N00236.002944
ALAMEDA POINT
SSIC NO. 5090.3

Final

Record of Decision for Operable Unit 1 Installation Restoration Sites 6, 7, 8, and 16

Alameda Point
Alameda, California

September 2007

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Prepared under:
Naval Facilities Engineering Command
Contract Number N68711-03-D-5104
Contract Task Order 0098

SULT.5104.0098.0002

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§	Section
µg/dL	Microgram per deciliter
µg/L	Microgram per liter
AOC	Area of concern
ARAR	Applicable or relevant and appropriate requirement
AST	Aboveground storage tank
B(a)P	Benzo(a)pyrene
BCT	BRAC Cleanup Team
bgs	Below ground surface
BHHRA	Baseline human health risk assessment
BRAC	Base Realignment and Closure
BSU	Bay Sediment Unit
BTEX	Benzene, toluene, ethylbenzene, and xylenes
CAA	Corrective action area
Cal. Code Reg.	*California Code of Regulations*
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	*Code of Federal Regulation*
ch.	Chapter
COC	Chemical of concern
COPC	Chemical of potential concern
CPT	Cone penetrometer test
DCA	Dichloroethane
DCB	Dichlorobenzene
DCE	Dichloroethene
div.	Division
DoD	U.S. Department of Defense
DTSC	Department of Toxic Substances Control
EBS	Environmental baseline survey
EPA	U.S. Environmental Protection Agency
EPC	Exposure point concentration
ERA	Ecological risk assessment
ERM-West	Environmental Resources Management Resources-West, Inc.
et seq.	And the following one or ones

FFA	Federal facility agreement
FS	Feasibility study
FWBZ	First water-bearing zone
GAP	Generator accumulation point
gpd	Gallon per day
HI	Hazard index
IAS	Initial assessment study
ID	Identification
IC	Institutional control
IR	Installation Restoration
ISCO	*In-situ* chemical oxidation
IT Corp.	International Technology Corporation
ITSI	Innovative Technical Solutions, Inc.
JMM	James M. Montgomery Consulting Engineers, Inc.
LIFOC	Lease in furtherance of conveyance
MCL	Maximum contaminant level
mg/kg	Milligram per kilogram
mg/L	Milligram per liter
MNA	Monitored natural attenuation
MOA	Memorandum of Agreement
MTBE	Methyl tertiary butyl ether
NACIP	Navy Assessment and Control of Installation Pollutants
NAS	Naval Air Station
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
NEESA	Naval Energy and Environmental Support Activity
NPDES	National Pollution Discharge Elimination System
OU	Operable Unit
OWS	Oil-water separator
PAH	Polycyclic aromatic hydrocarbon
PCB	Polychlorinated biphenyl
PCE	Tetrachloroethene
PRG	Preliminary remediation goal

RAB	Restoration Advisory Board
RAO	Remedial action objective
RCRA	Resource Conservation and Recovery Act
Res.	Resolution
RFA	RCRA facility assessment
RFI	RCRA facility investigation
RI	Remedial investigation
RME	Reasonable maximum exposure
ROD	Record of decision
Shaw	Shaw Environmental & Infrastructure, Inc.
SVOC	Semivolatile organic compound
SWBZ	Second water-bearing zone
SWMU	Solid waste management unit
SWRCB	State Water Resources Control Board
TCE	Trichloroethene
TDS	Total dissolved solids
Tetra Tech	Tetra Tech EM Inc.
tit.	Title
TP	Tiered Permit Facility
TPH	Total petroleum hydrocarbons
TSCA	Toxic Substances Control Act
USC	*United States Code*
UST	Underground storage tank
VOC	Volatile organic compound
Water Board	San Francisco Bay Regional Water Quality Control Board
WD	Washdown area

DECLARATION STATEMENT FOR OPERABLE UNIT 1, INSTALLATION RESTORATION SITES 6, 7, 8, AND 16

SITE NAME AND LOCATION

This Record of Decision (ROD) addresses Operable Unit 1 (OU-1), Installation Restoration (IR) Sites 6, 7, 8, and 16 at the former Naval Air Station, now referred to as Alameda Point, in Alameda, California. The U.S. Environmental Protection Agency (EPA) Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Information System identification (ID) number is CA2170023236.

STATEMENT OF BASIS AND PURPOSE

This ROD presents the selected remedy for remediation of soil at IR Sites 6, 7, 8, and 16, and for remediation of groundwater at IR Sites 6 and 16. No action under CERCLA is proposed for remediation of groundwater at IR Sites 7 and 8 within OU-1. Groundwater at IR Sites 7 and 8 is contaminated by total petroleum hydrocarbons (TPH) and is being remediated under the Alameda Point TPH program.

This document was developed and the remedy was selected in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended by the 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 (Title 40 *Code of Federal Regulations* Part 300). This decision is supported by information contained in the administrative record file (see Attachment A). The U.S. Department of the Navy (Navy), the EPA, and the California Environmental Protection Agency's Department of Toxic Substances Control (DTSC) and San Francisco Bay Regional Water Quality Control Board (Water Board) concur on the selected remedy for these sites.

ASSESSMENT OF THE SITE

The selected remedy in this ROD is necessary to protect the public health and welfare and the environment from actual or threatened releases of pollutants, chemicals, or hazardous substances from soil at IR Sites 6, 7, 8, and 16, and from groundwater at IR Sites 6 and 16 within OU-1. The selected remedy for these sites was 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

Results of the previous investigations at IR Sites 6, 7, 8, and 16 indicated these sites pose a potential risk to human health based on current and reasonably anticipated future land and groundwater uses. The following chemicals were identified as posing risk to human health in soil and groundwater:

- IR Sites 6, 7, 8, and 16: Metals, volatile organic compounds (VOC), semivolatile organic compounds, polychlorinated biphenyls (PCB), and pesticides in soil
- IR Sites 6 and 16: VOCs in groundwater

The ecological risk assessment (ERA) concluded no unacceptable ecological risks are associated with soil and groundwater at IR Sites 6, 7, 8, and 16 within OU-1. Additionally, the ERA concluded that limited habitat is present at these sites, the presence of terrestrial receptors is limited, and future land uses would not create additional ecological habitat.

DESCRIPTION OF THE SELECTED REMEDY

The selected remedy for soil in this ROD includes additional sampling and, if necessary, remediation of soil at the oil-water separators (OWS) and other solid waste management units (SWMU) of concern, as defined under the Resource Conservation and Recovery Act (RCRA), at IR Sites 6, 7, 8, and 16. The selected remedy for soil at IR Sites 6, 7, 8, and 16 includes the following:

- Collect and analyze soil and groundwater samples and excavate soil at locations beneath and adjacent to SWMUs of concern at IR Sites 6, 7, 8, and 16. Results of the analyses will be used to evaluate the nature and extent of potential contamination in soil. Areas where soil is contaminated will be excavated to reduce concentrations of chemicals of concern (COC) to levels that protect human health and the environment. Excavated soil would be transported off site to an appropriate disposal facility.
- Collect and analyze soil samples to confirm remediation goals are achieved for arsenic (9.1 milligrams per kilogram [mg/kg]), cadmium (37 mg/kg), and lead (230 mg/kg) at IR Site 7; lead (230 mg/kg), dieldrin (0.03 mg/kg), and total PCBs (1.0 mg/kg) at IR Site 8; and total PCBs (1.0 mg/kg) at IR Site 16. The remediation goal for cadmium (previously defined as background in the Proposed Plan for OU-1 Sites 6, 7, 8, and 16) and for the COCs identified during sampling will be based on preliminary remediation goals from EPA (2004), which are protective of potential residents and occupational workers.
- Excavate soil contamination within the debris area at IR Site 7 and in the northeast corner of IR Site 8 to remove chemicals at concentrations exceeding remediation goals.
- Collect additional soil samples for analysis to confirm remediation goals have been achieved within the CANS area at IR Site 16.

This ROD selects active remediation of groundwater for IR Sites 6 and 16; no action under CERCLA for groundwater is recommended at IR Sites 7 and 8 because concentrations of CERCLA contaminants are low and do not pose an unacceptable risk for current or proposed future site uses. Groundwater at IR Sites 7 and 8 is contaminated by total petroleum hydrocarbons (TPH) and is being remediated under the Alameda Point TPH program.

Four remedial alternatives were developed and analyzed to address potential risk to human health from VOCs in groundwater at IR Sites 6 and 16. The preferred remedial alternative was selected as the final remedy for groundwater at IR Sites 6 and 16 and includes the components discussed below.

- Install additional monitoring wells and collect groundwater samples to further delineate the boundaries of the VOC plumes.

- Implement *in-situ* chemical oxidation to reduce high concentrations of COCs in small areas and accelerated bioremediation to enhance the degradation of chemicals within the groundwater plume in areas with low concentrations where *in-situ* chemical oxidation may not be appropriate. Monitored natural attenuation may also be used when and where COC concentrations are approaching the remediation goals.

- Implement environmental restrictions in the form of institutional controls (IC) with monitoring, reporting, and enforcement in accordance with the "Navy Principles and Procedures for Specifying, Monitoring and Enforcement of Land Use Controls and Other Post-ROD Actions," which is attached to the U.S. Department of Defense (DoD) Memorandum titled "Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Records of Decision (ROD) and Post-ROD Policy," dated January 16, 2003. The ICs will remain in place until the remedial action objectives and remediation goals set forth in this ROD have been successfully achieved.

- Collect groundwater samples at IR Site 6 for analysis to confirm the remediation goals are achieved for cis-1,2-dichloroethene (6 micrograms per liter [μg/L]), tetrachloroethene (5 μg/L), trichloroethene (5 μg/L), and vinyl chloride (0.5 μg/L); these remediation goals are protective of potential residents and occupational workers.

- Collect groundwater samples at IR Site 16 for analysis to confirm the remediation goals are achieved for 1,3-dichlorobenzene (5.5 μg/L), 1,4-dichlorobenzene (5 μg/L), cis-1,2-dichloroethene (6 μg/L), tetrachloroethene (5 μg/L), trichloroethene (5 μg/L), and vinyl chloride (0.5 μg/L); these remediation goals are protective of potential residents and occupational workers.

In June 2004, the Navy requested DTSC to defer corrective actions on RCRA SWMUs to CERCLA response actions and to defer corrective actions on petroleum-related SWMUs to the Alameda Point TPH program currently under the oversight of the Water Board. The RCRA

evaluation process was completed for 20 SWMUs at IR Sites 6, 7, 8, and 16. The Navy has recommended no further corrective action for the following six SWMUs:

- Naval Air Station (NAS) Generator Accumulation Point (GAP) 25 at IR Site 6
- NAS GAP 30 at IR Site 7
- NAS GAP 03 at IR Site 8
- Aboveground Storage Tanks (AST) 338-A1 and 608, and Washdown Area (WD) 608 at IR Site 16

DTSC has concurred with the no further corrective action recommendation for all six SWMUs listed above. The selected CERCLA soil remedies for IR Sites 6, 7, 8, and 16 at Alameda Point within this ROD are intended to address the additional actions necessary to fulfill CERCLA requirements and obtain "corrective action complete" status for the following eleven SWMUs:

- OWSs 040A, 040B, and 041, and WDs 040 and 041A at IR Site 6
- OWS 459 at IR Site 7
- OWS 114 and WD 114 at IR Site 8
- OWSs 608A and 608B, and Underground Storage Tank (UST)(R)-18/NAS GAP 17 at IR Site 16

Three of twenty SWMUs were deferred to the Alameda Point TPH program:

- UST(R)-15/NAS GAP 16 and UST(R)-16 at IR Site 7
- AST 338-D4 at IR Site 16

STATUTORY DETERMINATIONS

The selected soil and groundwater remedies for IR Sites 6, 7, 8, and 16 within OU-1 are protective of human health and the environment, comply with federal and state requirements that are legally applicable or relevant and appropriate to the remedial action, and are cost-effective. The selected soil remedies of excavation and off-site disposal use permanent solutions but do not satisfy the statutory preference for remedies employing treatment to reduce the toxicity, mobility, or volume of hazardous substances, pollutants, or contaminants as a principal element. Excavation and off-site disposal of soil was selected because the anticipated volume of excavated soil from all sites is relatively small, most likely affecting less than 1 acre of land. Excavation has the highest degree of long-term effectiveness and permanence because contamination is removed, excavation is readily implementable, and estimated costs are reasonable. The selected groundwater remedies use permanent solutions and alternative

treatment or resource recovery technologies to the maximum extent practicable and satisfy the statutory preference for remedies employing treatments that reduce the toxicity, mobility, or volume of pollutants, chemicals, or hazardous substances as a principal element. The selected remedies are protective of human health and the environment and will obviate the need for and satisfy the corrective action requirements of RCRA or otherwise applicable state hazardous waste or water quality protection laws. A 5-year review pursuant to CERCLA § 121 and the National Oil and Hazardous Substances Pollution Contingency Plan would be conducted to assure that human health and the environment are protected by the remedial action being implemented.

DATA CERTIFICATION CHECKLIST

Checklist Item	Description
Chemicals of potential concern (COPC) and their respective concentrations	COPCs were characterized throughout IR Sites 6, 7, 8, and 16 based on data from previous investigations. A description of these investigations is provided in Sections 2.2.2, 3.2.2, 4.2.2, and 5.2.2, respectively, of this ROD. A description of the nature and extent of contamination at IR Sites 6, 7, 8, and 16 is presented in Sections 2.5.3, 3.5.3, 4.5.3, and 5.5.3, respectively, of this ROD.
Risk assessments representative of the COPCs	A baseline human health risk assessment (BHHRA) and modified ERA were conducted as part of the remedial investigation (RI) using data representative of current conditions at IR Sites 6, 7, 8, and 16. Results of these risk assessments are presented in Sections 2.7, 3.7, 4.7, and 5.7, respectively, of this ROD.
Remediation goals established for the COCs and the basis for these goals	The selected remedies for soil and groundwater at IR Sites 6, 7, 8, and 16 are designed to protect human health and the environment. Excavation and off-site disposal of soil contaminated with COCs that pose significant cancer and noncancer risks to potential future residents is the selected remedy for addressing known soil contamination at IR Sites 7 and 8, and potential soil contamination that is associated with SWMUs of concern within IR Sites 6, 7, 8, and 16. No short-term risks are associated with the selected remedy for soil that cannot be readily controlled. In addition, no adverse cross-media effects are expected from the selected remedy. Active treatment to meet maximum contaminant levels (MCL), which were identified as applicable or relevant and appropriate requirements, is the selected remedy for addressing COCs in groundwater at IR Sites 6 and 16. The selected remedy will reduce risks to commercial/industrial workers to levels that are consistent with the currently designated beneficial use of the groundwater. The remedy for groundwater at IR Sites 6 and 16 includes ICs that prohibit the installation of new groundwater wells and restrict the use of the site for residences, hospitals, schools, or childcare facilities. ICs also will be used to protect monitoring and remedial system components and security features associated with remedial action. In addition, ICs will require future landowners to gain written approval for construction of new buildings until the risk-based remediation goals in the ROD are achieved. No remedies were selected to address groundwater at IR Sites 7 and 8 because no CERCLA COCs were identified in groundwater at these sites. TPH contamination in groundwater was identified as posing risk to human health and the environment at IR Sites 7 and 8; however, this contamination is being addressed under the Alameda Point TPH program. The remedial action objectives are presented in Sections 2.8, 3.8, 4.8, and 5.8, respectively, of this ROD.
How source materials constituting principal threats are addressed	Former buildings and surrounding areas, along with storm sewers and fuel lines, were investigated and evaluated as potential sources. Results of previous investigations have not identified any significant soil or groundwater contamination or suggested the presence of a continuing source of CERCLA chemicals that would constitute a principal threat waste. The nature and extent of remaining contamination at IR Sites 6, 7, 8, and 16 is discussed in Sections 2.5.3, 3.5.3, 4.5.3, and 5.5.3, respectively, of this ROD.

DATA CERTIFICATION CHECKLIST (CONTINUED)

Checklist Item	Description
Current and reasonably anticipated future land-use assumptions and current and potential beneficial uses of groundwater used in the BHHRA and ROD	IR Site 6 is presently unused, while IR Sites 7, 8, and 16 are presently used for commercial purposes. As part of the BHHRA, the risks at all sites were evaluated under three different scenarios: residential, occupational (which includes light industrial), and construction workers. At IR Site 16, risks also were evaluated under a recreational scenario. Although the residential exposure pathways, ingestion of homegrown produce, and domestic use of groundwater were initially evaluated in the BHHRA presented in the OU-1 Sites 6, 7, 8, and 16 RI Report, these pathways were later considered incomplete after further evaluations concluded that they do not represent a significant potential for human exposure. Current and reasonably anticipated future land use and beneficial groundwater use assumptions used in the BHHRA for IR Sites 6, 7, 8, and 16 are discussed in Sections 2.7.1, 3.7.1, 4.7.1, and 5.7.1, respectively, of this ROD.
Potential land and groundwater use that will be available at the sites as a result of the selected remedies for soil and groundwater	According to the Alameda Point General Plan Amendment and the Alameda Point Preliminary Development Concept, the long-term reuse of IR Sites 6 and 16 is anticipated to be commercial/industrial and IR Sites 7 and 8 is anticipated to be residential. Groundwater is not currently used for drinking water, irrigation, or industrial supply. Potential land and groundwater uses at IR Sites 6, 7, 8, and 16 are discussed in Sections 2.6, 3.6, 4.6, and 5.6, respectively, of this ROD. For IR Sites 6 and 16, the remediation goals, once achieved, will not only allow for commercial/industrial use, but also achieve unrestricted use.
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 Sections 2.12.1.3 and 2.12.2.3 for IR Site 6; Section 3.12.3 for IR Site 7; Section 4.12.3 for IR Site 8; and Sections 5.12.1.3 and 5.12.2.3 for IR Site 16.
Key factors that led to selecting the remedies	The key factors for selecting the remedy for soil at IR Sites 6, 7, 8, and 16 were (1) the remedy allows the Navy to achieve unrestricted future use of those sites earlier than the other remedial alternatives, and (2) the remedy attains unrestricted use at a cost that is comparable with the cost associated with commercial use, when considering the associated long-term cost. The key factors for selecting the remedy for groundwater at IR Sites 6 and 16 were (1) the remedy reduces the toxicity, mobility, and volume of all COCs through active treatment; and (2) the remedy allows the Navy to achieve unrestricted future use of those sites earlier than the other remedial alternatives. No remedies were selected to address groundwater at IR Sites 7 and 8 because no CERCLA COCs were identified in groundwater at these sites. Sections 2.12, 3.12, 4.12, and 5.12 of this ROD describe the selected remedies for IR Sites 6, 7, 8, and 16, respectively. Section 6.0 describes the statutory determinations that were made regarding the selected soil and groundwater remedies for IR Sites 6, 7, 8, and 16. Section 7.0 documents that the Navy has reviewed all written and oral comments submitted during the public comment period and has determined that no significant changes to the selected soil and groundwater remedies are necessary or appropriate.

AUTHORIZING SIGNATURES

This signature sheet documents the Navy's and the EPA's co-selection of the remedies in this ROD for soil (IR Sites 6, 7, 8, and 16) and groundwater (IR Sites 6 and 16), and for no action under CERCLA for groundwater at IR Sites 7 and 8. This signature sheet also documents the State of California's (DTSC and Water Board) concurrence with this ROD. The respective parties may sign this sheet in counterparts.

AUTHORIZING SIGNATURES

Signature 9/18/07 **Date**

Mr. Thomas L. Macchiarella
BRAC Environmental Coordinator
BRAC Program Management Office West
Department of the Navy

Signature 9/21/07 **Date**

Mr. John Chesnutt
Acting Branch Chief, Superfund 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 the Department of Toxic Substances Control comments were addressed.

Signature 9-26-07 **Date**

Mr. Anthony Landis, P.E.
Chief, Northern California Operations,
Office of Military Facilities
California Environmental Protection Agency
Department of Toxic Substances Control

Signature 10/3/07 **Date**

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

1.0 SITE NAME, LOCATION, DESCRIPTION, AND DOCUMENT ORGANIZATION

This Record of Decision (ROD) presents the selected remedies for soil and groundwater at Installation Restoration (IR) Sites 6, 7, 8, and 16 within Operable Unit 1 (OU-1) at Alameda Point (formerly Naval Air Station [NAS] Alameda), in Alameda, California. The document 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 of 1986 (Title 42 *United States Code* [USC] Section [§] 9601 et seq. [and the following one or ones]) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (Title 40 *Code of Federal Regulations* [CFR] § 300 et seq.). The decision for these sites is based on the information contained in the administrative record. The administrative record index for IR Sites 6, 7, 8, and 16 is found in Attachment A. Table 1-1 provides an index outlining the organization of this ROD.

