some closure requirements (e.g., Section 22 CCR 66264.310(a)(1) requires a cover designed to prevent the downward entry of water into the landfill for 100 years). Whether this statement is correct does not relieve the Navy of choosing a remedy that controls contaminant migration.**

Response: Please see the response to ARRA Comment 3 above. The BCT concurs with the proposed soil cover.

28. Comment: **An alternative not considered in the engineered cap is using a bentonite layer to impede infiltration. This may be less expensive than a geomembrane, and has the benefit of a certain amount of self repair in case of a seismic event.**

Response: As discussed in the response to ARRA Comment 3 above, a low permeability layer in Area 1 to prevent water entry, including infiltration, is not necessary.

29. Comment: **The cap design should include a bio-barrier that prevents burrowing animals from coming into contact with the waste.**

Response: Please see the response in Major Comment 16 in RAB Cover Letter above.

30. Comment: **An engineered cap covering part of Area 1 was not considered, but may be possible for Site 1. The runway in Area 1a may not have to be covered, so long as there is pavement inspection and maintenance program, as suggested by Remedial Alternative S2-4. Note, however, that surface inspection of the runways, or for that matter the proposed soil cap or engineered cap, would not be possible once a golf course is built.**

Response: An engineered cap covering Area 1 was considered as Soil Alternative S1-3 in the FS report (BEI 2006). Golf courses have been successfully constructed on landfill covers, and nonvisual methods are available for monitoring the integrity of the cover at these sites. EPA has issued an information document entitled "Reusing Cleaned Up Superfund Sites: Golf Facilities Where Waste is Left on Site" that provides examples of installed golf courses successfully being constructed on landfills and that endorses future use of landfills as golf courses (EPA 2003).

31. Comment: **The reuse plan has designated the Site 1 area for recreational reuse consisting primarily of a golf course, a beach area, and a shoreline walking path. Additionally, a historic training wall is present along portions of the northern border of Site 1. It is unclear whether the Navy has considered the Golf course in its remedial design. The golf course would impose additional structural parameters in the case of a seismic event, and would require a great deal of irrigation water that would infiltrate the cap. Both of these elements need to be looked at in the cap /cover design.**

Response: Please see the response to Major Comment 17 in RAB Cover Letter above.

32. Comment: **The Soil Cap alternative proposes to use dredge materials from Oakland Harbor. This may not be clean soil, and would require additional study to ensure that there are not additional contaminants being added to the cover. I recommend that if the Navy is going to use dredge spoils for a soil cap, then a rigorous sampling program should be adopted to ensure that contaminants such as lead, PCBs, MTBE and PAHs are screened prior to emplacement.**

Response: Any soil used as a final cover will be tested for a variety of environmental contaminants prior and approved for use by the Navy and BCT. Construction of the covers will not use any dredge materials and any reference in the ROD to use of dredged materials in the construction of the cover has been removed.

33. Comment: In August 2002, the Geotechnical Feasibility Report "recommended" that a 24-ft wide soil-cement gravity wall with stone columns placed adjacent to and in the fill to reduce the effects of liquefaction and preventing slippage into the San Francisco Bay. However, this element was not included in the proposed remedy and was left for further study in the remedial design stage. By not including this design component, and its costs, into the analysis of alternatives, the exclusion of remedies such as excavation of larger areas is a biased result.

Response: The Navy will meet all ARARs, including those regarding seismic stability of the landfill. The seismic ARARs included in the ROD are RCRA seismic requirements, Cal. Code Regs. tit. 22, § 66264.310 (a)(5). The details of all parameters of the remedy will be determined during the remedial design.

34. Comment: In addition, the FS stated that shoreline debris relocation component for one of the alternatives was intended to provide an alternative to a soil-concrete gravity wall that was recommended in the Geotechnical and Seismic FS for Site 1 (2003). This was based on the assumption that excavating buried waste within 25 feet of the shoreline and relocating the excavated waste to the interior of Site 1 may reduce the risk of a waste release to the San Francisco Bay from earthquake induced lateral spreading. This alternative was not adopted in the proposed plan; however, the FS states that depending on the limits of buried waste and shoreline waste relocation activities, the Navy could reduce the scope of (or eliminate the need for) a geotechnical remedy. This statement goes to the very heart of the criticism of the proposed plan: that is, by not characterizing the waste cells, the proposed remedy is uncertain both in terms of cost and effectiveness.