The following sections describe the site name and location, including the specific features at each site, and summarize the organization of this ROD.

1.1 SITE NAME, LOCATION, AND DESCRIPTION

This ROD addresses IR Sites 6, 7, 8, and 16 within OU-1 at Alameda Point (hereinafter referred to as OU-1 Sites 6, 7, 8, and 16). Sites 6, 7, 8, and 16, which are part of OU-1, were grouped together because they were mostly used for light industrial purposes. OU-1 Sites 6, 7, 8, and 16 are part of Alameda Point, which is adjacent to the City of Oakland (see Figure 1-1). Alameda Point is roughly rectangular, about 2 miles long (east to west) and 1 mile wide (north to south), and occupies 1,734 acres of onshore land. OU-1 Sites 6, 7, 8, and 16 are located on the eastern portion of Alameda Point (see Figure 1-2). The site-specific features at OU-1 Sites 6, 7, 8, and 16 are described below.

Site 6, also known as Building 41 (Aircraft Intermediate Maintenance Facility), is about 5.6 acres in size. Site 6 is relatively flat and is covered by Buildings 41, 273, and 501; asphalt; concrete; roads; and parking lots. Site 6 contains the following solid waste management units (SWMU): two washdown areas (WD) (040 and WD 041A), three oil-water separators (OWS) (040A, 040B, and 041) and NAS Generator Accumulation Point (GAP) 25. Also present at Site 6 are former fuel line corrective action area (CAA) B, Resource Conservation and Recovery Act (RCRA) Unit Tiered Permit Facility (TP)-01, a concrete cleaning vat, several sewer lines, and a former portable avionics laboratory. The buildings at Site 6 are currently unoccupied.

Site 7, known as the Navy Exchange Service Station, is about 5.6 acres in size. Site 7 consists of buildings and structures that cover about 30 percent of the site, while the remainder of the site is open space covered with asphalt, concrete, and some bare ground. Site 7 is the location of the following SWMUs: NAS GAP 30, Underground Storage Tank (UST)(R)-16, UST(R)-15/NAS GAP 16, and OWS 459. Site 7 was most recently used as an automotive repair and servicing facility. Before Site 7 was used as an automotive facility, it was the site of an incinerator (former Building 68-3) surrounded by grassy open space.

Site 8, known as Building 114, is about 4.3 acres and was formerly a pesticide storage area. Site 8 is located in the central portion of Alameda Point. Approximately 80 percent of Site 8 consists of asphalt, concrete, buildings, roads, and parking lots. Site 8 is the location of the following SWMUs: NAS GAP 03, OWS 114, and WD 114. NAS GAP 03 was an approximately 20-by-30-foot room located in Building 114, and was used to store hazardous wastes. Additionally, Site 8 contains Buildings 191 and 391, storm sewer lines, open space, and subsurface sewage pumping station 10. Building 191 was used as a storage building for the Public Works Department, and Building 391 was used to store paints, degreasers, petroleum products, and hazardous waste. Site 8 is also identified as CAA 8 because of its close proximity to a fuel line located outside the boundary of the site.

Site 16, known as the shipping storage container area is about 11.1 acres and is located 390 feet east of San Francisco Bay. Site 16 is mostly covered by asphalt, concrete roads, parking lots, buildings, and some unpaved open areas. Site 16 is the location of the following SWMUs: Aboveground Storage Tank (AST) 338-A1, AST 338-D4, AST 608, UST(R)-18/NAS GAP 17, OWS 608A, OWS 608B, and WD 608. Before 1916, Site 16 was used to park aircraft and store chemicals. In 1916, eight large shipping containers were placed in the eastern portion of the site and used to store avionic parts and test equipment, chemicals, and aircraft fabrication equipment. In 1988, an auto-repair facility (Building 608) was constructed in the southern portion of Site 16. The northwestern portion of the site was used as a scrap yard. Site 16 also includes storage sheds, which also are known as the "CANS area"; OWSs (608A and 608B); WD 608; former USTs (including UST 608-1/GAP 17, which is a RCRA SWMU); former and present ASTs; and associated fuel lines. Site 16 is also identified as CAA 9B because petroleum contamination may be present at this site.

1.2 DOCUMENT ORGANIZATION

This ROD is organized into eight sections. An outline of the general topics and organization of the document is presented below.

- **Section 2.0, Site 6.** This section provides site-specific details regarding Site 6. It includes a more detailed description of the site's name and location; site history and investigation activities; community participation; scope and role of OU and response actions; site characteristics; current and potential future site and resource uses; summary of site risks; remedial action objectives (RAO); description of remedial alternatives; comparative analysis of remedial alternatives; principal threat waste; and selected remedy. Information common to all of the OU-1 sites in this ROD, such as community participation, regional and Alameda Point location, history, geology, and hydrogeology are presented only once in this section.

- **Section 3.0, Site 7.** This section provides site–specific details regarding Site 7. The topics discussed are the same as those in Section 2.0. Where appropriate, this section references common information from Section 2.0.

- **Section 4.0, Site 8.** This section provides site–specific details regarding Site 8. The topics discussed are the same as those in Section 2.0. Where appropriate, this section references common information from Section 2.0.

- **Section 5.0, Site 16.** This section provides site–specific details regarding Site 16. The topics discussed are the same as those in Section 2.0. Where appropriate, this section references common information from Section 2.0.

- **Section 6.0, Statutory Determinations.** This section provides a site-specific description of how the selected remedies satisfy the requirements of CERCLA §121 and explains the 5-year review requirements for the selected remedy.

- **Section 7.0, Documentation of Significant Changes.** This section documents the significant changes in the selected remedy as compared with the Proposed Plan for OU-1 Sites 6, 7, 8, and 16.

- **Section 8.0, References.** This section lists the references used in this report.

Figures and tables are presented after the section in which they are first mentioned. Additionally, the following attachments provide supplemental information for this ROD:

- **Attachment A, Administrative Record.** This attachment provides an index of the administrative record specific to OU-1 Sites 6, 7, 8, and 16.

- **Attachment B, Transcript from Public Meeting, Sign-in Sheet, and Public Notice.** This attachment provides a transcript from the public meeting on the Proposed Plan for OU-1 Sites 6, 7, 8, and 16; and copies of the sign-in sheet and published public notice of the meeting.

- **Attachment C, Responsiveness Summary.** This attachment provides the Navy's responses to questions raised during the public comment period.

FIGURES

SulTech

ALAMEDA POINT

2 0 2 4
Miles

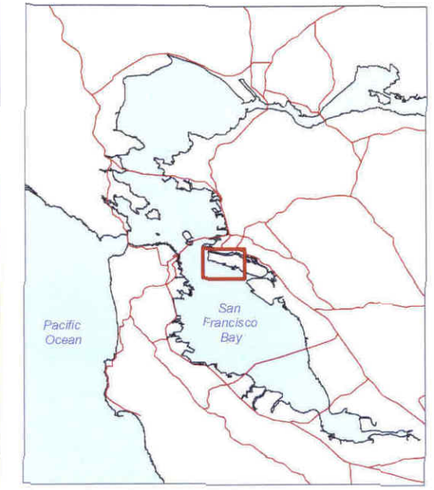
Alameda Point, Alameda, CA
U.S. Department of the Navy, BRAC PMO West, San Diego, CA

FIGURE 1-1

ALAMEDA POINT LOCATION MAP

Record of Decision for Operable Unit 1
Sites 6, 7, 8, and 16

02/07/2008 V:\Projects\B142\ROD\Figure 1.mxd SULLIVAN - SD D. Wise



CERCLA Site Boundary
Paved; Runway
Road
Structure
Unpaved
Water

600 0 600 1,200
Feet

SulTech

Alameda Point, Alameda, CA

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

FIGURE 1-2

SITE LOCATION MAP

Record of Decision for Operable Unit 1
Sites 6, 7, 8, and 16

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TABLES

TABLE 1-1: ORGANIZATION OF THE RECORD OF DECISION
Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Section or Attachment as Identified in the ROD[a]	Location of Information for Site 6	Location of Information for Site 7	Location of Information for Site 8	Location of Information for Site 16
Section 1 – Site Name, Location, and Brief Description	Section 1.0 and Section 2.1	Section 1.0 and Section 3.1	Section 1.0 and Section 4.1	Section 1.0 and Section 5.1
Section 2 – Site History and Investigation Activities	Section 2.2	Section 3.2	Section 4.2	Section 5.2
Section 3 – Community Participation	Section 2.3	Section 3.3 (refers to Section 2.3)	Section 4.3 (refers to Section 2.3)	Section 5.3 (refers to Section 2.3)
Section 4 – Scope and Role of Operable Unit and Response Action	Section 2.4	Section 3.4	Section 4.4	Section 5.4
Section 5 – Site Characteristics	Section 2.5	Section 3.5	Section 4.5	Section 5.5
Section 6 – Current and Potential Future Site and Resource Uses	Section 2.6	Section 3.6	Section 4.6	Section 5.6
Section 7 – Summary of Site Risks	Section 2.7	Section 3.7	Section 4.7	Section 5.7
Section 8 – Remedial Action Objectives	Section 2.8	Section 3.8	Section 4.8	Section 5.8
Section 9 – Description of Alternatives	Section 2.9	Section 3.9	Section 4.9	Section 5.9
Section 10 – Comparative Analysis of Alternatives	Section 2.10	Section 3.10	Section 4.10	Section 5.10
Section 11 – Principal Threat Waste	Section 2.11	Section 3.11	Section 4.11	Section 5.11
Section 12 – Selected Remedy	Section 2.12	Section 3.12	Section 4.12	Section 5.12
Section 13 – Statutory Determinations	Section 6.0	Section 6.0	Section 6.0	Section 6.0
Section 14 – Documentation of Significant Changes	Section 7.0	Section 7.0	Section 7.0	Section 7.0
Attachment A – Administrative Record	Attachment A	Attachment A	Attachment A	Attachment A
Attachment B – Transcript of Public Meeting	Attachment B	Attachment B	Attachment B	Attachment B
Attachment C – Responsiveness Summary	Attachment C	Attachment C	Attachment C	Attachment C

Note:

a The section title is as identified in EPA 1999c (see Section 8.0, References).

2.0 SITE 6

This section provides the site name, location, and brief description of Site 6; the site history and investigation activities; community participation; scope and role of OU and response actions; site characteristics; current and potential future site and resource uses; summary of site risks; RAOs; a description of the remedial alternatives; a comparative analysis of the remedial alternatives; the principal threat waste; and the selected remedy at Site 6.

2.1 SITE NAME, LOCATION, AND DESCRIPTION

Site 6, also known as Building 41 (Aircraft Intermediate Maintenance Facility), is about 5.6 acres in size. Site 6 comprises Parcels 196 and 71A. Site 6 is relatively flat and is covered by Buildings 41, 273, and 501; asphalt, concrete, roads, and parking lots; former portable avionics laboratories; a former solvent dip tank; and fuel, sanitary sewer, and storm drain lines (see Figure 2-1). The buildings at Site 6 are currently unoccupied.

Site 6 includes the following RCRA sites and SWMUs: RCRA Unit TP-01: OWSs 040A, 040B, and 041: WDs 040 and 041; former fuel line CAA B: and NAS GAP 25. OWSs 040A and 040B, and former Building 199 are associated with WD 040. USTs are associated with Site 6 (International Technology Corporation [IT Corp.] 2001a).

2.2 SITE HISTORY AND INVESTIGATION ACTIVITIES

This section describes the general investigation activities previously performed at OU-1 Sites 6, 7, 8, and 16. This section also provides a description of the investigation activities specific to Site 6. A detailed description of the investigation activities for Sites 7, 8, and 16 is provided in Sections 3.2, 4.2, and 5.2, respectively.

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

The Navy began investigations of contaminated sites in 1982 under the Navy Assessment and Control of Installation Pollutants (NACIP) program. OU-1 Sites 6 and 8 were not identified under the NACIP program; however, OU-1 Sites 7 and 16 were identified. 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 closure, responsibility for the environmental cleanup program at Alameda Point passed to the Base Realignment and Closure (BRAC) Cleanup Team (BCT). At Alameda Point, the BCT comprises representatives from Navy, EPA, Department of Toxic Substances Control (DTSC) and the Water Board. The listing of Alameda Point on the NPL invokes the applicable requirements of the NCP and requires EPA concurrence prior to the final classification of any property as uncontaminated. The Navy and EPA negotiated and signed a Federal Facility Agreement (FFA) in 2001, and DTSC and Water Board signed it in 2005.

The BCT developed a comprehensive strategy to accelerate site investigation, cleanup, and reuse of the CERCLA sites at Alameda Point, and part of that strategy involved grouping the sites into OUs. Sites 6, 7, 8, and 16, which are part of OU-1, were grouped together because they were mostly used for light industrial purposes. Storm sewers are currently being addressed within their respective CERCLA site; therefore, the storm sewers located within the boundary of IR Sites 6, 7, 8, and 16 are being addressed by this decision document.

CERCLA sites and petroleum CAAs were designated to assess contamination within specific areas of Alameda Point. In addition, an area known as the Marsh Crust was identified. The Marsh Crust is a layer of sediment contaminated with semivolatile organic compounds (SVOC), which are believed to be the result of direct discharges of petroleum products and wastes into the marshlands by two former manufactured gas plants and a former oil refinery. These products and wastes, which were discharged prior to Navy activities at Alameda Point, migrated over much of the surface of the surrounding marshland and were deposited through tidal action under what would become the Alameda Annex and the eastern portion of Alameda Point, including OU-1 Sites 6, 7, 8, and 16. The NPL does not include the subsurface contamination known as the Marsh Crust and the former subtidal area. In 2001, the Navy issued a Final Remedial Action Plan and ROD for the Marsh Crust at Alameda Point (Navy 2001a). The Navy, with the concurrence of DTSC, EPA, and the Water Board, selected a remedy that implemented institutional controls (IC) to address the Marsh Crust (Navy 2001a).

2.2.1 Site History

Site 6 contains several features where the Navy conducted activities that may have contributed to soil and groundwater contamination identified in the OU-1 Sites 6, 7, 8, and 16 Remedial Investigation (RI) Report (Tetra Tech EM Inc. [Tetra Tech 2004]). These activities included maintenance of aircraft and storage of chemicals at Building 41; stripping, rinsing, and draining operations associated with WD 041A, the solvent dip tank, and OWS 041; aircraft maintenance, repair, and cleaning activities conducted at WD 040 and associated OWSs 040A and 040B; storage of waste at NAS GAP 25; activities at the fuel lines and fuel pits associated with CAA B; storage of chemicals at Building 273; and activities associated with the sewage pumping station at Building 501. Site 6 also contains portions of an abandoned fuel line. The following paragraphs provide additional information on each these site features (see Figure 2-1).

Site 6 is also known as Building 41 (Aircraft Intermediate Maintenance Facility). Building 41, which was constructed before 1945, housed the Aircraft Intermediate Maintenance Department and seaplanes and was used to repair aircraft components from transient and tenant aircraft. Activities at Building 41 included welding and painting, activities associated with the tire and armaments, and miscellaneous maintenance activities (Environmental Resources Management-West, Inc. [ERM-West 1994]). Chemicals stored in the building included PD680 dry cleaner fluid, solvents, trichlorofluoroethane, various oils, paint wastes and strippers, and used hydraulic fluids. Sanitary sewer lines are connected to Building 41. The Aircraft Intermediate Maintenance Department ceased operations in and around Building 41 in September 1996. As part of closure activities for Building 41, a site cleanup conducted between November 1996 and March 1997 involved removing equipment no longer in use; cleaning all equipment remaining in place; high-pressure washing the walls, ceiling, and door to ensure that the building was chemically clean; and improving the weather tightness of the building. Currently, Building 41 is unoccupied and not used by the Navy (Tetra Tech 2004).

WD 041A is located at the southwest corner of Building 41, immediately south of Building 273, along with a former solvent dipping tank and OWS 041. Each of these site features is associated with stripping, rinsing, and draining activities. The drain from the wash pad currently discharges through OWS 041 to the sanitary sewer system; prior to 1971, the drain was connected to the storm sewer system (Tetra Tech 2004).

WD 040 is a large concrete area that covers a large part of the northwestern portion of Site 6. WD 040 was used for aircraft maintenance activities, including cleaning and repairs. Also associated with WD 040 are two OWSs (040A and 040B), which are located outside the Site 6 boundary. Additionally, the former fuel line CAA B, portable avionics laboratories, and NAS GAP 25 are located within WD 040. The OWSs were used to trap oils from aircraft rinse waters before they entered the storm sewers. Part of the former fuel line CAA B is located within WD 040. The fuel line was closed in place, but has been identified as requiring further action, which is being performed under the Navy's total petroleum hydrocarbons (TPH) program. Aircraft maintenance performed at WD 040 included cleaning and repairs. Activities at the portable avionics laboratories included use of solvents, degreasers, hydraulic fluids, and other various oils for airplane maintenance. NAS GAP 25 stored waste such as PD680 dry cleaner fluid, trichloroethene (TCE), solvents, oil, paint waste and stripper, and hydraulic fluid in 55-gallon drums (Tetra Tech 2004).

Building 273 is a Quonset hut that was constructed in 1943 and served as an airframe shop. The building was primarily used to inspect equipment using X-ray and for storage of aircraft tire rim cleaner and cleaning solvents (ERM-West 1994). Silver products and the developer Dektol were also used in the building for developing X-ray film. During the Phase 1 Environmental Baseline Survey (EBS) investigation, no floor staining was observed at Building 273 (Tetra Tech 2004).

Building 501 was used as a sewage pumping station and is located along the southwestern corner of Building 41. Building 501 is a small steel structure with a concrete floor. It contains a sink, an industrial-size garbage disposal, and a floor drain, which are connected to sanitary and storm

sewer lines. Although Building 501 is abandoned, all the mechanical components are currently present (Tetra Tech 2004).

2.2.2 Investigation Activities

In 1982, the Navy began investigations of contaminated sites under the auspices of the NACIP Program. During an initial assessment study, 12 sites were evaluated as part of the NACIP Program. Additional study was recommended at seven of these sites, which included Sites 7 and 16 (Naval Energy and Environmental Support Activity [NEESA] 1983). In 1988, the Navy received a Remedial Action Order from the California Department of Health Services (now known as DTSC) that identified an additional 16 sites for evaluation (Tetra Tech 2004). Ten sites identified under the NACIP program and an additional 16 sites were identified for evaluation (Tetra Tech 2004). Environmental investigation and remedial activities associated with OU-1 were implemented under the installation-wide environmental program called the IR Program. The purpose of this program was to identify, investigate, assess, characterize, and cost-effectively clean up or control releases of hazardous substances to reduce risk to human health and the environment. The program was administered in accordance with the following environmental laws:

- CERCLA, as amended by the Superfund Amendments and Reauthorization Act
- RCRA

CERCLA applies to sites where a hazardous substance, pollutant, or contaminant is known or suspected to have been released to the environment. RCRA corrective action requirements apply to SWMUs at RCRA-permitted facilities. CERCLA and RCRA corrective action requirements address the investigation and cleanup of contaminated property through slightly different, but functionally equivalent processes. This "functional equivalence" means that when CERCLA investigation requirements are met, the RCRA requirements for the SWMUs are also fulfilled.

In addition to investigations under CERCLA and RCRA, Alameda Point and OU-1 also underwent EBS and TPH investigations. The following subsections summarize the CERCLA, RCRA, TPH, and EBS investigation activities conducted at OU-1 Site 6.

2.2.2.1 CERCLA Investigation Activities

Each of the CERCLA investigations conducted at Site 6 between 1994 and 2006 are described below. Table 2-1 summarizes the CERCLA investigation activities at Site 6.

Initial Assessment Study

Building 41 was initially investigated in 1983 as part of the Initial Assessment Study (IAS) (NEESA 1983). The Aircraft Intermediate Maintenance Department ceased operations in and around Building 41 in September 1996. As part of closure activities for Building 41, a site

cleanup conducted between November 1996 and March 1997 involved removing equipment no longer in use; cleaning all equipment remaining in place; high-pressure washing the walls, ceiling, and door to ensure that the building was chemically clean; and improving the weather tightness of the building. Currently, Building 41 is unoccupied and not used by the Navy.

Installation Restoration Program Phases 2B and 3 Investigation, 1991

This investigation was conducted to determine if soil or groundwater contamination existed at Site 6. The investigation focused on the industrial, sanitary, and storm sewers and included collection of soil and groundwater samples and installation of groundwater monitoring wells and groundwater monitoring (PRC Environmental Management, Inc. [PRC] and James M. Montgomery Consulting Engineers, Inc. [JMM] 1992). Soil samples were collected and the following volatile organic compounds (VOC) were detected in one soil sample: acetone, chloroform, and xylene. Various metals also were detected in soils; however, only arsenic and iron exceeded residential preliminary remediation goals (PRG) (EPA 2002a). Polycyclic aromatic hydrocarbons (PAH) also were detected in both fill material and native sediments at Site 6. No SVOCs (other than PAHs), pesticides, or polychlorinated biphenyls (PCB) were detected in soil samples collected during this investigation.

The VOCs 1,1-dichloroethane (-DCA), cis-1,2-dichloroethene (cis-DCE), chloroform, tetrachloroethene (PCE), TCE, and vinyl chloride were detected in groundwater. Various metals also were detected in groundwater; however, only arsenic exceeded its 2002 residential PRG (EPA 2002).

Follow-On Investigation to Installation Restoration Program Phases 2B and 3 Sites, 1994

The Phases 2B and 3 investigations indicated elevated concentrations of beryllium and PAHs in surface soil and elevated concentrations of VOCs in groundwater. This investigation was conducted to provide additional lithologic, chemical, and hydrogeologic information to help assess the nature and extent of soil and groundwater contamination at Site 6 (PRC and JMM 1995). Activities conducted during this investigation consisted of collecting soil samples, nonpoint source samples from the manhole catch basins, and groundwater samples using cone penetrometer tests (CPT) and direct-push equipment; installing wells; and performing four quarters of groundwater monitoring (PRC and JMM 1995). CPT and direct-push groundwater samples were collected to evaluate the lithology and hydrogeologic characteristics below a depth of 15 feet, to assess the thickness of the second water-bearing zone (SWBZ), and to obtain a groundwater sample from the permeable zone within the SWBZ at each location.

Based on a review of the data, the chemicals detected during this investigation were similar in nature and extent to those found in previous investigations (PRC and JMM 1995). It was also reported that the extent of the potential chemicals of interest in groundwater appeared to be adequately characterized for the purpose of conducting an RI and a feasibility study (FS). Results of the investigation indicated concentrations of PAHs and concentrations of arsenic and iron in soil exceeded 2002 residential PRGs for soil and concentrations of SVOCs and arsenic and thallium in groundwater exceeded 2002 tap water PRGs (EPA 2002a).

Follow-On Investigation, 1998

The follow-on investigation was conducted to further characterize a groundwater plume identified during the Phases 2B and 3 investigations and the Phases 2B and 3 follow-on investigation. As a result, one monitoring well in the central portion of the identified plume was selected for quarterly sampling. During the first quarter, six VOCs and four metals were detected in groundwater samples collected from this location. During the second quarter, one VOC and four metals were detected. During the third quarter, six VOCs and seven metals were detected. During the fourth quarter, four VOCs and five metals were detected. During all four quarters, one or more organic compounds (1,1-DCA, 1,1-DCE, cis-1,2-DCE, PCE, TCE, and vinyl chloride) were detected at concentrations exceeding the maximum contaminant levels (MCL) in groundwater (EPA 2002b). A TCE plume and a vinyl chloride plume are present at Site 6.

Storm Sewer Removal Action, 1997-1998

This removal action was conducted to address elevated level of organic and inorganic contaminants in the sediments and debris located within the storm sewer system (IT Corp. 1997). The Navy Public Works Center performed the vacuum removal of the sediments and debris within the catch basins and manholes of the storm sewer system (Phase I of the removal action), and IT Corp. performed the removal of sediments and debris in the storm sewer system lines and associated manholes (Phase II of the removal action). Following the removal action, closed circuit television was used to survey the cleaned lines. Site-specific objectives of this removal action were to reduce the potential for sediments and debris in the storm sewer system, which contained elevated concentrations of heavy metals, VOCs, SVOCs, pesticides, and fuel-related hydrocarbons, from affecting nearby human populations, animals, the food chain, drinking water supplies, or sensitive ecosystems (IT Corp. 1997).

Site 6 contains storm sewer lines that are part of Subsystem G. The findings from the quality control review of Subsystem G resulted from the video tape review of approximately 5,200 linear feet of storm sewer line. Some residual sediment (up to 5 percent) and cemented deposits were observed in portions of lines, but were not near Site 6 (Tetra Tech 2000a). Based on the quality control review, most of the storm sewer lines cleaned were virtually sediment free, with only small quantities of residual sediment remaining in some lines and larger amounts of cemented deposits in others. As a result, it was recommended that no further action be taken to remove sediments from the storm sewer system lines identified as clean (IT Corp. 1997).

In Parcel 196, industrial activities potentially affecting storm sewer system were conducted in Building 41, including activities associated with hydraulics, brakes, avionics, engines, electrical wiring, and instrumentation. No significant discharges to the storm sewer system resulted from industrial activities associated with Parcels 71 or 196 at Site 6 (ERM-West 1994).

Supplemental Remedial Investigation Data Gaps Sampling, 2001

The data gaps sampling investigation was conducted at Site 6 to (1) delineate chlorinated VOC plumes in groundwater, (2) investigate the storm sewer pathways, and (3) collect soil gas samples to support vapor intrusion modeling in the baseline human health risk assessment (BHHRA) (Tetra Tech 2001b, 2002). Water-level measurements and groundwater samples were collected at all of the existing wells at Site 6 to determine current conditions. The groundwater samples were analyzed for VOCs and TPH using a mobile laboratory.

To verify the vertical extent of VOC contamination in the first water-bearing zone (FWBZ), groundwater samples were collected by a direct-push method from the top of the FWBZ and at the base of the fill at three locations. The delineation of VOC plumes addressed the chlorinated VOCs west of Building 41. The lateral and vertical boundaries of the VOC plumes were defined to MCLs, except for one location in the northwest corner of Site 6 that was outside the area of the data gaps investigation. Analytical results indicated groundwater contamination was laterally widespread; therefore, it was recommended that risk to human health and the environment should be reevaluated, and the groundwater monitoring network should be expanded to the east and west to encompass the VOC plumes (Tetra Tech 2002).

Four soil gas samples were collected at Site 6. At each soil gas location, two continuous core soil borings were completed to determine specific groundwater depths and evaluate physical soil parameters required for the risk assessment model. Soil gas samples were collected at depths of 1.5 and 4.0 feet below ground surface (bgs). Analytical results indicated concentrations of VOCs were detected above the groundwater VOC plumes (Tetra Tech 2002).

Basewide Groundwater Monitoring, 2002 through 2006

The basewide groundwater monitoring program started in June 2002 and is ongoing at Site 6. Groundwater samples were initially collected at three monitoring wells; currently, groundwater samples are being collected from seven monitoring wells at Site 6. The basewide groundwater monitoring program was initiated to (1) monitor the status of contaminant plumes in groundwater, (2) evaluate the potential for natural degradation of contaminant plumes, (3) identify the direction of groundwater flow and the gradient, and (4) identify locations where additional wells are needed and locations where existing wells can be abandoned (Shaw Environmental & Infrastructure, Inc. [Shaw] 2003b). Select wells were identified for quarterly or semiannual monitoring. Groundwater at the top of the FWBZ at Site 6 was targeted for sampling (Innovative Technical Solutions, Inc. [ITSI] 2006).

Analytical results indicated elevated concentrations of VOCs and TPH were present in groundwater at Site 6. However, all VOC concentrations detected above MCLs showed a declining trend over time through the most recent (summer 2005) sampling event. Although no screening criteria are established for TPH, all TPH concentrations have remained constant or declined basewide over time (ITSI 2006).

No other chemicals were detected in groundwater at concentrations exceeding MCLs. All TPH concentrations have remained constant or declined basewide over time (ITSI 2006).

Basewide Polycyclic Aromatic Hydrocarbon Investigation, 2003

The PAH investigation was conducted to collect sufficient PAH data to calculate exposure point concentrations (EPC) for risk assessments at CERCLA sites (Bechtel 2003). Historical PAH data collected at each CERCLA site were used to estimate the mean and standard deviation of benzo(a)pyrene [B(a)P] concentrations to determine the appropriate number of samples to collect at each site. Samples were collected separately between ground surface and 0.5 feet bgs, 0.5 feet and 2 feet bgs, 2 feet and 4 feet bgs, and 4 feet and 8 feet bgs. At Site 6, PAHs [expressed as a B(a)P equivalent] were detected in all soil samples; however, only 1 of 80 soil samples had a B(a)P-equivalent concentration exceeding the human health screening criterion of 0.62 milligram per kilogram (mg/kg) (Bechtel 2003). Data quality was determined to be adequate, with 99.7 percent of the data collected considered usable.

Remedial Investigation Report, 2004

An RI Report for OU-1 Sites 6, 7, 8, and 16 was prepared and became final in November 2004 (Tetra Tech 2004). This report provided a complete discussion of the history and setting of Sites 6, 7, 8 and 16; summarized previous investigations conducted at each site and the nature and extent of contamination; and included both a BHHRA and a modified ecological risk assessment (ERA). The RI Report recommended further evaluation of soil at Sites 6, 7, 8 and 16 and groundwater at Sites 6 and 16 in an FS to address risks identified in the BHHRA.

Feasibility Study, 2005

A Final OU-1 Sites 6, 7, 8, and 16 FS Report was issued in July 2005 (SulTech 2005; EPA 2005a). This FS Report summarized the results of the OU-1 Sites 6, 7, 8, and 16 RI Report, developed RAOs and remedial alternatives for each site, and evaluated the alternatives against the NCP criteria.

Proposed Plan, 2006

In April 2006, the Navy distributed a Proposed Plan recommending (1) remedial action for soil at IR Sites 6, 7, 8, and 16; (2) remedial action for groundwater at IR Sites 6 and 16; and (3) no action under CERCLA for groundwater at IR Sites 7 and 8 (SulTech 2006). This Proposed Plan summarized the history of sites, including the environmental investigations conducted, and notified the community of the public meeting and public comment period.

2.2.2.2 RCRA Investigation Activities

A RCRA facility assessment (RFA) was conducted at Alameda Point in 1992 (DTSC 1992). Its primary objectives were to identify SWMUs and areas of concern (AOC) and to collect

preliminary information on all actual or potential contaminant releases from these SWMUs and AOCs to evaluate the need and scope of a RCRA facility investigation (RFI). Most of the SWMUs at Alameda Point were first identified in 1991 in the RFA (DTSC 1992). The RFA was required to obtain a permit for the management of hazardous wastes in a number of specific waste management units, which are no longer operating at Alameda Point. These RCRA-regulated waste management units at Alameda Point no longer treat, store, or dispose of hazardous waste. The permits for these RCRA-regulated units have expired, and these units have undergone closure or are currently in the process of being closed.

After the final RCRA permit was issued, however, the Navy and the regulatory agencies decided it would be more efficient and effective to assess additional SWMUs and conduct RFIs under the other Navy environmental programs being conducted at Alameda Point.

An RFI for Alameda Point was implemented under the existing environmental programs; namely, the CERCLA and Alameda Point TPH programs. Functional equivalents of RFI documents (such as RFI work plans and RFI reports) have been and continue to be issued for various SWMUs and AOCs under each of these programs. These programs have and will continue to result in the full characterization of the nature, extent, and rate of migration of hazardous waste releases at all SWMUs and AOCs at Alameda Point.

Based on evaluations conducted by the Navy using requirements stipulated in the final hazardous waste facility permit for Alameda Point, two of the SWMUs (ASTs 021B and 540) were recommended for integration with the Alameda Point TPH program because of the absence of CERCLA contaminants (SulTech 2004). In a letter dated October 3, 2005 (DTSC 2005a), DTSC asked the Navy to contact the Water Board for a closure determination on ASTs 021B and 540.

Eleven SWMUs within OU-1 Sites 6, 7, 8, and 16 were recommended for integration with the CERCLA program and are addressed in this ROD.

The RCRA investigation activities conducted at Site 6 are described below. Table 2-2 summarizes the RCRA investigation activities at Site 6. Table 2-3 summarizes the status of each SWMU located within Site 6.

The following six SWMUs were identified within Site 6 (DTSC 1992):

- NAS GAP 25
- OWSs 040A, 040B, and 041
- WDs 040 and 041A

OWSs 040A, 040B, 041 and WDs 040 and 041A are addressed in this ROD, whereas no further corrective action was deemed necessary at NAS GAP 25.

NAS GAP 25 consisted of various sized containers, including 55-gallon storage drums on concrete pavement in and around a fenced area. Containers were placed on top of wooden pallets and within metal sheds. This SWMU measured approximately 70 feet by 30 feet and is located outside of Building 41 within WD 040. DTSC conducted an RFA of NAS Alameda in 1992, while the base was still operational. This RFA included GAP 25 and concluded (based on observations of the unit in operation) that there was a low potential of release from the unit and no RCRA facility investigation was necessary for this unit. According to the RFA, NAS GAP 25 exhibited a low potential for releases into soil and groundwater because the SWMU was on concrete pavement (DTSC 1992). The RI for Site 6 did not identify NAS GAP 25 as a likely source of contamination (Tetra Tech 2004). During a 2002 site visit, no staining was observed near this NAS GAP 25 or within the associated concrete expansion joints (SulTech 2004). The Navy and regulatory agencies have determined that no further corrective action is required for NAS GAP 25.

OWS 041 is located within Site 6 at the southwestern corner of Building 41, and is associated with WD 041A, as well as a wash pad and the solvent dip tank.

WD 040 is located between Buildings 40 and 41, and is associated with OWSs 040A and 040B. The portable avionics laboratory also was located at the northeastern portion of WD 040. WD 040 is partially within Site 6 and partially within transfer parcel Economic Development Conveyance 05. The two other OWSs also are located within the transfer parcel. This area was historically used for aircraft maintenance purposes, including cleaning and repairs.

WD 041A is a concrete area that covers a large portion of the southwestern corner of Site 6, near Building 41. A concrete wash pad, solvent dip tank, and OWS 041 are associated with WD 041A. The wash pad is located near the southwestern corner of Building 41; it slopes toward a center drain connected to OWS 041 and the sewer system.

RCRA Unit TP-01, a silver recovery unit, was located in the south-central portion of Building 41. The unit consisted of two 2 gallon containers holding spent x-ray fixer that contained silver. Based on the EBS report (Tetra Tech 2001c), DTSC was notified that this unit was closed, and a request for termination of the conditionally exempt specified waste streams tiered permit for five silver recovery units was submitted on May 11, 1998 (IT Corp. 2001a). Electronic correspondence from Marcia Liao of DTSC to Beth Kelly of Tetra Tech on May 23, 2002 indicated the conditionally exempt units were closed (Tetra Tech 2003b).

2.2.2.3 Environmental Baseline Survey Activities

As mandated by the Base Closure and Realignment Act, the Navy conducted a series of basewide investigations at Alameda Point as part of the EBS. The objective of the EBS was to inventory all Alameda Point property, parcel by parcel, and identify known or suspected chemical releases associated with historical and recent uses. The EBS program at Alameda Point was implemented in two phases. Phase 1 of the investigation included site visits, employee interviews, and historical research (ERM-West 1994). Phase 2 involved collection of

environmental samples that targeted potentially contaminated areas. Table 2-4 provides a summary of TPH and EBS Investigation Activities.

Site 6 consists of Parcels 196 and 71A. As a part of the EBS, these parcels were investigated under the EBS Phase 1 investigation, EBS Phases 2A and 2B investigation, and a storm water corridor study. Based on data gaps identified at Site 6, soil and groundwater samples were collected during the EBS. Two groundwater samples and seven soil samples were collected (IT Corp. 2001a). Soil samples were collected from within Building 41, adjacent to Building 41, adjacent to storm sewer lines, and within the WDs. Based on the Phase 2A investigation, low concentrations (below 1996 PRGs, background metals concentrations, or petroleum risk-based screening criteria) of VOCs, TPH, and metals were found at Parcel 71. However, because of the concern for potential contamination to the subsurface associated with washdown activities between the hangars, it was recommended that two additional soil and two additional groundwater samples be collected during the Phase 2B investigation. Analytical results from the Phase 2B investigation indicated a potential concern from VOCs in groundwater; some concentrations were detected above 1996 EPA Region IX PRGs in one groundwater sample. The extent of contamination may be limited, however, because the other groundwater sample from Parcel 71 did not contain detectable concentrations of the same VOCs.

Based on the Phase 2A investigation at Parcel 196 (underneath Building 41), TPH-diesel was detected in both soil samples collected. The detections were low (less than screening criteria); therefore, no additional sampling was recommended.

Soil Samples were collected at four locations adjacent to storm sewer lines as a part of the storm water corridor study (IT Corp. 2001a). Analytical results indicated low concentrations (less than 1996 Region IX PRGs or petroleum screening criteria) of VOCs, SVOCs, and TPH; therefore, there did not appear to be a widespread occurrence of VOCs, SVOCs, and TPH in soil at Site 6. Metals also were detected below Region IX PRGs and background levels. Based on the low concentrations detected, no additional sampling was recommended.

Storm Sewer Study Report, 2000

A Storm Sewer Study Report was completed in December 2000 (Tetra Tech 2000c). The purpose of this report was to identify sections of storm sewer that are located below the water table, correlate those sections with sections that are in poor condition, and identify the location of groundwater contaminant plumes to determine the likelihood that storm sewers are acting as migration pathways. At Site 6, analytical results indicated low concentrations of VOCs, SVOCs, and TPH. No additional sampling was recommended (Tetra Tech 2000c).

2.2.2.4 TPH Investigation Activities

TPH contamination historically has been evaluated as a part of a program to decommission all USTs, which began in August 1994 and continues to the present day. A separate TPH evaluation for soil and groundwater was conducted at Sites 6, 7, 8, and 16 using the "Preliminary

Remediation Criteria and Closure Strategy for Petroleum Contaminated Sites at Alameda Point," dated May 16, 2001 (hereinafter referred to as the "TPH strategy") (Navy 2001b); the evaluation was documented in Appendix F of the OU-1 Sites 6, 7, 8, and 16 RI Report (Tetra Tech 2004). The TPH strategy was developed in accordance with guidance from the Water Board for closure of low-risk fuel sites (Water Board 1996). The corrective action program for these petroleum–contaminated areas is overseen by the Water Board, in cooperation with DTSC and EPA. The petroleum area within Site 6 designated as a CAA consists of Fuel Line CAA B.

Under the Alameda Point TPH program, data gaps sampling was conducted in 1998 within Fuel Line CAA B at Site 6 (see Table 2-4). Previous investigations conducted on Fuel Line CAA B included exposing portions of the fuel lines. At each excavation, fuel lines were cleaned, inspected, filled with grout, and sealed at the ends; however, confirmation sampling was not conducted along the abandoned fuel lines (Tetra Tech 2001a). In 1998, four soil samples were collected from two locations along the fuel line. One groundwater sample was also collected from each sampling location. All samples were analyzed for lead, VOCs, and TPH. No chemicals were detected in the soil samples. TPH as gasoline was detected in one groundwater sample (Tetra Tech 2001c). Based on the results of the TPH investigations, Fuel Line CAA B meets all Water Board criteria for closure of low-risk fuel sites; as a result, no further corrective action was recommended by the Navy (Tetra Tech 2003e).

2.3 COMMUNITY PARTICIPATION

This section discusses the community participation activities that have been performed for OU-1 Sites 6, 7, 8, and 16. 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 (Tetra Tech 2003c). The initial plan was prepared in February 1989 and revised in 1996, 1998, 2002, and 2003. 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.

2.3.1 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 community, and the regulatory agencies. 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 regulatory agencies report on information about OU-1 Sites 6, 7, 8, and 16, including the availability of documents for OU-1 Sites 6, 7, 8, and 16, 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 repositories and administrative record file locations:

Alameda Point
950 West Mall Square
Building 1, Rooms 240 and 241
Alameda, California

Alameda Public Library
2200A Central Avenue
Alameda, California

Administrative Record
Naval Facilities Engineering Command, Southwest Division
937 North Harbor Drive, Building 1, 3rd Floor
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/bracbases/california/alameda_annex/rab_mm.aspx.

2.3.2 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 surrounding Alameda Point and mailed to city, state, and federal officials; regulatory agencies; local groups; and individuals identified in the Community Relations Plan since March 1990 (Tetra Tech 2003c). Previous updates and fact sheets included information on 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 results of BHHRAs and ERAs), summarize the remedial alternatives proposed for a site or group of sites, and present the Navy's preferred alternative. The updates, fact sheets, and proposed plans are mailed to approximately 400 households, businesses, public officials, and regulatory agencies in an effort to reach as many community members as possible. Table 2-5 summarizes the Alameda Point updates, fact sheets, and proposed plan related to OU-1 Sites 6, 7, 8, and 16.