Response: The FS evaluations have identified disadvantages with relocating significant portions of the waste disposal area. Therefore, geotechnical considerations will need to be evaluated during the remedial design. Former waste disposal areas are not believed to have extended to the shoreline areas except for the burn area (Area 1b), which will be excavated under preferred Soil Alternative S1-4a. Test pits and soil borings will also be conducted to assess the spatial limits of buried waste and the proximity of waste to San Francisco Bay under Soil Alternative

S1-4a. All remedial activity would meet ARARs. In addition, please see the response to Major Comment 3 to the RAB Cover Letter above.

35. Comment: **Another element of the proposed plan that should be evaluated for Area 1 is removal of hot spots within Area 1, besides removal of Area 1b. Many comments on the FS were concerned that covering the waste would leave small, time-delayed pockets of material that may contaminate the groundwater and the Bay in the future. Because the Navy has not even determined whether drummed wastes still exist in the landfill or the extent of wastes in the landfill (see Data Gaps), I think it is important that hot spot removal not be precluded from the remedial options. Only after full characterization can the Navy realistically cover the remaining waste.**

Response: The Navy has completed a test pit investigation, the purpose of which was to determine if any drums remained intact. The Navy dug (a) two 25-foot-long pits in each of the five waste cells outside the runway, and (b) one 25-foot-long test pit in the waste cell partially covered by the runway. No test pits were excavated in the waste cell covered by the runway. The results of the test pit investigation indicated that no intact drums were present in the areas investigated (Tetra Tech EC Inc. 2008).

The remedy will include a radiological scan of all surfaces prior to placement of the covers to identify any hot spots of radiological contamination. The Navy will excavate any radiological hot spots and dispose of them off-site.

36. Comment: **The FS states that the Navy may further evaluate other alternatives to the stone columns during remedial design. Recent experience has shown that considerable cost savings can be achieved with "earthquake drains" offered by Nilex, successfully installed in fill soil used for the approach to the new San Francisco-Oakland Bay Bridge and have undergone a rigorous review and acceptance process by the California Department of Transportation. The entire discussion of seismic stabilization should be revisited, prior to the adoption of the Record of Decision.**

Response: See the response to Specific Comment 33 in Attachment above. The details of seismic stability will be addressed during the remedial design and will meet all ARARs.

37. Comment: **It is worth considering that most scientists agree that climate change will cause sea levels to rise over the next 100 years. Predictions of a 3 foot rise in sea levels over the next 50-100 years are generally accepted. A sea level rise of 6 inches will change the frequency of a**

100 year storm surge to a 10 year storm surge at the entrance to the Bay. All proposed remedies that are adjacent to the Bay should take these facts into consideration. It is worth noting that most of the remedies which leave waste in place are given a rating of moderate for long term effectiveness and permanence. However, in the discussion of this criterion in the FS, there is not a discussion of climate change.

Response: Please see the response to Major Comment 18 in RAB Cover Letter above.

ARARs

38. Comment: **I agree that State Water Resource Control Board Resolution (SWRCB) 68-16 (i.e., the non-degradation policy) and SWRCB Resolution 92-49 apply to groundwater at this site. This resolution applies to discharges: either underground or above ground discharges as is commonly understood by the general term discharge. I encourage the RWQCB to ensure compliance with these Resolutions.**

Response: See the response to Specific Comment 7 in Attachment and Major Comment 19 in RAB Cover Letter above..