2.3.3 Community Participation

The OU-1 RI Report was finalized in November 2004 (Tetra Tech 2004), and the draft final FS report was accepted as final in June 2005 (SulTech 2005; EPA 2005a). The Proposed Plan was submitted to the public on April 27, 2006, at the beginning of the public comment period, to provide information and solicit public input on the Navy's recommended action (SulTech 2006). These documents are available to the public at the information repositories maintained at the

Alameda Public Library and 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, San Diego, California.

A 30-day public comment period for OU-1 Sites 6, 7, 8, and 16 extended from April 27, 2006 to May 26, 2006. In addition, a public meeting was held on May 16, 2006. A notice of the public comment period and public meeting was published in the *Alameda Journal* on April 25, 2006, and in the *Oakland Tribune* on April 27, 2006. A copy of these public notices and are presented in Attachment B.

At the public meeting, the BRAC environmental coordinator and Navy remedial project manager gave presentations on the conditions at OU-1 Sites 6, 7, 8, and 16, and representatives from the Navy and environmental 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).

2.4 SCOPE AND ROLE OF OPERABLE UNIT AND RESPONSE ACTION

This ROD addresses OU-1 Sites 6, 7, 8, and 16, which were designated as OU-1 because they were mostly used for light industrial purposes. For Site 6, responses addressed under this ROD include additional investigation of soil beneath and adjacent to OWSs 040A and 040B and remediation of groundwater contaminated with CERCLA contaminants. Petroleum-contaminated areas of Site 6 (Fuel Line CAA B) are not addressed by this ROD and are currently being addressed under the Alameda Point TPH program, with regulatory oversight provided by the Water Board.

Based on evaluations conducted by the Navy using requirements stipulated in the final hazardous waste facility permit for Alameda Point, the Navy has recommended no further corrective action for NAS GAP 25 (SulTech 2004). During a telephone conference on April 4, 2007, the DTSC concurred with the no further corrective action status determination for NAS GAP 25 (Steven Peck and Dot Lofstrom 2007).

The selected soil remedy within this ROD is intended to address the additional actions necessary to fulfill CERCLA requirements and obtain "corrective action complete" status for OWSs 040A, 040B, and 041, and WDs 040 and 041A. As a result, the RCRA requirements will be satisfied.

2.5 SITE CHARACTERISTICS

This section summarizes information on the geology, hydrogeology, and the nature and extent of contamination in soil and groundwater at OU-1 Sites 6, 7, 8, and 16. A complete discussion of evaluation methods, sampling locations, chemicals detected at each site, nature and extent of contamination, fate and transport, and evaluation of human and ecological risks is presented in

the OU-1 RI Report (Tetra Tech 2004). An evaluation of RCRA activities is presented in the SWMU evaluation report (SulTech 2004).

2.5.1 Geology

This section describes the regional geology and geology beneath Alameda Point, including a description of the geology at Site 6. The geology for Sites 7, 8, and 16 is provided in Sections 3.5.1, 4.5.1, and 5.5.1, respectively.

Alameda Point occupies a depression between two uplifted areas: the Berkeley Hills on the east and the San Bruno and 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. 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 (Bechtel 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. 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 (Bechtel 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.

A layer with high organic content, called the "Marsh Crust," typically marks the top of the BSU throughout the eastern portion of the installation. The Marsh Crust is a layer of contaminated sediment that was formed by the discharge of petroleum waste from two gas plants and an oil refinery. This waste migrated over much of the surface of the surrounding marshlands and was deposited through tidal actions under what would later become the Alameda Annex and the eastern portion of Alameda Point.

Interbedded clay, silty clay, and clayey sand have been identified as the BSU beneath Site 6 (Tetra Tech 2004). The BSU layer extends from approximately 9.5 to 15.5 feet bgs. Based on a review of boring logs and CPT logs, the BSU is deduced to be continuous beneath Site 6 (Tetra Tech 2004).

The Artificial Fill material at Site 6 is thick and consists of clean, medium dense, fine-graded, well-sorted, friable sand and silty sand. Artificial Fill at Site 6 is present from the ground surface to approximately 9 feet bgs.

2.5.2 Hydrogeology

This section describes the hydrogeology beneath Alameda Point, as well as the hydrogeology at Site 6. The description of the hydrogeology for Sites 7, 8, and 16 is provided in Sections 3.5.2, 4.5.2, and 5.5.2, respectively.

Groundwater across Alameda Point is usually 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 have been designated the FWBZ, SWBZ, and the deep aquifer, known as the Alameda Aquifer. At Site 6, the following shallow hydrogeologic units are present (Tetra Tech 2004):

- FWBZ
- Aquitard
- SWBZ
- Yerba Buena Mud Aquitard, a regional aquitard

The first of these units is the unconfined FWBZ, which is encountered within the Artificial Fill material at 5 feet and extends to a depth of approximately 9 feet. The upper portion of the BSU acts as an aquitard between the FWBZ and the SWBZ; it varies from approximately 6 feet thick. The semiconfined SWBZ occupies the lower portion of the BSU, Merritt Sand, and upper unit of the San Antonio Formation. The lower unit of the San Antonio Formation acts as the regional aquitard. The magnitude and direction of the vertical component of groundwater flow between the FWBZ and SWBZ at Site 6 could not be estimated because no wells are screened in the SWBZ.

Groundwater flow at Alameda Point is highly variable. Seasonal variations are caused from precipitation levels, and diurnal variations are related to tidal cycles. Groundwater contouring suggests that a groundwater divide, oriented east-west, occurs just north of Site 6. Groundwater at Site 6 flows south because Site 6 is located south of this groundwater divide. Horizontal gradients at Site 6 have been measured between 0.005 and 0.002 feet per foot, and the average groundwater velocity was determined to be 13 feet per year (Tetra Tech 2004).

2.5.3 Nature and Extent of Contamination in Soil and Groundwater

Activities associated with known or potential chemical releases at Site 6 were identified and environmental investigations were conducted to identify and assess the nature and extent of contaminants in soil and groundwater (see Section 2.2.2). Areas that were investigated included Building 41, including WDs 040 and 041A, OWSs 040A, 040B, and 041; former Building 199; NAS GAP 25; Fuel Line CAA B; RCRA Unit TP-01; Building 273; and Building 501. The following discussion of the nature and extent of contamination compares detected concentrations

of chemicals to the 2002 residential PRG, tap water PRG, and MCL values. Each chemical with one or more exceedances of the PRG or MCL is discussed in later sections of this ROD but is not necessarily selected as a chemical of concern (COC) at Site 6.

2.5.3.1 Site 6 Soil

Soil samples collected at Site 6 were analyzed for metals, VOCs, SVOCs, PCBs, and pesticides. Most of the chemicals detected across Site 6 are consistent with historical activities that occurred at Site 6. Some of these chemicals, as discussed below, were infrequently detected at concentrations above the 2002 residential PRGs (EPA 2002a).

Two metals, arsenic and iron, were detected in soil at concentrations above the residential PRGs; however, the presence of both metals were attributed to background concentrations (see Table 2-6).

No VOCs were detected in Site 6 soil at concentrations exceeding residential PRGs. Maximum concentrations of DCE, DCA, toluene, and TCE were detected in soil near OWS 041 and the solvent dip tank associated with WD 041A. Maximum concentrations of xylene and PCE were detected near the portable avionic laboratories (Tetra Tech 2004).

Several non-PAH SVOCs were sporadically detected at Site 6 at concentrations below their respective PRGs. Three PAH SVOCs were detected at concentrations above EPA 2002 residential PRGs (EPA 2002a) (see Table 2-6); however, PAHs are not COCs at Site 6 and PAH concentrations are below the site average threshold level of 0.62 mg/kg for B(a)P-equivalent chemicals. One sample collected from beneath the paved parking lot contained B(a)P at concentrations exceeding the site average threshold level of 0.62 mg/kg, and the B(a)P is therefore likely attributable to the presence of asphalt. Consequently, the RI Report recommends no action for PAHs at Site 6.

Although the RI Report concluded that soil at Site 6 does not require remediation, EPA and DTSC subsequently requested and the Navy agreed to perform further sampling during the remedial design phase to evaluate the nature and extent of potential soil and groundwater contamination beneath and adjacent to OWSs 040A and 040B at Site 6 (Tetra Tech 2004; DTSC 2005). At the time of preparation of this ROD, the Navy is working collaboratively with the agencies on the work plan associated with this sampling event.

OWSs 040A and 040B, although located outside the Site 6 boundary (see Figure 2-1), are directly related to activities that occurred at Site 6 and are being addressed under the CERCLA program for Site 6. The Site 6 boundary will be modified if soil beneath or adjacent to OWSs 040A or 040B contain COCs at concentrations above remediation goals.

2.5.3.2 *Site 6 Groundwater*

Groundwater samples collected at Site 6 were analyzed for metals, VOCs, SVOCs, PAHs, TPH, pesticides, and PCBs. Groundwater concentrations at Site 6 were elevated in the vicinity of corresponding elevated soil concentrations. VOCs, SVOCs, PAHs, and TPH and metals were detected in groundwater samples from Site 6. No pesticides or PCBs were detected in groundwater samples (Tetra Tech 2004).

Antimony, arsenic, lead, manganese, and thallium were detected at concentrations exceeding tap water PRGs or MCLs in groundwater at Site 6 (see Table 2-7). Arsenic, manganese, and thallium concentrations in groundwater were attributed to background (Tetra Tech 2004). Thallium exceeded the MCL in only one sample collected from a direct-push boring located in the SWBZ. The SWBZ is not considered a potential drinking water source; therefore, thallium was not evaluated in the risk assessment. Antimony, lead, manganese, and thallium have not been detected at concentrations above the MCLs in samples collected between 2002 and 2006 (ITSI 2006). Arsenic was detected above the MCL in only 2 of 24 samples collected between 2002 and 2006, most recently in the summer of 2004.

Twelve VOCs and one SVOC exceeded PRGs or MCLs (see Table 2-7). The primary VOCs detected were PCE, TCE and their degradation products. The highest concentrations were located near the solvent dip tank and OWS 041. The VOCs DCE, TCE, and vinyl chloride detected in groundwater appeared to be confined to the FWBZ, with no apparent continuing source (Tetra Tech 2004). The concentration of the SVOC bis(2-chloroethyl)ether exceeded the PRG in only one sample.

PAHs were detected sporadically in groundwater at concentrations below the tap water PRGs or MCLs. The highest detected concentrations of TPH components were located beneath Building 41. TPH components were likely related to a fuel spill within Building 41.

2.6 CURRENT AND POTENTIAL FUTURE SITE AND RESOURCE USES

This section discusses (1) current and reasonably anticipated future land uses, (2) current and potential groundwater uses, and (3) surface water uses at Site 6. This information was incorporated into the development of exposure scenarios for the BHHRA and the development and evaluation of remedial alternatives.

2.6.1 Future Land Uses

Site 6 is an IR site at Alameda Point, currently under the jurisdiction of the Navy. Site 6 is covered by Buildings 41, 273, and 501; asphalt; concrete; roads; and parking lots. The most likely future reuses of Site 6 include recreational and commercial/industrial activities. Currently, Site 6 is completely paved, and the buildings are presently vacant. Site 6 is partially fenced.

According to the NAS Alameda Community Reuse Plan, Site 6 is located in the Civic Core land use area (see Figure 2-2), and is also partially located in the Marina District (EDAW, Inc. 1996). The Civic Core land use area consists of approximately 334 acres located in the central part of Alameda Point. According to the General Plan Amendment, marine-related industry, office, commercial, residential, recreation, and supporting retail uses are allowable within the district (City of Alameda 2003). According to the Alameda Point Preliminary Development Concept Report (Alameda Reuse and Redevelopment Agency and Roma Design Group 2006), Building 41 is to be reused as part of the "Town Center Retail" area designated as commercial and retail facilities to serve and support the adjacent residential and employment areas.

2.6.2 Current and Potential Groundwater Uses

Groundwater beneath the central portions of Alameda Point (including Sites 6, 7, and 8) 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 (Tetra Tech 2004). The aquifer is currently designated in the Basin Plan as suitable for drinking water supply (Water Board 2000). In 2000, the beneficial use of groundwater beneath Alameda Point was evaluated using EPA's federal classification criteria and the State Water Resources Control Board (SWRCB) Resolution (Res.) No. 88-63, which defined sources of drinking water (SWRCB 1988; Tetra Tech 2000b). Based on federal total dissolved solids (TDS) and yield criteria, groundwater within the FWBZ was determined to be a Class II Aquifer (Tetra Tech 2000b). Based on the same federal criteria, groundwater in the SWBZ was determined to be a Class III aquifer.

Groundwater in the FWBZ underlying the central region of Alameda Point (which includes Sites 6, 7, and 8) is classified as a Class II aquifer based on TDS and yield criteria. A Class II aquifer is a current or potential source of drinking water and has other beneficial uses (Tetra Tech 2000b). Other potential beneficial uses of groundwater include industrial supply and agricultural use (crop irrigation or livestock watering). EPA classifies groundwater having an existing or potential use as a drinking water supply (Class I or II) using the following criteria:

- TDS concentration less than 10,000 milligrams per liter (mg/L)
- A minimum well yield of 150 gallons per day

A beneficial use evaluation conducted for the purposes of CERCLA cleanup decisions determined groundwater in the central region of Alameda Point is unlikely to be used as a potential drinking water source (Tetra Tech 2000b). This determination was based on the following factors:

- The safe yield and maximum pumping rate are inadequate to support common uses of water, as well as multiple domestic users (minimum well yield of 150 gallons per day or 0.104 gallons per minute [EPA 1988b]).
- Existing saltwater intrusion of the FWBZ based on groundwater flow from the San Francisco Bay, which would be accelerated by groundwater extraction.

- No supply wells currently exist within or downgradient of contaminated groundwater.
- State and county limitations on well construction because of a thin, vulnerable aquifer.
- FWBZ groundwater (Class II aquifer) has high TDS concentrations less than 10,000 mg/L and SWBZ (Class III aquifer) has TDS concentrations exceeding 10,000 mg/L.

The only other possible uses for groundwater would be for watering livestock. Crop watering or industrial uses would require costly pretreatment for TDS.

2.6.3 Surface Water Uses

OU-1 Sites 6, 7, 8, and 16 do not have naturally occurring surface streams or ponds. Storm water at Site 6 is presently handled via storm sewers.

2.7 SUMMARY OF SITE 6 RISKS

This section summarizes the risk assessment approach used for OU-1 Sites 6, 7, 8, and 16. The baseline risk assessment approach is presented in Section 2.7.1, and the Site 6 risk assessment specifics are provided in Section 2.7.2. The summary of site risks for Sites 7, 8, and 16 are provided in Sections 3.7, 4.7, and 5.7, respectively, and site-specific results for these sites are presented in Sections 3.7.2, 4.7.2, and 5.7.2.

A BHHRA and a modified ERA were conducted for OU-1 Sites 6, 7, 8, and 16 using data collected during the RI, EBS, RCRA, and TPH investigations. 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 each site. They provide the basis for taking action and identify the COCs and exposure pathways that need to be addressed by the remedial action. A BHHRA was performed to assess risk to human health at each site. However, a modified ERA was performed because OU-1 Sites 6, 7, 8, and 16 have limited habitat and site-specific ecological sampling to support a baseline ERA was not feasible. The modified ERA was intended to be a conservative estimate using more realistic exposure parameters for ecological receptors than would typically be used for a screening-level ERA.

2.7.1 Baseline Human Health Risk Assessment Approach

A BHHRA was conducted to estimate human health risks associated with possible exposure to site-related chemicals. These risk estimates were based on a series of conservative assumptions and were subsequently used to support informed risk management decisions on the need for remedial action and selection of the most appropriate remedial alternative, if necessary.

Human health risk was evaluated for commercial/industrial, construction worker, recreational, and residential exposures, and both an adult and child were considered potential future receptors.

The residential exposure scenario was included for all sites because EPA risk assessment guidance includes a strong preference for evaluation of the residential pathway (EPA 1989). The exposure pathways evaluated in the BHHRA for each scenario are provided below.

- **Commercial/Industrial** – soil ingestion, dermal contact with soil, inhalation of particulates from soil, inhalation of VOCs in ambient air, and inhalation of VOCs in indoor air. Ingestion of groundwater in the FWBZ by future commercial/industrial workers was not considered a complete pathway because businesses would not be allowed to install wells into the FWBZ because of state and local well construction standards. Alameda Point is supplied by a public water supply system, and businesses are most likely to use the public water supply as a source of drinking water.

- **Construction Worker** – soil ingestion, dermal contact with soil, inhalation of particulates from soil, and inhalation of VOCs in ambient air. Ingestion of groundwater by construction workers was not considered a complete pathway for the risk assessment because the risk assessment is intended to address chronic exposures to contaminants. Construction workers do not routinely ingest groundwater. Such a situation would be accidental and would not rise to a chronic situation that could be reasonably evaluated by the risk assessment process.

- **Recreational** – soil ingestion, dermal contact with soil, inhalation of particulates from soil, and inhalation of VOCs in ambient air

- **Residential** – ingestion of homegrown produce, soil ingestion, dermal contact with soil, inhalation of particulates from soil, inhalation of vapors in ambient air, inhalation of vapors in indoor air, and domestic use of groundwater

Chemicals in soil or groundwater were excluded as chemicals of potential concern (COPC) using the following screening criteria: (1) essential nutrient status, (2) frequency of detection, and (3) the EPA Region IX residential PRG or California-Modified residential PRG (EPA 2002a); chemicals excluded as COPCs were not evaluated in the BHHRA. Chemicals considered statistically similar to background were noted as a part of the COPC selection process to underscore the contribution of background inorganic chemicals to a receptor's incremental risk. If site lead concentrations exceeded the California-Modified residential PRG (EPA 2002a), the DTSC lead risk computer model, LeadSpread 7, was used to assess lead health risks for children (DTSC 2003).

Cancer risks associated with exposure to chemicals classified as carcinogens were estimated as the incremental probability that an individual will develop cancer over a lifetime as a direct result of an exposure. Risk management decisions for chemicals with cancer effects were based on lifetime or total risk; therefore, risks for adult and child receptors were summed to obtain a total cancer risk. 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 whether site risks are significant enough to warrant cleanup. Guidelines for managing cancer risks are promulgated in the NCP (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.

Chemicals might present noncancer health effects in addition to cancer risks. Noncancer health hazards and cancer risks were characterized separately. The potential for noncancer health effects is expressed as a hazard index (HI). If the resulting HI was less than 1, it was assumed that there was no significant potential for noncancer health effects posed by cumulative effects. If the total HI exceeded 1, a "segregation of hazard indices" analysis was conducted. In this analysis, chemicals with similar target organs were grouped together, and an HI was calculated for each group. If the HI for a target organ exceeded 1, there was a potential for noncancer health effects.

The noncancer health effects and total cancer risk that included background chemicals were presented for all scenarios. Both reasonable maximum exposures (RME), which is the maximum exposure that is reasonably expected to occur at a site, and average or central tendency exposures were presented.

Certain limitations were associated with the data set used to estimate risks for these areas. The detection limits for some of the sample analyses were set above the screening criteria. For this reason, the Navy has agreed to conduct additional site characterization during the remedial design phase for these areas to ensure that any risks are properly estimated.

For OU-1 Sites 6, 7, 8, and 16, the site boundaries were used to define the soil exposure areas, and soil data for each site were aggregated in depth intervals of 0 to 2 feet bgs and 0 to 8 feet bgs to evaluate potential exposures associated with site use. Groundwater data were aggregated by contaminant plume rather than site. Soil gas data were used in the risk evaluation of subsurface vapor migration to indoor air.

The OU-1 Sites 6, 7, 8, and 16 RI Report provides a more thorough description of the BHHRA approach (Tetra Tech 2004). The remainder of this section presents the site-specific assumptions and findings of the BHHRA for Site 6.

A conceptual site model (see Figure 2-3) was presented in the OU-1 Sites 6, 7, 8, and 16 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 6. The chemicals identified are associated with the historical activities that occurred at Site 6, specifically aircraft maintenance, paint stripping, and parts cleaning activities. The detailed approach and results of the Site 6 risk assessments are presented in Section 4.3 of the OU-1 Sites 6, 7, 8, and 16 RI Report (Tetra Tech 2004).

2.7.1.1 *Identification of Chemicals of Potential Concern*

The site boundaries for Site 6 were used to define the soil exposure area, and the soil data were aggregated in depth intervals of 0 to 2 feet bgs and 0 to 8 feet bgs to evaluate potential exposures associated with site use. Groundwater data were aggregated by contaminant plume. Soil gas data also were used in the risk evaluation of subsurface vapor migration to indoor air at Site 6.

Site 6 COPCs are presented in the OU-1 Sites 6, 7, 8, and 16 RI Report (Tetra Tech 2004). Comparison with background concentrations indicated one COPC (arsenic) for soil and two COPCs (arsenic and magnesium) for groundwater were statistically similar to background.

2.7.1.2 *Exposure Assessment*

The anticipated future use of Site 6 is commercial/industrial; however, the BHHRA also evaluated the construction worker, recreational, and residential exposure scenarios (see Table 2-8). The residential scenario is considered to be the most conservative and least likely scenario at the site.

2.7.1.3 *Risk Characterization*

The site risk characterization for the exposure scenarios are summarized below by media (soil and groundwater) (Tetra Tech 2004) and summarized in Table 2-9.

Site 6 Soil

The RME cancer risk for Site 6 soil (including background) is 2×10^{-6} for the commercial/industrial scenario and 1×10^{-6} for the recreational scenario, both of which are within the risk management range of 10^{-6} to 10^{-4}. The RME cancer risk for the construction worker scenario is 2×10^{-7} (both surface and subsurface soil), which is below the risk management range. The RME HIs (including background) are 0.03 (surface soil) for the construction worker scenario, 0.02 for the recreational scenario, and 0.009 for the commercial/industrial worker, all of which are less than 1.

For the residential scenario, soil data were aggregated in depth intervals of 0 to 2 feet bgs (surface soil) and 0 to 8 feet bgs (subsurface soil). For surface soil, the total RME cancer risk (including background) was 1×10^{-5}, which is within the risk management range. The RME HI for a child (including background) was 0.2, which is less than 1. For subsurface soil, the total RME cancer risk (including background) was 1×10^{-5}, which is within the risk management range. The RME HI for a child (including background) was 0.1, which is less than 1. Risks from soil were attributed primarily to arsenic; however, arsenic was attributed to background. PAH SVOCs were not identified as risk drivers at Site 6.

Lead was not selected as a COPC for soil because concentrations of lead were statistically similar to background; therefore, risk attributed to lead was not evaluated using LeadSpread.

Potential site risk to human health from ingestion of lead in Site 6 soil was considered to be minimal.

Site 6 Groundwater

The risk from potential exposure to COPCs in groundwater was evaluated for the commercial/industrial and residential exposure scenarios. For the commercial/industrial exposure scenario, only the inhalation of vapors from VOCs that migrate from groundwater to indoor air was evaluated. The cancer risk for commercial/industrial receptors from exposure to groundwater was 6×10^{-5}, which is within the risk management range (see Table 2-9). The noncancer HI was 0.05, which is below 1 (Tetra Tech 2004). Potential exposure of either recreational or construction worker receptors was considered incomplete; therefore, risk was not calculated.

For groundwater, using the residential scenario, the total RME cancer risk (including background) is 5×10^{-4}, which is above the risk management range. The RME HI for a child (including background) was 9, which is above an HI of 1. Cancer and noncancer drivers identified for groundwater were arsenic, manganese, bis(2-chloroethyl)ether, PCE, TCE, and vinyl chloride. Arsenic and manganese were attributed to background. Risk attributed to bis(2-chloroethyl)ether (8×10^{-6}) was based on one groundwater sample collected in 1995; all other groundwater samples were nondetect. Risk attributed to PCE, TCE, and vinyl chloride was attributed to data for samples collected from 1995 to 2002, and their concentrations in groundwater have decreased over time.

Antimony was determined not to pose a cancer risk greater than 1×10^{-6} or non-cancer HI greater than 1.

RME cancer risk and an HI (using the residential scenario) were calculated for metals in the background data set for groundwater. RME cancer risk from background groundwater is 2×10^{-4}, compared with the Site 6 groundwater cancer risk of 5×10^{-4}. The HI for background groundwater was 13, compared with the Site 6 HI (child) of 9. When cancer risk from background metals was subtracted from the total site risk for groundwater, the incremental risk from groundwater was 3×10^{-4}. The HI for metals in the background data set for groundwater (13) was greater than the total HI for Site 6 (9); therefore, incremental noncancer risk was considered minimal.

Potential site risk to human health from ingestion of lead in Site 6 groundwater was considered to be minimal because the EPC for lead in groundwater is 0.22 microgram per liter (µg/L). This is an order of magnitude lower than the action level for lead in drinking water of 15 µg/L; therefore, the potential hazard from exposure to lead in groundwater was not evaluated using LeadSpread.

2.7.2 Modified Ecological Risk Assessment Approach

Ecological habitat capable of supporting significant wildlife is not present at Site 6; however, exposure pathways for terrestrial receptors were considered potentially complete to provide a conservative estimate of risk (Tetra Tech 2004). Risks to ecological receptors were not evaluated for pathways associated with the outdoor air/fugitive dust, outdoor air, or dermal contact pathways because the site is paved and there is little or no opportunity for these pathways to result in exposure to contamination.

Because Site 6 has limited habitat, site-specific ecological sampling to support a baseline ERA was not feasible; therefore, a modified ERA was conducted for OU-1 Sites 6, 7, 8, and 16. The modified ERA was intended to be a conservative estimate using more realistic exposure parameters for the ecological receptors identified for evaluation than would typically be used for a screening-level ERA. The methods used to conduct the modified ERA were consistent with EPA guidance for screening-level and baseline ERAs, as well as with Navy policy for ERAs (EPA 1999d; Navy 1999a). Ecological receptors evaluated included small mammals, passerines, raptors, and marine life. The modified ERA results indicated that none of the chemicals in soil or groundwater posed significant risk to the ecological receptors evaluated at OU-1 Sites 6, 7, 8, and 16 (Tetra Tech 2004). A thorough description of the modified ERA, with corresponding uncertainties, is presented in the OU-1 Sites 6, 7, 8, and 16 RI Report (Tetra Tech 2004).

2.7.3 Chemicals of Concern

No COCs were identified for soil under any of the Site 6 risk scenarios in the BHHRA; however, insufficient information is available about the potential contamination in soil beneath and adjacent to OWSs 040A and 040B (Tetra Tech 2004). Additional samples will be collected from beneath and adjacent to these OWSs, and the samples will be analyzed to determine the extent of any contamination and identify any soil COCs associated with OWSs 040A and 040B. COCs identified for groundwater under the residential scenario were cis-1,2-DCE, TCE, PCE, and vinyl chloride (Tetra Tech 2004). These chemicals pose risk from vapor intrusion to indoor air and through domestic use of groundwater.

The modified ERA results indicated no chemicals in soil or groundwater pose significant risk to ecological receptors at Site 6 (Tetra Tech 2004).

2.8 REMEDIAL ACTION OBJECTIVES FOR SITE 6

This section summarizes the RAOs identified for Site 6 based on the future site use and the results of the BHHRA. 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 and groundwater at Site 6 based on the identified COCs, potential receptors and exposure pathways, ARARs, and remediation goals.

2.8.1 Site 6 Soil

The OU-1 Sites 6, 7, 8, and 16 RI Report concluded that soil at Site 6 does not pose a significant risk to human health or to the environment (risks are within the risk management range); however, the RI Report did not include sufficient characterization of soil beneath and adjacent to OWSs 040A and 040B (Tetra Tech 2004). As a result, the following RAO was developed for any potential COCs that may be identified during sampling beneath and adjacent to the OWSs at Site 6:

- Minimize the potential risk of exposure (through ingestion or dermal contact) of a commercial worker to unacceptable levels of COCs in Site 6 soil and either prevent exposure (through ingestion or dermal contact) of future residents to unacceptable levels of COCs in soil or prohibit residential use of the property.

Remediation goals for any COCs that might be identified during sampling at OWSs 040A and 040B will be based on EPA's residential PRGs (EPA 2004) or background concentrations, if higher than residential PRGs. The anticipated land uses for Site 6 in the near future are commercial or industrial. The Navy selected residential PRGs because the costs associated with remediating to the residential PRGs are comparable with the cost of remediating to the commercial/industrial remediation goals. Section 2.9.1 provides additional information on the sampling to be conducted at OWSs 040A and 040B. The sampling effort and any subsequent remediation activities at OWSs 040A and 040B are expected to result in no further corrective action status for the SWMUs at Site 6.

2.8.2 Site 6 Groundwater

The anticipated future use of Site 6 is commercial/industrial. The RAOs for groundwater underlying Site 6 are intended to (1) protect beneficial use of the aquifer from Site 6 COCs and (2) minimize the potential risk of exposure through inhalation by commercial workers to unacceptable levels of COCs in groundwater. Groundwater beneath Site 6 is unlikely to be a potential source of drinking water; however, the aquifer is currently designated in the Water Board's Basin Plan as suitable for drinking water supply (Water Board 2000). Based on this designation, the remediation goals for the Site 6 COCs in groundwater are the following federal or state MCLs:

- Cis-1,2-DCE: 6 μg/L (state)
- PCE: 5 μg/L (federal)
- TCE: 5 μg/L (federal)
- Vinyl chloride: 0.5 μg/L (state)

2.9 DESCRIPTION OF REMEDIAL ALTERNATIVES FOR SITE 6

Remedial alternatives for soil and groundwater at Site 6 were developed in accordance with the requirements identified in CERCLA, as amended by Superfund Amendments and Reauthorization Act of 1986, 42 USC § 9601, et seq. and the NCP. Three alternatives were developed for soil, and four alternatives were developed for groundwater, as discussed below. These alternatives, including the evaluation of the technologies and screening process that led to the development of these alternatives, were presented in the OU-1 Sites 6, 7, 8, and 16 FS Report (SulTech 2005).

2.9.1 Remedial Alternatives for Site 6 Soil

The following soil remedial alternatives were identified for soil at Site 6:

- Remedial Alternative 1 – No Action
- Remedial Alternative 2 – Sampling and ICs
- Remedial Alternative 3 – Sampling and Excavation with Off-Site Disposal of Soil

Each of these alternatives is discussed below.

2.9.1.1 Remedial Alternative 1 – No Action

Under Alternative 1, no remedial actions would be performed. This alternative provides a baseline for comparing all other alternatives. No cost is associated with this alternative.

2.9.1.2 Remedial Alternative 2 – Sampling and ICs

Alternative 2 involves collection and analysis of additional soil and groundwater samples to evaluate the nature and extent of potential contamination beneath and adjacent to OWSs 040A and 040B. The numbers and types of samples to be collected will be determined by the Navy and regulatory agencies during the remedial design; a number of soil samples will be collected above the groundwater table and at least one groundwater sample will be collected to indicate the potential need to characterize soil contamination below the groundwater table.

If chemicals are present in soil at concentrations exceeding EPA 2004 residential PRGs, or background concentrations if higher than residential PRGs, ICs would be applied to prohibit excavation of soil without prior regulatory approval; such prohibition would prevent any significant inhalation or ingestion of or dermal contact with contaminated soil. In addition, an IC prohibiting residential use of the property would be applicable for as long as COCs remain at levels higher than remediation goals. The ICs would remain in place to ensure that the RAO is achieved.

2.9.1.3 *Remedial Alternative 3 – Sampling and Excavation with Off-Site Disposal of Soil*

Alternative 3 is similar to Alternative 2 except that, if chemicals are present in soil at concentrations exceeding their remediation goals, contaminated soil would be excavated and disposed of at an off-site landfill facility. Any groundwater contamination in such a small area that was not identified during the RI, or as part of investigations under the Alameda Point TPH program, would be associated with soil pore water, which would be removed with the contaminated soil. ICs are not required for Alternative 3 because contaminated soil is removed and the site will be suitable for unrestricted use.

2.9.2 Remedial Alternatives for Site 6 Groundwater

The following groundwater alternatives were identified for groundwater at Site 6:

- Remedial Alternative 1 – No Action
- Remedial Alternative 2 – Monitored Natural Attenuation (MNA) and ICs
- Remedial Alternative 3 – Active Treatment to Reduce Risk to Commercial/Industrial Workers with In-Situ Chemical Oxidation (ISCO) and Accelerated Bioremediation, MNA, and ICs
- Remedial Alternative 4 – Treatment to Remediation Goals with ISCO and Accelerated Bioremediation, MNA, and Short-Term ICs

Each of these alternatives is discussed below.

2.9.2.1 *Remedial Alternative 1 – No Action*

Under Alternative 1, no remedial actions would be performed. This alternative provides a baseline for comparing all other alternatives. No cost is associated with this alternative.

2.9.2.2 *Remedial Alternative 2 – MNA and ICs*

Alternative 2 would involve additional plume delineation and an estimated 30 years of MNA for groundwater. Risk to human health would be prevented by ICs that (1) prohibit the alteration, disturbance, or removal of existing extraction wells at Site 6; (2) prohibit the extraction of groundwater and installation of new groundwater wells until the remediation goals have been achieved; and (3) require future landowners to gain written approval from the FFA signatories before any residential, hospital, or daycare use of the site.

These restrictions would be described in the preliminary and final remedial design reports, which would be developed and submitted to the FFA signatories for review pursuant to the FFA. The

remedial design reports would identify procedures to determine when remediation goals have been achieved and the parties involved in this determination. The restrictions described in the remedial design reports would be released when it is determined that remediation goals have been achieved.

2.9.2.3 *Remedial Alternative 3 – Active Treatment to Reduce Risk to Commercial/Industrial Workers with ISCO and Accelerated Bioremediation, MNA, and ICs*

Alternative 3 was originally presented as Alternatives 3A and 3B in the OU-1 Sites 6, 7, 8, and 16 FS Report (SulTech 2005). However, these alternatives were combined in the Proposed Plan (SulTech 2006). Additional plume delineation would be performed during the remedial design. ISCO would be used to reduce high concentrations of COCs, followed by accelerated bioremediation of the groundwater contamination plume to reduce COC concentrations in groundwater to levels that are protective for commercial/industrial property reuse. MNA would then be implemented until the remediation goals (based on MCLs) are achieved. The remedial design will define the performance goals for ISCO, accelerated bioremediation, and MNA. Additionally, this alternative would require the same ICs described in Section 2.9.2.2.

2.9.2.4 *Remedial Alternative 4 – Treatment to Remediation Goals with ISCO and Accelerated Bioremediation, MNA, and Short-Term ICs*

Alternative 4 was originally presented as Alternatives 4A and 4B in the OU-1 Sites 6, 7, 8, and 16 FS Report (SulTech 2005). However, these alternatives were combined in the Proposed Plan (SulTech 2006). Additional plume delineation would be performed during the remedial design. ISCO would be used to reduce high concentrations of COCs, followed by accelerated bioremediation of the groundwater contamination plume. MNA may also be used where groundwater concentrations are approaching the remediation goals. The remedial design will define the actual performance goals for ISCO, accelerated bioremediation, and MNA. Additionally, this alternative would require the same ICs described in Section 2.9.2.2, however these ICs are expected to be of shorter duration.

2.10 COMPARATIVE ANALYSIS OF REMEDIAL ALTERNATIVES FOR SITE 6

This section summarizes the comparative analysis that was conducted to evaluate the relative performance of each remedial alternative for soil and groundwater at Site 6 in relation to the nine criteria outlined in CERCLA § 121 (b), as amended. Table 2-10 summarizes the results of the comparative analysis, and Table 2-11 summarizes the costs for each of the alternatives. The purpose of the comparative analysis was 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 were arranged in a hierarchical manner that was used to select a remedy for Site 6 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

2.10.1 Comparative Analysis of Remedial Alternatives for Site 6 Soil

This section summarizes the comparative analysis of the remedial alternatives for soil at Site 6.

2.10.1.1 Overall Protection of Human Health and the Environment

The extent of contamination, if any, is unknown in soil beneath and adjacent to OWSs 040A and 040B. Alternative 1 (No Action) would not eliminate or reduce risk or define the extent of contamination in soil beneath and adjacent to OWSs 040A and 040B at Site 6. Alternative 2 (Sampling and ICs) would reduce risks at Site 6 to acceptable levels by evaluating the nature and extent of potential soil contamination beneath and adjacent to OWSs 040A and 040B, and by implementing ICs to prohibit excavation of soil without prior regulatory approval. Such prohibition would prevent any significant inhalation or ingestion of or dermal contact with contaminated soil. Alternative 3 (Sampling and Excavation with Off-Site Disposal of Soil) would reduce risks at Site 6 to acceptable levels such that there would be no restrictions on site use by evaluating the nature and extent of potential soil contamination beneath and adjacent to OWSs 040A and 040B, followed by excavation and off-site disposal of soil that exceeds remediation goals.

2.10.1.2 Compliance with ARARs

Alternative 1 would not trigger ARARs at Site 6. Alternatives 2 and 3 will meet ARARs for soil at Site 6 based on the respective reuse scenarios for each alternative.

2.10.1.3 Long-Term Effectiveness and Permanence

Alternative 3 has the highest degree of long-term effectiveness and permanence because potentially contaminated soil at Site 6 would be removed from the site such that there are no restrictions on site use. Alternatives 1 and 2 would leave contaminated soil at Site 6.

2.10.1.4 Reduction of Toxicity, Mobility, or Volume through Treatment

None of the alternatives evaluated for contaminants in soil at Site 6 involve treatment. The small volume of soil makes treatment alternatives impracticable.

2.10.1.5 Short-Term Effectiveness

Alternative 1 would have no short-term effects on the environment. Alternative 2 would have minimal short-term effects on the environment during sampling activities. Alternative 3 includes excavation, which has the potential to create negative short-term air and water quality effects; such effects would be reduced through use of dust and erosion control methods. None of these alternatives would be expected to pose unacceptable short-term risks to site workers or the community.

2.10.1.6 Implementability

All of the alternatives would be readily implementable.

2.10.1.7 Cost

Alternative 1 is based on an assumption of zero cost. Alternatives 2 and 3 would cost $250,000 and $240,000, respectively.

2.10.1.8 State Acceptance

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

2.10.1.9 Community Acceptance

The OU-1 Sites 6, 7, 8, and 16 Proposed Plan was presented to the community and discussed during a public meeting on May 16, 2006. Attachment C, the Responsiveness Summary, of this ROD addresses the public's comments and concerns about the selected remedial alternative for soil at Site 6.

2.10.1.10 Conclusion

Alternative 3, Sampling and Excavation with Off-Site Disposal of Soil, was selected as the preferred remedial alternative for Site 6 soil based on the following:

- Protects human health and the environment and fully complies with ARARs
- Provides excellent long-term protection by significantly removing COCs and their associated risk at a cost that is comparable to Alternative 2, which is estimated to take much longer
- Prevents further migration of chemicals

2.10.2 Analysis of Remedial Alternatives for Site 6 Groundwater

This section summarizes the comparative analysis of remedial alternatives for groundwater at Site 6.

2.10.2.1 Overall Protection of Human Health and the Environment

Alternative 1 (No Action) would not protect human health or the environment because it does not prevent exposures from domestic consumption of groundwater and it does not prevent inhalation of indoor vapors that may partition from the groundwater and migrate to buildings.

Alternative 2 (MNA and ICs), Alternative 3 (Active Treatment to Reduce Risk to Commercial/Industrial Workers with ISCO and Accelerated Bioremediation, MNA, and ICs), and Alternative 4 (Treatment to Remediation Goals with ISCO and Accelerated Bioremediation, MNA, and Short-Term ICs) would protect human health by preventing exposures to contaminated groundwater and vapors partitioning from groundwater. Risk to human health would be prevented by (1) prohibiting the alteration, disturbance, or removal of existing extraction wells at Site 6; (2) prohibiting the extraction of groundwater and installation of new groundwater wells until the remediation goals have been reached; (3) requiring future landowners to gain written approval from the FFA signatories prior to any residential, hospital, or daycare use of the site until remedial goals are met; and (4) cleaning up groundwater contamination that poses a risk.

The long-term effectiveness and permanence of Alternative 4 would be greater than Alternative 3 because of the time required to achieve the remediation goals. Domestic use remediation goals would be achieved following active treatment at Site 6. Groundwater monitoring to evaluate the achievement of remediation goals is assumed to last 30 years for Alternative 3. Under Alternative 4, ICs would limit exposure to groundwater and potential vapors at Site 6 until concentrations attenuate to below the remediation goals.

2.10.2.2 Compliance with ARARs

Alternative 1 would not meet ARARs for groundwater. Alternatives 2 through 4 are expected to meet the chemical-specific, location-specific, and action-specific ARARs for Site 6 groundwater.