Range Cleanup

39. Comment: **The firing range berm had a foundation of concrete mixed with 55-gallon drums of 20 mm projectiles. It is not clear whether the proposed plan and TCRA includes removal of the foundation, or whether there has been an analysis of whether any of the elements, including lead, have migrated from the concrete. If soil below the berm is also to be screened, soil contaminated with both metals and organic compounds may make this solution difficult. If soil contains volatile organic compounds (VOCs), it would be akin to aerating the soil and may require additional regulatory oversight. Measures should be taken to prevent wind-borne particulates that may be laden with lead if dry screening is a step in the process.**

Response: The removal of the firing range berm is described in Section 6.8.3 of the TCRA work plan (Tetra Tech EC, Inc. 2007a) and Section 2.4.3 of the TCRA Post-Construction Removal Report (Tetra Tech EC, Inc 2009). No concrete drums were encountered or removed from the excavations at the firing range berm during the TCRA.

The Navy has a strict dust prevention program. During the TCRA, dust suppression was successfully completed using an environmentally

friendly, copolymer water emulsion soil stabilizer and dust control agent. It has been used at other Alameda projects as well. VOCs were monitored as part of the health and safety program during the removal action, the soil stockpiles were covered at the end of each work day, and appropriate actions were taken if VOCs exceed any applicable regulatory requirements. Soil with soluble lead or other RCRA constituents exceeding the toxicity characteristic leaching procedure (TCLP) standards were treated at the disposal facility to meet land disposal restrictions (LDR) and disposed of as RCRA hazardous waste. Soil with total lead or other California regulated constituents exceeding the total threshold limit concentration (TTLC) or with soluble lead exceeding the soluble threshold limit concentration (STLC) standard were disposed of as California hazardous waste. Soil with total and soluble lead below these limits were disposed of as nonhazardous soil. For windborne particles that may be laden with lead, the TCRA work plan provided dust control measures (Sections 6.4 and 8.2), monitoring for radium in airborne dust (Appendix A, Section 7.4), and personnel health and safety measures during excavation and off-site disposal activities (Appendix A) (Tetra Tech EC, Inc. 2007a).

40. Comment: **The skeet range, next to the pistol range, generated lead shot and fragments of clay pigeons. These clay pigeon fragments contained PAHs. Some clay pigeon fragments are still evident on the surface within the line of fire. The zone of fire in the bay was designated as Site 29, and is not a subject of this Proposed Plan. However, ranges such as this have a great deal of scatter, and some lead shot is potentially beyond the Site 29 boundary, very near to the shoreline. At low tides, shorebirds feed in this area, and the lead shot in particular poses a threat. The Navy should take note that EPA's guidance document on Best Management Practices at Outdoor Shooting Ranges (EPA Region 2, 2001) strongly states that "Shooting into water bodies or wetlands should not occur". Most current best practice manuals, even those developed by sport shooting organizations, do not advocate shooting into water or wetlands.**

Response: Site 29 is no longer active, therefore, best management practices are unnecessary. Site 29 has been remediated in accordance with the CERCLA process and has now been classified with a status of No Further Action (Navy 2005). Additionally, please see the response to Major Comment 5 in RAB Cover Letter.

41. Comment: **Has depleted uranium (DU) been used in any of the shells? Does the Navy need to list a cleanup standard for DU?**

Response: Depleted uranium (DU) was not used by the United States armed forces until the 1960s and 1970s. The IR Site 1 landfill closed in the 1956. Therefore, it is highly unlikely that DU is present in the landfill; however, the HRA does indicate that DU is a ROC at IR Site 1. Therefore, a remediation goal for DU will be included in the ROD.

Institutional Controls

42. Comment: The Institutional Controls, as set forth in the Proposed Plan, have two difficulties, related to the eventual conversion of Site 1 into a golf course and public beach. Proposed land-use restrictions, although specified, fail to state how they will be enforced, and who will enforce them. For example, the City has proposed building a golf course over the landfill cap essentially adding approximately 8-feet of additional soil. Aside from destroying the cap vegetation cover, the added weight and irrigation regime may cause additional infiltration, increase leachate and reduce stability. It is crucial that the Plan state who would be responsible for maintaining the stability and performance of the cap.

Response: Please see the response to Major Comment 20 in RAB Cover Letter.

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