2.10.2.3 Long-Term Effectiveness and Permanence

Alternative 1 would not provide long-term effectiveness and permanence for unanticipated groundwater uses at Site 6, and it would not provide a mechanism to prevent indoor vapor intrusion of chlorinated compounds partitioning from groundwater. Although risks posed by unanticipated groundwater use may decrease over time through natural attenuation, Alternative 1 would not provide any controls to prevent exposure to groundwater or indoor vapor intrusion.

Alternative 2 would provide an adequate level of long-term effectiveness and permanence under both anticipated and unanticipated future land-use scenarios by preventing domestic use of groundwater and preventing exposures from indoor vapor intrusion.

Alternatives 3 and 4 would provide higher levels of long-term effectiveness because contamination would be actively treated. Alternative 4 would provide the most adequate and reliable controls.

2.10.2.4 Reduction of Toxicity, Mobility, or Volume through Treatment

Alternatives 1 and 2 would not reduce the toxicity, mobility, or volume of COCs in groundwater at Site 6 through active treatment. However, these alternatives may eventually meet the RAOs because of natural degradation processes. Alternatives 3 and 4 would reduce the mobility, toxicity, and volume of COCs in groundwater through active treatment.

2.10.2.5 Short-Term Effectiveness

The evaluation of this criterion considers the amount of time required to achieve RAOs and the associated risk posed to human health and the environment. Alternatives 1 and 2 would not introduce a risk to the community or the environment because no active treatment would be conducted. Alternatives 3 and 4 may pose certain risks to the community, site workers, or the environment because of the injection of oxidation reagents during implementation of ISCO. However, these risks can be reduced through best management practices such as proper personal protective equipment and installation of a fence or physical barriers at the treatment area. Alternative 4 would achieve the greatest short-term effectiveness because it would have the quickest contamination degradation rate, while minimizing effects on workers and the environment.

2.10.2.6 *Implementability*

Alternative 1 would be technically feasible and easily implemented because no action would be conducted and additional resources would not be required. Alternatives 2, 3, and 4 may involve some implementation issues because they would require concurrence from the regulatory agencies for the deed restrictions and the contents of the land-use control remedial design. Alternatives 3 and 4 would be technically feasible; however, they would require numerous injections of chemical reagents during ISCO and hydrogen- and oxygen-releasing compounds during accelerated bioremediation to reach domestic use remediation goals, and concurrence from the regulatory agencies on the details of installing and operating these alternatives. Although Alternatives 3 and 4 would require establishment of ICs, their required duration would be shorter than that of Alternative 2.

2.10.2.7 *Cost*

Alternative 1 is based on an assumption of zero cost. Alternative 2 has an estimated cost of $1.1 million, and Alternative 3 has an estimated cost of $1.6 million. The estimated cost of Alternative 4 is $3.6 million.

2.10.2.8 *State Acceptance*

The State of California concurs with the Navy's selected remedial alternative (Alternative 4).

2.10.2.9 *Community Acceptance*

The OU-1 Sites 6, 7, 8, and 16 Proposed Plan was presented to the community and discussed in a public meeting on May 16, 2006. Attachment C, the Responsiveness Summary, of this ROD addresses the public's comments and concerns about the selected remedial alternative for groundwater at Site 6.

2.10.2.10 *Conclusion*

Alternative 4, Treatment to Remediation Goals with ISCO and Accelerated Bioremediation, MNA and ICs, was selected as the preferred remedial alternative for Site 6 groundwater based on the following:

- Protects human health and the environment and fully complies with ARARs
- Provides excellent long-term protection by significantly removing COCs and their associated risk in a shorter timeframe than Alternatives 2 or 3
- Permanently removes and prevents further migration of chemicals

2.11 PRINCIPAL THREAT WASTE

Principal threat wastes are source materials considered to be highly toxic, highly mobile, or those that would present a significant risk to human health or the environment should exposure occur. No soils at Site 6 were identified as being a principal threat waste. Contaminated groundwater is not generally considered to be source material unless there are "pools" of nonaqueous-phase liquids present (EPA 1991). VOCs in groundwater at Site 6 are not considered a principal threat waste.

2.12 SELECTED REMEDY FOR SITE 6

Based on the results of the RI Report (Tetra Tech 2004), FS Report (SulTech 2005), and other documents provided in the administrative record for Site 6 (see Attachment A), as well as an evaluation of all comments on the OU-1 Sites 6, 7, 8, and 16 Proposed Plan (SulTech 2006) submitted by interested parties during the public comment period, the Navy has selected Alternative 3 as the remedy for soil and Alternative 4 as the remedy for groundwater at Site 6. Alternative 4 combines Alternatives 4A and 4B that were described in the OU-1 Sites 6, 7, 8, and 16 FS Report. The anticipated land uses for Site 6 in the near future are commercial or industrial. Each of the selected remedies is further discussed below.

2.12.1 Selected Remedy for Site 6 Soil

Alternative 3 includes the following components:

- Sampling
- Excavation
- Disposal of soil at an off-site facility (if chemicals are present in soil at concentrations exceeding remediation goals)

The following subsections discuss the rationale for selecting the remedy, describe the remedy, its estimated costs, and expected outcomes.

2.12.1.1 Summary of the Rationale for the Selected Soil Remedy

The Navy has determined that soil and groundwater sampling is required beneath and adjacent to OWSs 040A and 040B at Site 6 to identify and address any potential risk to human health based on exposures through ingestion or dermal contact of a commercial worker or a future resident to COCs in soil. The current planned future use for Site 6 is commercial/industrial. The risk analysis demonstrates that the existing risk is within the risk management range for unrestricted use and therefore would not require ICs. The Navy has agreed to conduct further investigation of the OWSs. If COCs are identified during this investigation, the Navy presumes that overexcavation of soils beneath and adjacent to the OWSs to a level consistent with unrestricted

use would be as cost-effective as removing soils consistent with commercial/industrial use and applying a land use restriction. Accordingly, remedial action is appropriate for Site 6 soil. Alternative 3 is the selected alternative for soil at Site 6 because it provides long-term protection by significantly removing COCs and their associated risk at a cost that is comparable to Alternative 2. Alternative 3 protects human health and the environment and fully complies with ARARs.

2.12.1.2 Description of the Selected Soil Remedy

Each of the components (sampling, excavation, and off-site disposal of soil) of Alternative 3 is described below.

Sampling

Alternative 3 involves collection of soil and groundwater samples to delineate the nature and extent of contamination beneath and adjacent to OWSs 040A and 040B. The soil and groundwater samples will be collected from locations and depths to be determined during the remedial design.

Excavation

Soil with COC concentrations above EPA 2004 residential PRGs, or background concentrations if higher than residential PRGs, would be excavated. The excavation would be accomplished with conventional heavy construction equipment, including backhoes, cranes, bulldozers, loaders, scrapers, and haulers. The anticipated volume of soil to be removed at the area associated with OWSs 040A and 040B is approximately 42 cubic yards. This volume is based on a preliminary excavation boundary of 15 feet by 15 feet and a depth of 5 feet bgs. The boundary is based on the estimated size of the OWSs, allowing for some over excavation of soil. This volume may change depending on whether the excavation boundaries are revised based on results of additional sampling in this area or contamination is encountered during field activities.

Off-Site Disposal of Soil

Disposal refers to the impoundment of excavated materials at a facility that is approved to accept them. Soils classified as hazardous waste under state and federal laws would be transported to an appropriate facility for treatment, if necessary, and disposal. Soils classified as nonhazardous would be transported to an appropriate facility for disposal.

2.12.1.3 Estimated Costs of the Selected Soil Remedy

Alternative 3 is estimated to cost $240,000. This cost is based on the best available information regarding the anticipated scope of the remedy; it includes capital and operation and maintenance costs, and is based on present value costs. Table 2-12 summarizes the estimated costs for Alternative 3. This cost is an order-of-magnitude engineering cost estimate that is expected to be

within +50 to -30 percent of the actual project cost for remedial design and remedial action phase of site cleanup. A detailed cost estimate is presented in the OU-1 Sites 6, 7, 8, and 16 FS Report (SulTech 2005). Costs may change as a result of new information and data collected during implementation of the selected remedy. Significant changes may be documented in a memorandum to the administrative record, explanation of significant differences, or as an amendment to this ROD (EPA 1999c).

2.12.1.4 Expected Outcomes of the Selected Soil Remedy

The selected remedy for Site 6 soil includes characterization of soil beneath and adjacent to OWSs 040A and 040B. The expected outcome of the selected remedy is to achieve the RAO.

The remedy selected for Site 6 involves three separate components: (1) soil and groundwater sampling, (2) excavation, and (3) off-site disposal of soil. Figure 2-4 illustrates the decision logic for implementing the selected remedy.

The performance objective of the soil sampling is to delineate the nature and extent of soil contamination beneath and adjacent to OWSs 040A and 040B. The objective of the excavation is to remove contaminated soil that contains COCs that pose unacceptable risk. The objective of off-site disposal is to place contaminated soil in an appropriate facility for treatment, if necessary, and disposal.

Following implementation of the remedy, the Navy in collaboration with the regulatory agencies will determine if the performance objectives (including the RAOs) have been achieved.

2.12.2 Selected Remedy for Site 6 Groundwater

Alternative 4 includes the following components:

- Installation of monitoring wells and additional sampling
- ISCO
- Accelerated bioremediation
- MNA
- ICs

The following subsections discuss the rationale for selecting the remedy and describe the remedy, its estimated costs and expected outcome.

2.12.2.1 *Summary of the Rationale for the Selected Groundwater Remedy*

The Navy has determined that groundwater at Site 6 poses a potential risk to human health, based on potential commercial/industrial risk from inhalation of vapors in indoor air that have migrated from groundwater. Groundwater beneath Site 6 is unlikely to be a potential source of drinking water; however, groundwater beneath Site 6 is currently designated in the Water Board's Basin Plan as suitable for drinking water supply. Based on this designation, MCLs are the remediation goals for Site 6 groundwater. These remediation goals will minimize the potential risk to commercial/industrial workers or residents posed through inhalation of vapors in indoor air that may migrate from groundwater contaminated with unacceptable levels of COCs.

Alternative 4 is the selected alternative for groundwater at Site 6 because it reduces the mobility, toxicity, and volume of VOCs in groundwater by implementing an expedient, aggressive, and proven treatment strategy; and it has a high implementability, while fully protecting human health and the environment and complying with all environmental regulations and laws. Monitoring wells will be installed and sampling conducted to further refine the plume boundary. ISCO and accelerated bioremediation treatment will be used to reduce the concentrations of chlorinated VOCs in the groundwater plume and to breakdown remaining chemicals. MNA will be used where groundwater concentrations are approaching the remediation goals. ICs will be used to restrict property use until groundwater concentrations meet the remediation goals.

2.12.2.2 *Description of the Selected Groundwater Remedy*

Each of the components (installation of monitoring wells and additional sampling to further refine the plume boundary, ISCO, accelerated bioremediation, MNA, and Short-Term ICs) of Alternative 4 are described below.

Installation of Monitoring Wells and Additional Sampling

During the remedial design phase, monitoring wells will be constructed and additional groundwater sampling will be performed to delineate the horizontal and vertical extent of the groundwater plume, monitor flow conditions, track plume movement, and verify treatment effectiveness. Additional sampling will provide remedial design parameters needed for successful implementation of ISCO and to assess treatment effectiveness. Design parameters, including the plume area, radius of influence, number of injection wells, ISCO injection dose rates, and injection delivery methods, will be finalized based on initial sampling data collected during the remedial design phase. After each ISCO treatment, sampling will be performed to confirm the effectiveness of the treatment and determine the subsequent treatment design parameters. Post-ISCO sampling will also be used to evaluate if subsequent accelerated bioremediation treatment is required and to provide the remedial design parameters needed to successfully implement the accelerated bioremediation phase. Design parameters such as the remaining plume area, radius of influence, number of injection wells, accelerated bioremediation injection dose rates, and injection delivery methods will be derived by the final post-ISCO sampling event. Post-accelerated bioremediation confirmation sampling will be performed to document the successful completion of active remediation and verify RAOs and remediation

goals have been achieved. Confirmation sampling results for VOCs in groundwater, along with the plume boundary area, migration, and change in concentrations, will be documented following termination of ISCO and accelerated bioremediation.

In-Situ Chemical Oxidation Treatment

Full-scale ISCO treatment will provide substantial reduction in COC concentrations throughout the VOC plume. ISCO involves injection of chemical reagents into groundwater to convert organic chemicals to water and carbon dioxide. Using this process, these chemical reagents are injected into the contaminated FWBZ. The reagents react with the groundwater contaminants to produce carbon dioxide and water. ISCO treatment would provide substantial reduction in chemical concentrations throughout the VOC plume within 2 years. The remedial design phase will develop specific chemical reagents and dosage rates to be used during remediation.

Accelerated Bioremediation

If the post-ISCO confirmation sampling results indicate that COCs remain in groundwater, accelerated bioremediation will be used to further lower groundwater contaminant concentrations. Bioremediation is a process that uses microorganisms or their enzymes to return the environment contaminated by chemicals to its original condition. Depending on the post-test ISCO results, residual chemicals will be addressed through either hydrogen-releasing or oxygen-releasing compound treatments. Either compound can stimulate rapid degradation of chemicals by supplying the necessary ions to support the oxidation and reduction reactions necessary to breakdown complex chemicals over time. Delivery of hydrogen- or oxygen-releasing compounds to the subsurface is accomplished by push-point injection or by injection into existing dedicated wells. Hydrogen-releasing and oxygen-releasing compounds will be introduced into the aquifer to enhance anaerobic bioremediation and aerobic bioremediation, respectively.

Accelerated anaerobic bioremediation is a process that uses hydrogen-releasing compounds to accelerate the natural anaerobic bioremediation process for contaminants susceptible to anaerobic biodegradation. Current conditions in the aquifer appear to be mildly reducing and evidence exists of ongoing natural anaerobic VOC biodegradation (that is, the presence of DCE and vinyl chloride).

Accelerated aerobic bioremediation is a process that attempts to accelerate the natural biodegradation process for some chemicals by introducing oxygen into the subsurface to provide an aerobic environment for naturally occurring microorganisms that aerobically degrade pollutants into less toxic byproducts. Oxygen-releasing compounds produce a slow and sustained release of molecular oxygen when in contact with soil or groundwater.

Monitored Natural Attenuation

MNA refers to natural subsurface processes such as dilution, volatilization, biodegradation, adsorption, and chemical reactions with subsurface materials that are allowed to reduce chemical concentrations to acceptable levels. Long-term MNA must be periodically assessed to confirm that degradation is proceeding at rates consistent with achieving the remediation goals. Samples will be analyzed for VOCs, MNA parameters (such as chloride, sulfate, sulfide, ferrous iron, acidity/alkalinity, and nitrogen/nitrate/nitrite), and dissolved gasses.

Institutional Controls

ICs are legal and administrative mechanisms used to implement land-use and access restrictions to limit the exposure of future landowner(s) or user(s) of the property to hazardous substances until the levels of the COCs in groundwater do not present an unacceptable risk to residential receptors. Legal mechanisms include proprietary controls such as restrictive covenants, negative easements, equitable servitudes, lease restrictions, and deed notices. Administrative mechanisms include notices, adopted local land-use plans and ordinances, construction permitting, or other existing land-use management systems that may be used to ensure compliance with use restrictions. Monitoring and inspections are conducted to ensure that ICs are being followed.

The Navy has determined that it will reply on 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). These controls will continue until the property is conveyed either to a non-federal entity with 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" (hereafter referred to as "Navy/DTSC MOA") (Navy and DTSC 2000) and attached covenant models or to a federal entity pursuant to a MOA with the federal transferee or a similar agreement. More specifically, the lease and use agreement will serve as interim ICs between the time the ROD is signed and the date upon which the Navy transfers the property. Through the lease and use agreement, the Navy will maintain conditions 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 activities by the lessee that could result in increased levels of risk to human health and the environment:

- 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 (see Section 8.1 of the LIFOC)
- Operations that interfere with environmental restoration activities by the Navy, the EPA, state regulators, or their contractors, by requiring written approval for any work by lessee or sublessee in proximity to the site (see Section 11 of the LIFOC)
- Any excavation, digging, drilling or other disturbance of the subsurface without written approval of the Navy (see Section 13.11 of the LIFOC)

When the Alameda Point property is transferred to a non-federal entity, the IC objectives will be achieved through the land-use restrictions for this site that will be incorporated into the legal mechanisms summarized below.

1. If the property is transferred, restrictive covenants will be included in one or more Quitclaim Deed(s) from the Navy to the property recipient.

2. Restrictive covenants will be included in a "Covenant to Restrict Use of Property"[1] entered into by the Navy and DTSC as provided in the Navy/DTSC MOA (Navy and DTSC 2000) 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 land-use restrictions into environmental restrictive covenants that run with the land and that are enforceable by DTSC and the Navy against future transferees. The Quitclaim Deed(s) will include the identical land-use 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 (see Figure 2-5) and included in findings of suitability to transfer, findings of suitability for early transfer, "Covenant to Restrict Use of Property" between the Navy and DTSC, and any Quitclaim Deed(s) conveying real property containing Site 6. The IC boundary shown on Figure 2-5 may be adjusted during the remedial design phase as the plume boundary is further refined.

The IC objectives that will be achieved through the land-use restrictions summarized below for groundwater will be used to maintain the integrity of the groundwater remedial action until remediation is complete and the remedial goals have been achieved.

1. New construction in the Site 6 area subject to ICs shall not be for any of the following purposes set forth in Health and Safety Code § 25232(b)(1), until the risk associated with the COCs in groundwater is within risk management range for residential receptors unless otherwise approved by the Navy and FFA signatories:
   a. a residence, including any mobile home or factory-built housing constructed or installed for use as residential human habitation;
   b. a hospital for humans;
   c. a school for persons under 21 years of age;
   d. a daycare facility for children; or
   e. any permanently occupied human habitation other than those used for commercial or industrial purposes.

[1] See "Memorandum of Agreement Between the United States Department of the Navy and the California Department of Toxic Substances Control, Use of Model 'Covenant to Restrict Use of Property' at Installations Being Closed and Transferred by the United States Department of the Navy," dated March 10, 2000.

2. New groundwater wells of any type will not be installed without prior review and written approval from the FFA signatories.

3. The alteration, disturbance, or removal of groundwater monitoring wells, groundwater extraction wells, treatment facilities, and associated equipment without prior review and written approval from the FFA signatories will be prohibited.

4. The removal of or damage to security features (such as locks on monitoring wells, survey monuments, signs, or monitoring equipment, and associated pipelines and appurtenances) without prior review and written approval from the Navy will be prohibited.

ICs will remain in place until the following remediation goals have been achieved (anticipated to be approximately 3 years from the date of commencement of the selected remedy):

- Cis-1,2-DCE: 6 μg/L
- PCE: 5 μg/L
- TCE: 5 μg/L
- Vinyl chloride: 0.5 μg/L

The Navy and FFA signatories and their authorized agents, employees, contractors, and subcontractors shall have the right to enter upon Site 6 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.

The Navy shall address IC implementation and maintenance actions, including periodic inspections in the preliminary and final remedial design 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 Department of Defense's [DoD], January 16, 2004, memorandum titled "Comprehensive Environmental Response, Compensation and Liability Act [CERCLA] Record of Decision [ROD] and Post-ROD Policy" [DoD 2004]). The preliminary and final remedial design 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:

- Requirements for CERCLA 5-year remedy review;
- Frequency and requirements for periodic monitoring 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 Navy, EPA, DTSC, Water Board, 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; and
- Maps identifying where ICs are to be implemented.

The Navy will be responsible for implementing, inspecting, reporting, maintaining, and enforcing the IC objectives described in this ROD in accordance with the approved remedial design 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 the integrity of the remedy. Should any of the IC objectives 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).

2.12.2.3 Estimated Costs of the Selected Groundwater Remedy

Alternative 4 is estimated to cost $3,600,000. This cost is based on the best available information regarding the anticipated scope of the remedy, includes capital and operation and maintenance costs, and is based on present costs. Table 2-13 summarizes the estimated costs for Alternative 4. This is an order-of-magnitude engineering cost estimate that is expected to be within +50 to -30 percent of the actual project cost for remedial design/remedial action phase of site cleanup. A detailed cost estimate is presented in the OU-1 Sites 6, 7, 8, and 16 FS Report (SulTech 2005). Costs may change as a result of new information and data collected during implementation of the selected remedy. 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).

2.12.2.4 Expected Outcomes of the Selected Groundwater Remedy

The selected remedy for Site 6 considers the groundwater-to-air migration pathway and provides for cleanup of the shallow groundwater aquifer to be protective of beneficial uses of groundwater beneath the site. The expected outcome of the selected remedy at Site 6 is to restore the quality of the shallow aquifer by reducing the mass of COCs in groundwater to levels that achieve the remediation goals.

The remedy selected for Site 6 involves a treatment train composed of two groundwater treatment systems (ISCO and accelerated bioremediation) that will be implemented sequentially. MNA may also be implemented if required. Each treatment is supported by groundwater monitoring and supplemented by ICs. Figure 2-6 illustrates the decision logic for implementing the selected remedy. The treatment system will be operated and optimized as necessary to meet performance objectives that are based on the RAOs presented in this ROD. In addition, the performance objectives will include detailed criteria—to be developed during the remedial design—that will allow for periodic evaluations of each treatment system to determine if the system is operating effectively or if operation of the system should be discontinued. The Navy will periodically report the results of the system evaluation to the regulatory agencies during implementation of the selected remedial alternative. The performance objectives for the selected remedy include the following:

- **Mass reduction of each COC** – Reductions in the mass of each COC within the aquifer will be estimated based on the concentration of the COC in the performance monitoring data. These data will be compared with the predicted mass of the COC in the aquifer when the remediation goals are achieved. In addition, fate and transport modeling may be used to evaluate the threat to human health.

- **Asymptotic mass removal** – Evaluate the continued efficiency of operating any active remedial component of the selected remedy and determine if removal rates are approaching an asymptote. Asymptotic conditions occur when the slope of the cumulative mass removed curve approaches zero over time. In addition, rebound of COC concentrations will be evaluated during shutdowns.

- **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 (measured as cost per unit mass removed) is based on the operating costs for the treatment and the mass of removed COCs.

Detailed performance criteria will be established during the remedial design phase in collaboration with the regulatory agencies to allow the Navy to determine if each performance objective is 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 system. The information collected during the remedial design might include:

- Hydrogeological conditions of the contaminated aquifer, including stratigraphy, hydraulic and physical properties of the aquifer, groundwater recharge, hydraulic gradients, and depth to groundwater

- Lateral and vertical extent of COCs

- Estimates of mass for each COC

- Temporal trends in concentrations of COCs

- Potential for aquifer to support bioremediation and natural attenuation, including microbial populations, nutrient status, and decay potential of the COCs
- Delivery of agents used in ISCO and accelerated bioremediation
- Location of monitoring wells

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

During the remedial design, the existing groundwater monitoring network will be evaluated to ensure it is adequate to monitor plume migration and the effectiveness of the selected remedy. Necessary changes will be recommended at that time. The selected remedy uses ISCO and accelerated bioremediation as active components that will be operated sequentially as separate phases. ISCO will be used as the first phase, followed by accelerated bioremediation, if necessary, when the ISCO phase concludes. The transition from ISCO to accelerated bioremediation will be based on decisions that will follow after each injection of chemical reagent during ISCO. After each injection of chemical reagent and an appropriate amount of time to allow the groundwater to reach a steady state, concentrations of COCs in performance monitoring data will be used to evaluate the operation of the ISCO system. The evaluation will assess if performance objectives have been achieved, such as whether there is significant rebound in COC concentrations, if asymptotic rates of removal are occurring, and if it is cost-effective to continue using ISCO.

As the cumulative removal of COC mass over time approaches an asymptotic state, the cost effectiveness of using ISCO will diminish. The Navy intends to use ISCO only 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. If the post-ISCO sampling results indicate that remediation goals have not been achieved, then accelerated bioremediation will be used to further lower groundwater contaminant concentrations. MNA will be used where groundwater concentrations are approaching the remediation goals.

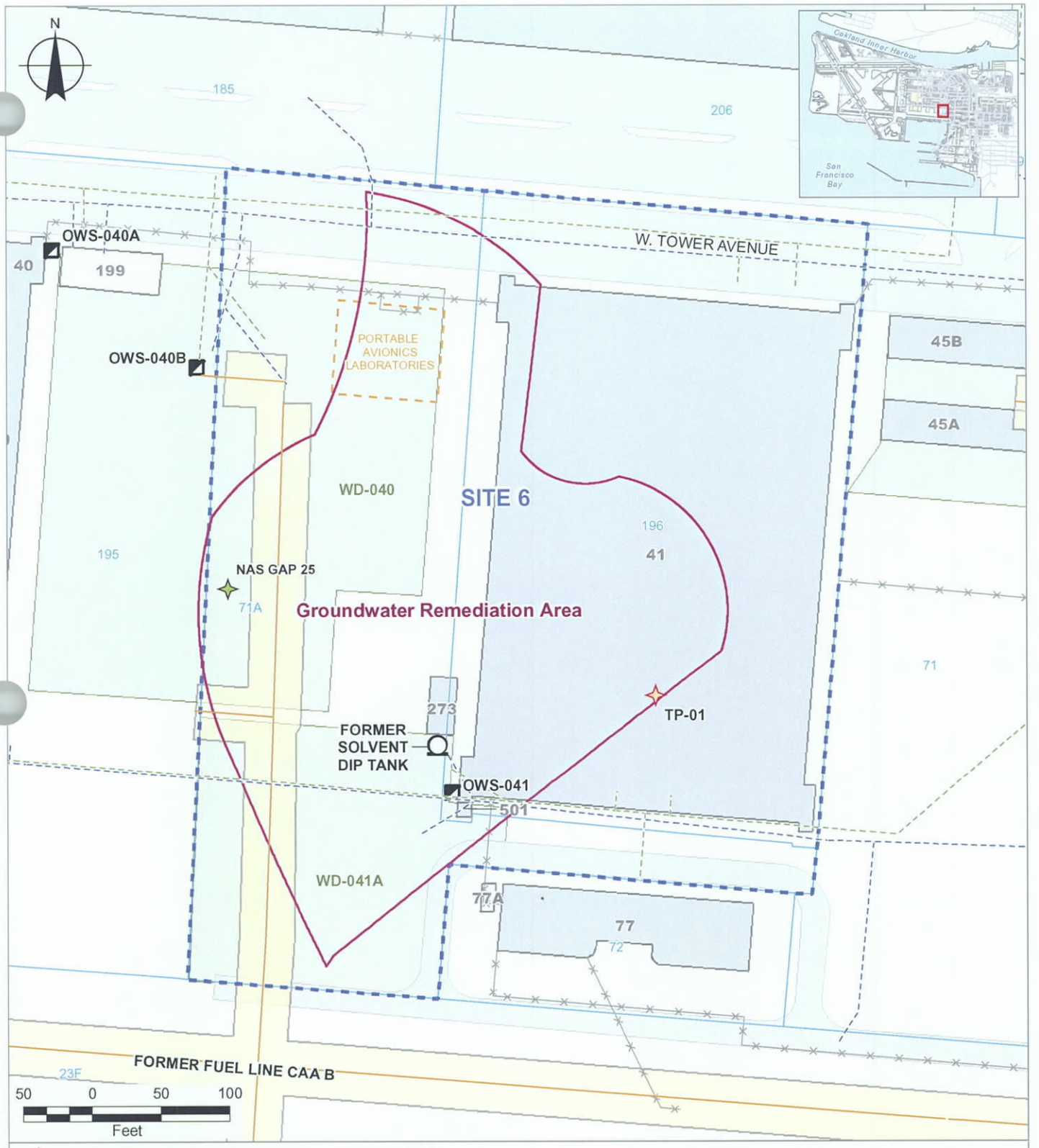
Following implementation of the treatment phases (ISCO and accelerated bioremediation) of the selected remedy and MNA, the Navy in collaboration with the regulatory agencies will determine if the performance objectives (including the RAOs) have been achieved. If it is determined that the RAOs have not 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 ISCO and accelerated bioremediation treatment systems
- A projected timeframe for achieving the remediation goals by continuing MNA or reinstating ISCO and/or accelerated bioremediation
- Estimates of cost to continue MNA or reinstate ISCO and/or accelerated bioremediation
- Analysis of another alternative that is more cost-effective than MNA, ISCO, or accelerated bioremediation
- 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 6. 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 RAO. This decision will be made in accordance with EPA's "Guidance for Evaluating the Technical Impracticability of Groundwater Restoration" (EPA 1993).

FIGURES



RCRA Tiered Permit (TP) Facility
NAS Generator Accumulation Point (GAP)
Oil Water Separator (OWS)
CERCLA Site 6 Boundary
Groundwater Remediation Area
Environmental Baseline Survey Parcel
Corrective Action Area (CAA)
Washdown Area

Fence
Fuel Pipeline
Sanitary Sewer
Storm Drain Pipeline
Building
Former Building
Paved Road

RCRA - Resource Conservation Recovery Act
CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act

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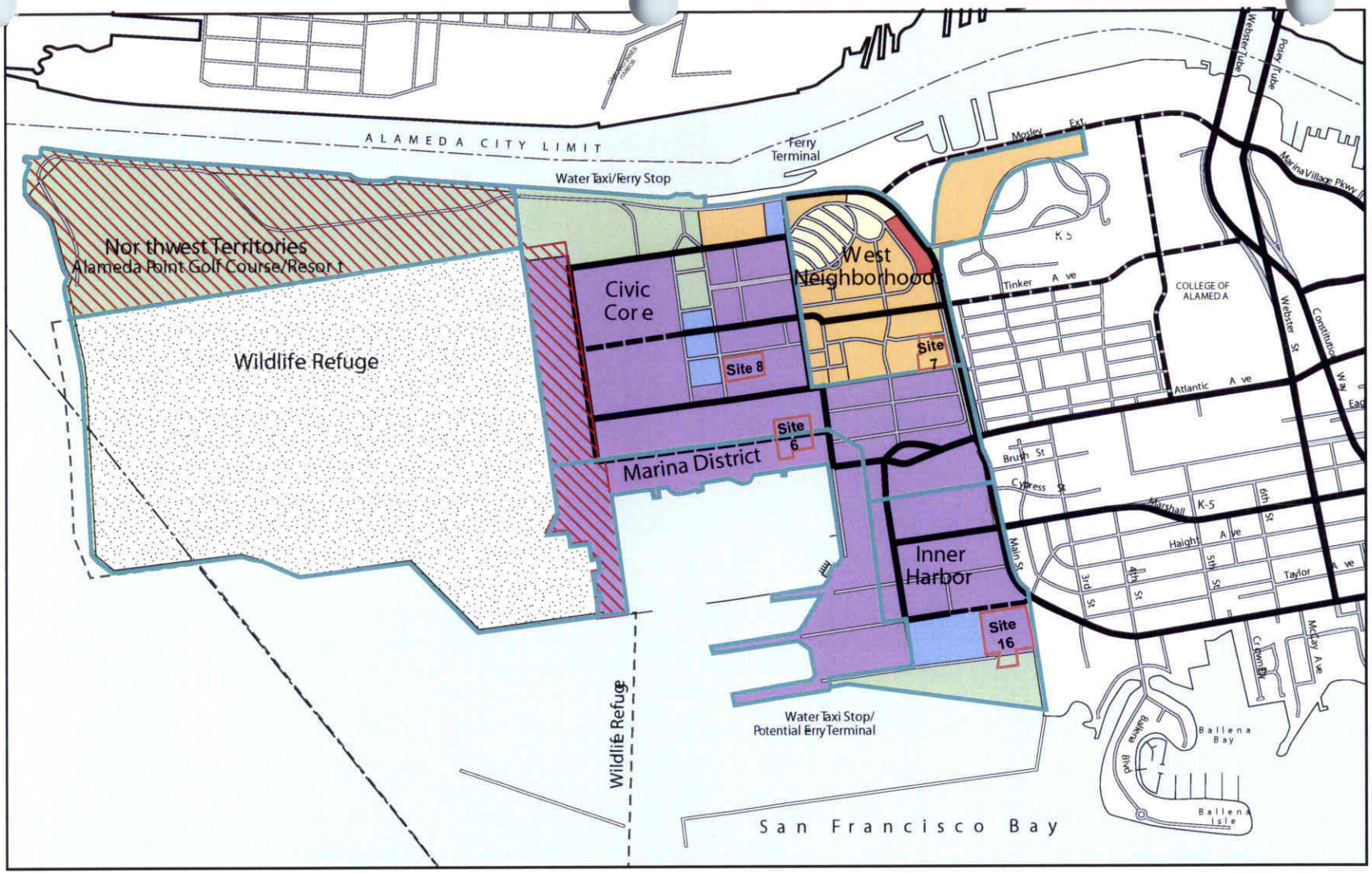
FIGURE 2-1

SITE 6 FEATURES MAP

Record of Decision for Operable Unit 1
Sites 6, 7, 8, and 16

2006/05/09 V:\Projects\B142\ROD\Figure 2-1.mxd SULLIVAN SD L. Rizzo



Low-Density Residential
Medium-Density Residential
Neighborhood Business
General Industry
Public/Institutional/School (grades)
Alameda Point Mixed Use
Parks and Public Open Space
Open Space/Habitat
Wildlife Refuge Impact Area
Major Street
Proposed Major Street
Minor Street
Planning Subarea

0 2500 5000
FEET

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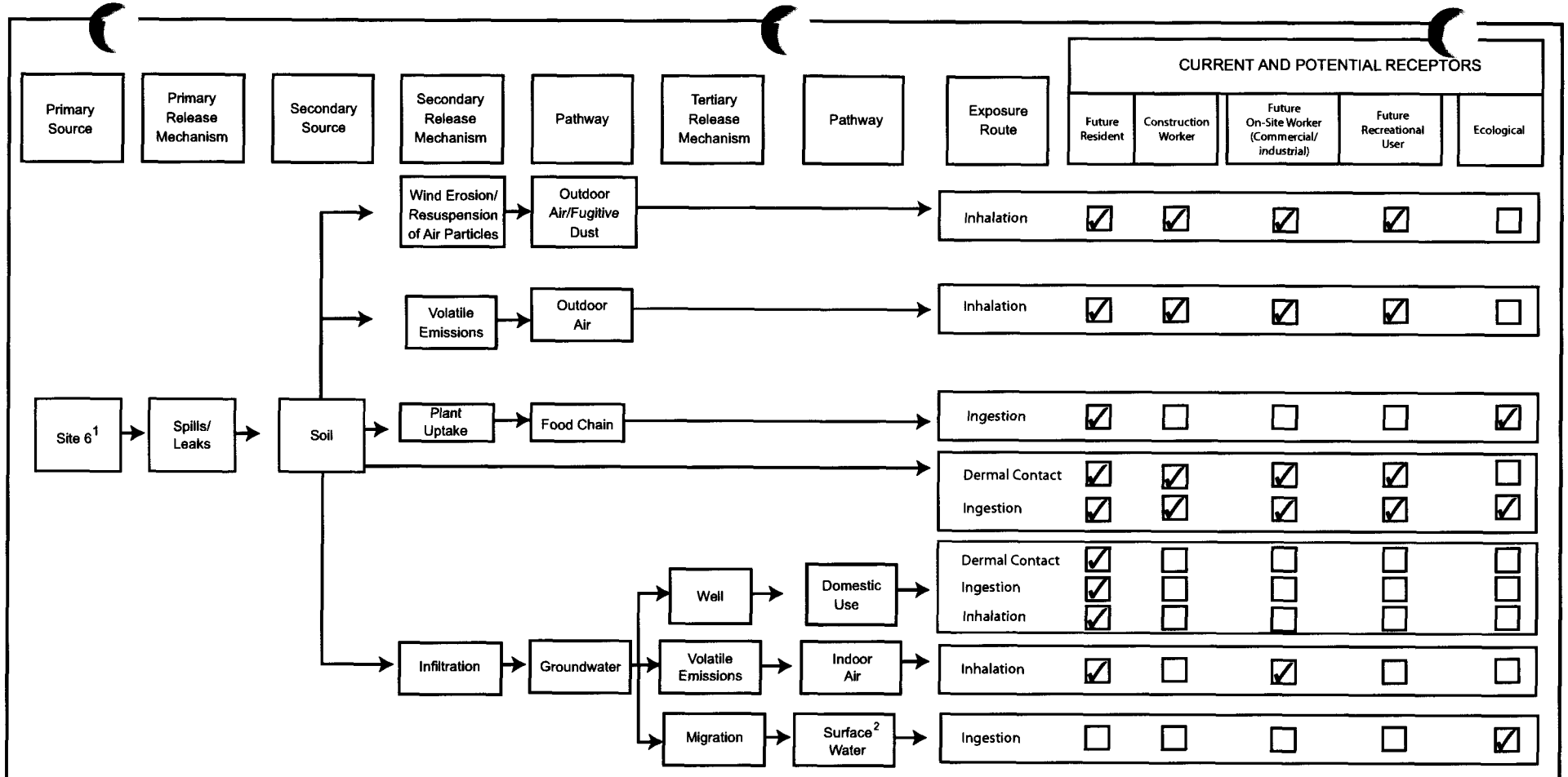
FIGURE 2-2
ALAMEDA POINT REUSE MAP

Record of Decision for Operable Unit 1
Sites 6, 7, 8, and 16

Reference: City of Alameda. 1991. "General Plan, as amended 2005." Chapter 9; Figure 9-2.



Washdown Area 041A, solvent dip tank, Oil Water Seperator-041,
[1]Portable Avionics Laboratories, Building-041
[2]Seaplane Lagoon, San Francisco Bay

☑ Potentially complete pathway, exposure quantified

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FIGURE 2-3
SITE 6
CONCEPTUAL SITE MODEL
Record of Decision for Operable Unit 1
Sites 6, 7, 8, and 16

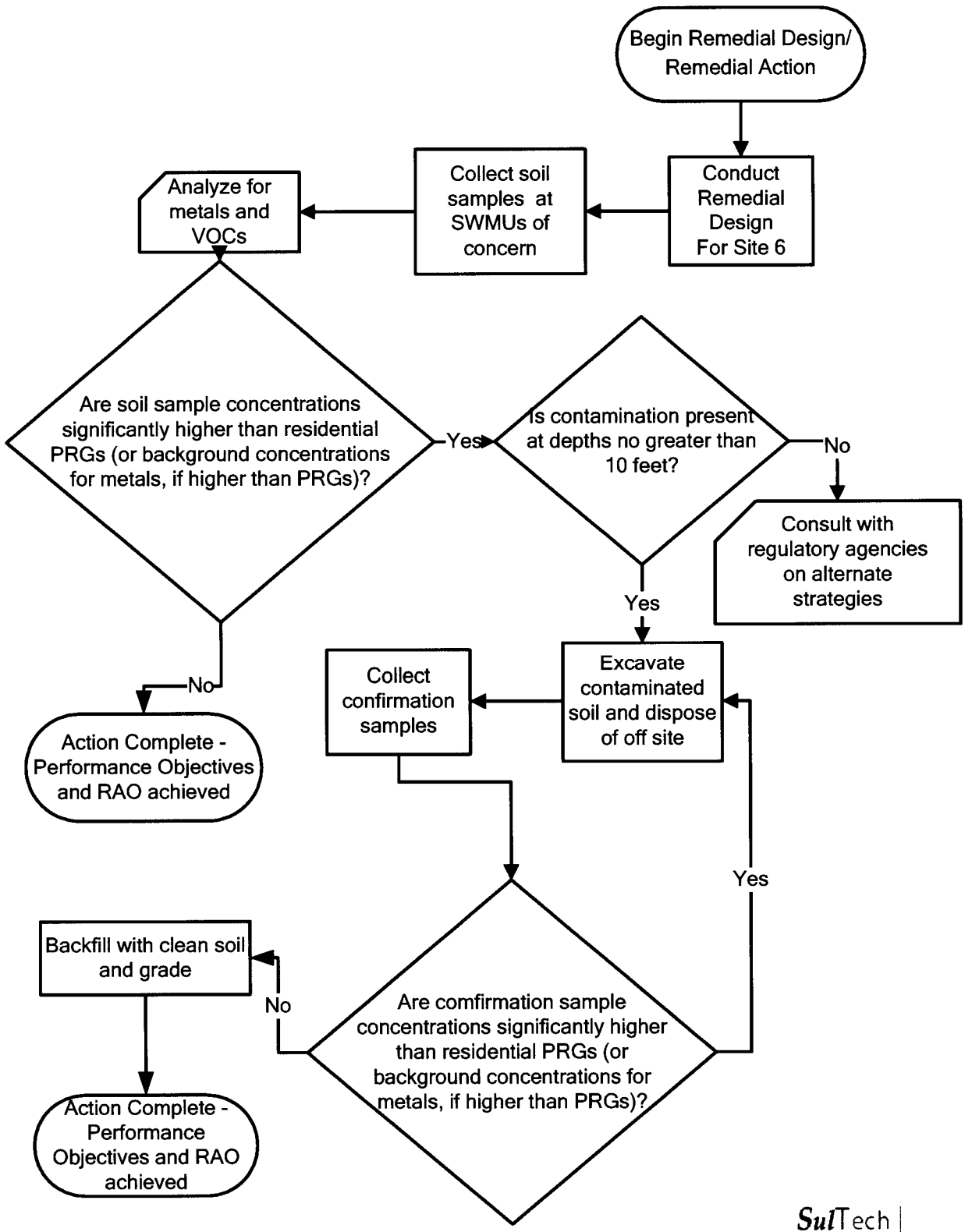

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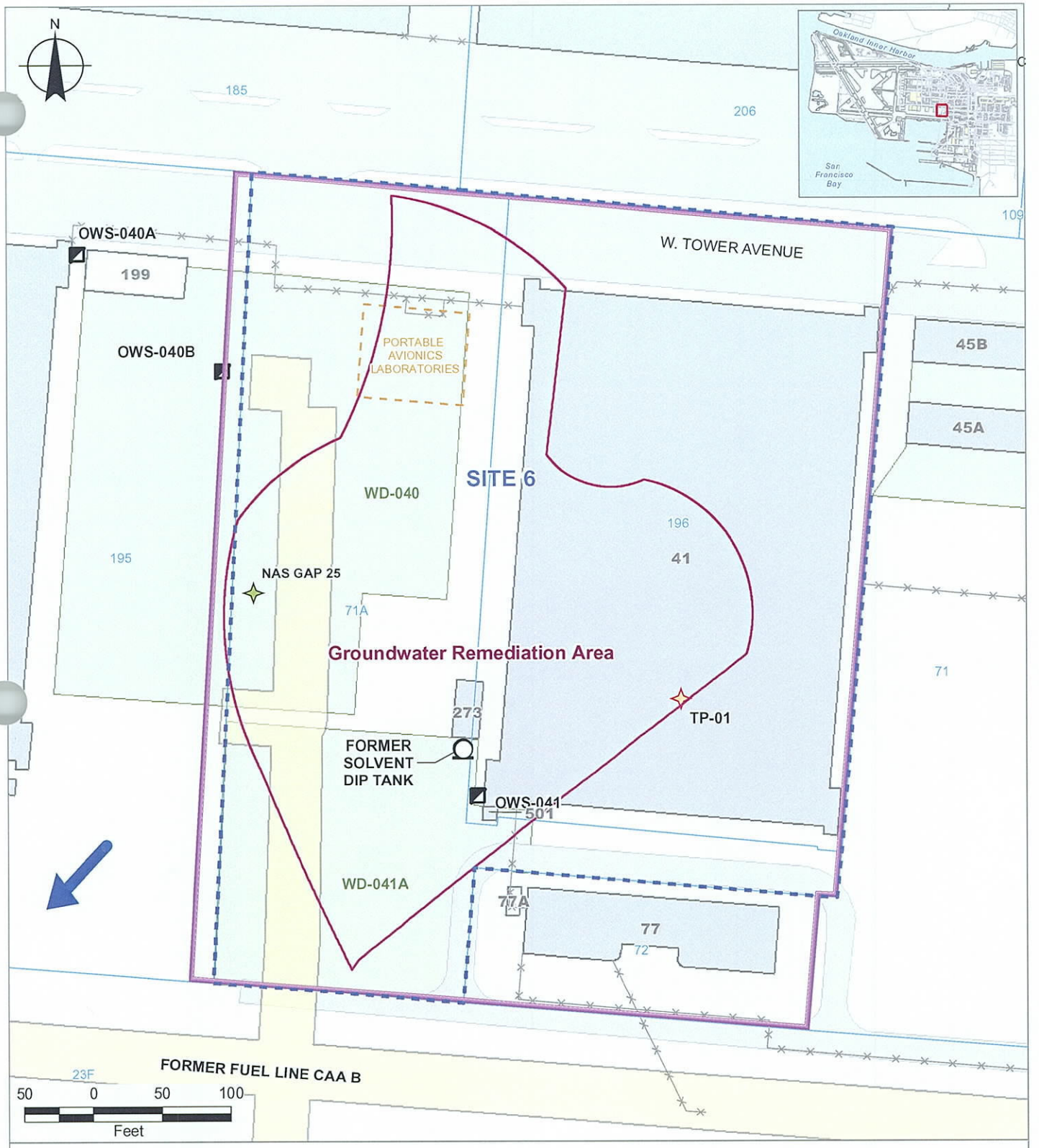
FIGURE 2-4

ACHIEVEMENT OF SITE 6 SWMU SOIL REMEDIATION GOAL

Record of Decision for Operable Unit 1
Sites 6, 7, 8, and 16



RCRA Tiered Permit (TP) Facility
NAS Generator Accumulation Point (GAP)
Oil Water Separator (OWS)
CERCLA Site 6 Boundary
Institutional Control Restriction Boundary
Groundwater Remediation Area
Environmental Baseline Survey Parcel
Corrective Action Area (CAA)
Fence
Washdown Area
Building
Former Building
Paved Road
Groundwater Flow Direction

RCRA - Resource Conservation Recovery Act
CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act

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FIGURE 2-5

BOUNDARIES OF INSTITUTIONAL CONTROLS FOR SITE 6

Record of Decision for Operable Unit 1
Sites 6, 7, 8, and 16

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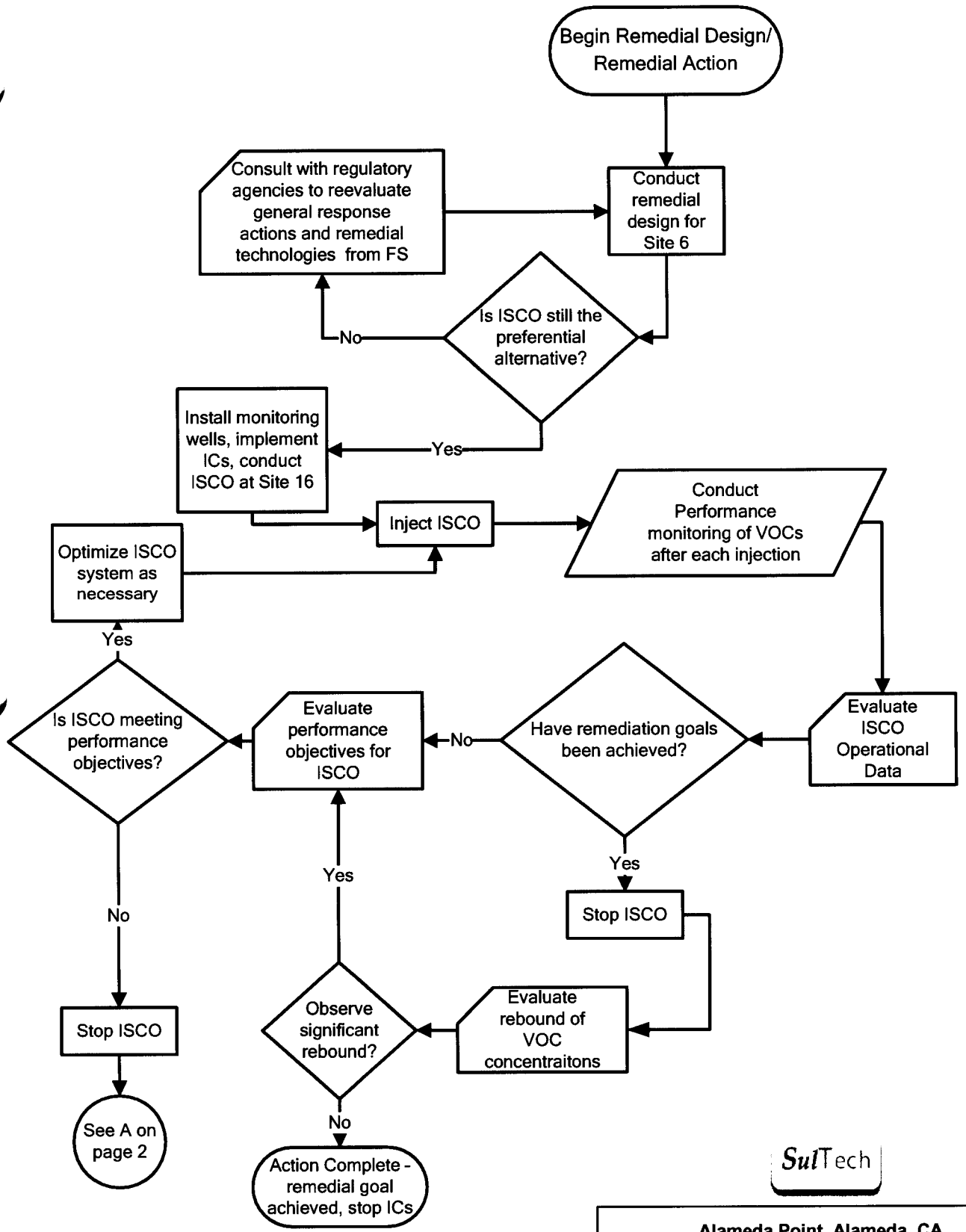

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FIGURE 2-6 (page 1 of 3)

ACHIEVEMENT OF SITE 6 GROUNDWATER REMEDIATION GOAL

Record of Decision for Operable Unit 1
Sites 6, 7, 8, and 16

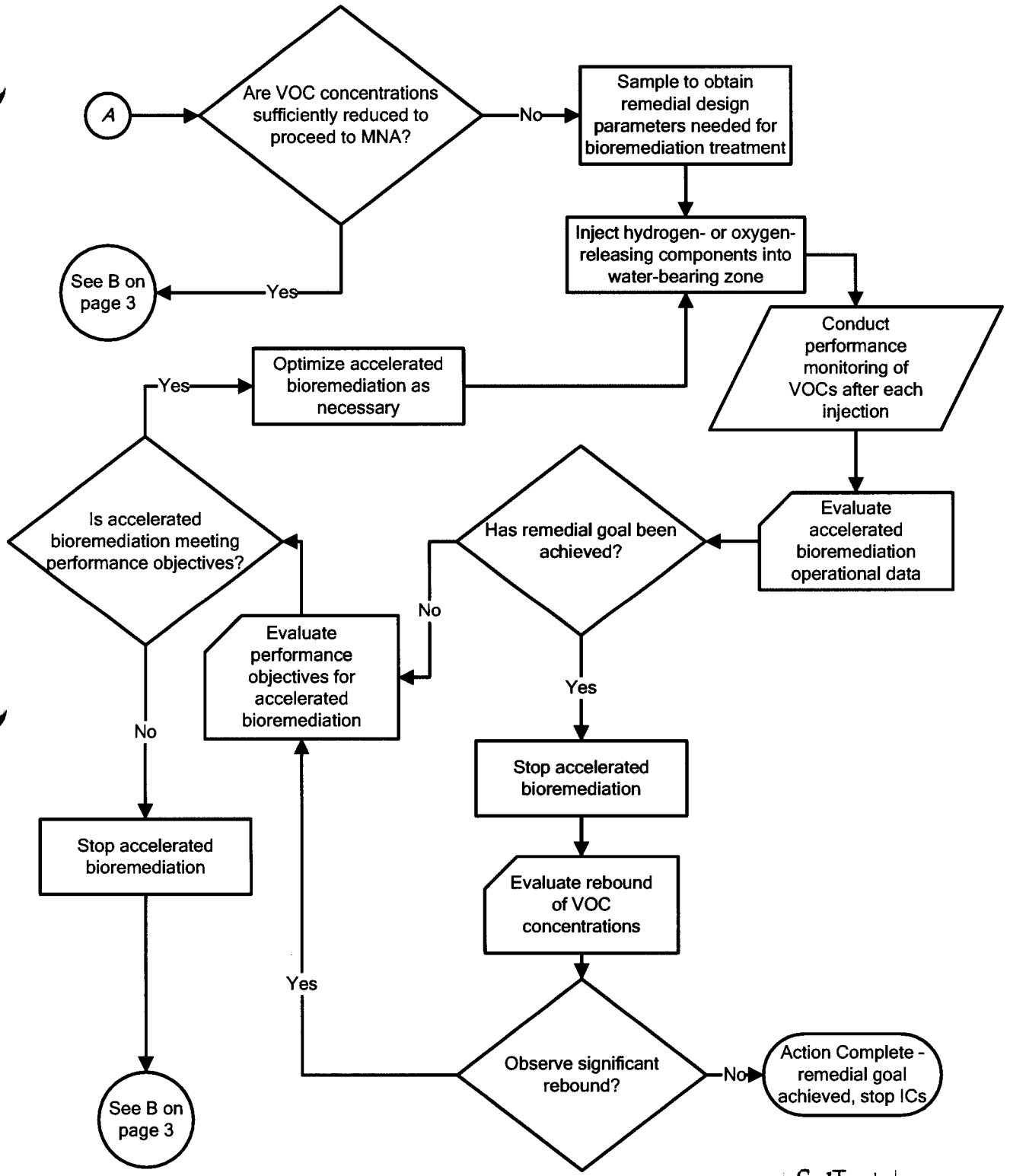

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FIGURE 2-6 (page 2 of 3)

ACHIEVEMENT OF SITE 6 GROUNDWATER REMEDIATION GOAL

Record of Decision for Operable Unit 1
Sites 6, 7, 8, and 16

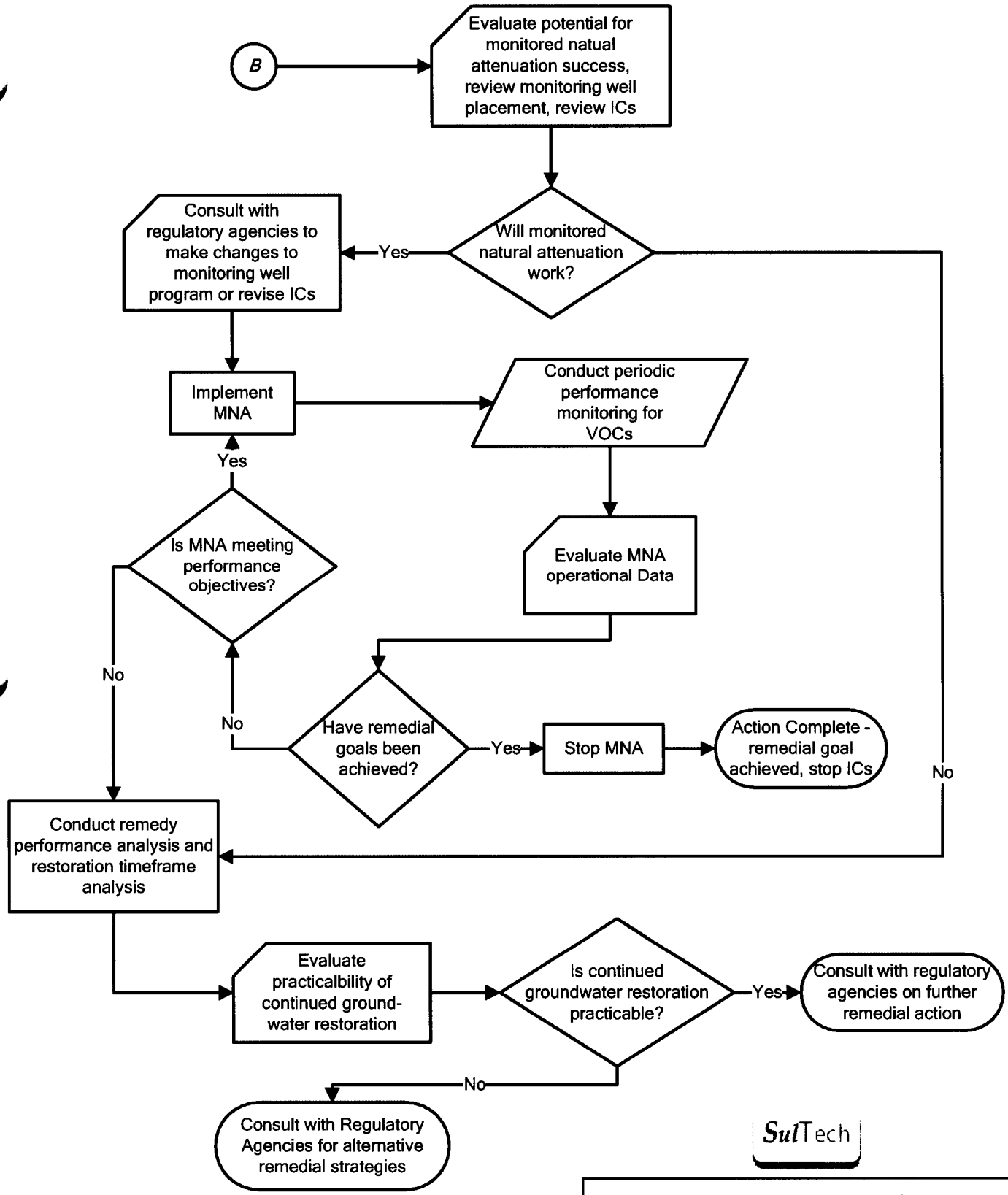

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FIGURE 2-6 (page 3 of 3)

ACHIEVEMENT OF SITE 6 GROUNDWATER REMEDIATION GOAL

Record of Decision for Operable Unit 1
Sites 6, 7, 8, and 16

TABLES

TABLE 2-1: SUMMARY OF CERCLA INVESTIGATION ACTIVITIES AT SITE 6
Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Date	Investigation/Activity	Objective	Summary of Findings
1989 to 1991	IR Program Phases 2B and 3 Investigation	Determine if soil and/or groundwater contamination exists at Site 6. Investigation focused on industrial, sanitary, and storm sewers; collection of soil and groundwater samples; installation of groundwater monitoring wells; and groundwater monitoring.	Metals and VOCs were detected in soil samples around Building 41. PAHs were detected in fill material and native sediments. No SVOCs, pesticides, and PCBs were detected in soil. Metals and VOCs were detected in groundwater.
1994	Follow-On Investigation to IR Program Phases 2B and 3 Investigation	Provide additional lithologic, chemical, and hydrogeologic information to further assess the nature and extent of soil and groundwater contamination at Site 6.	Activities consisted of collecting soil samples, collecting nonpoint source samples from manhole catch basins, collecting groundwater samples using CPT or direct-push technology, installing wells, and performing four quarters of groundwater monitoring. The extent of the potential chemicals of interest in groundwater was characterized for the purpose of conducting a remedial investigation and feasibility study. Concentrations of arsenic, iron, and PAHs in soil exceeded 2002 residential PRGs. Concentrations of various metals, VOCs, and SVOCs in groundwater exceeded 2002 tap water PRGs.
1997 to 1998	Storm Sewer Removal Action	Clean, remove, or leave in place segments of storm sewer lines and manholes with elevated concentrations of inorganic and organic chemicals in sediments and debris.	Site 6 contains storm sewer lines that are part of the Subsystem G. It was recommended no further action would be taken to remove sediments from the storm sewer system lines identified as being cleaned.
1998	Follow-On Investigation	Groundwater samples were collected quarterly from location M06-06, west of Building 41.	At Site 6, VOCs were detected in groundwater samples and a solvent plume was identified. During all four quarters, one or more organic chemicals were detected in groundwater at concentrations exceeding the MCLs.

TABLE 2-1: SUMMARY OF CERCLA INVESTIGATION ACTIVITIES AT SITE 6 (CONTINUED)
Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Date	Investigation/Activity	Objective	Summary of Findings
2001	Supplemental RI Data Gaps Sampling	Delineate chlorinated VOC plumes in groundwater, investigate storm sewer pathways, and collect soil gas samples to support vapor intrusion modeling in the baseline human health risk assessment. Groundwater samples were analyzed for VOCs and TPH.	The delineation of VOC plumes addressed the chlorinated VOCs west of Building 41. The lateral and vertical boundaries of the VOC plumes were defined to MCLs, except for one location in the northwest corner of Site 6 that was outside the area of the data gaps investigation. An additional plume was drawn based on the step-out sampling by expanding the MCL boundary 50 feet to the northwest. It was recommended that risk should be reevaluated and the groundwater monitoring network should be expanded to the east and west to encompass the VOC plumes. Analytical results indicated concentrations of VOCs were detected above the groundwater VOC plumes.
2002 to Present	Basewide Groundwater Monitoring	Monitor the status of contaminant plumes in groundwater, determine the potential for natural degradation, determine the direction of groundwater flow and gradients, and identify and assess the need for additional well locations and where existing wells can be abandoned.	At Site 6, the delineation of VOCs plumes addressed the chlorinated VOCs west of Building 41. The lateral and vertical boundaries of the VOCs plumes were defined to MCLs. Groundwater contaminant plumes were delineated and found to be from 0 to 15 feet below ground surface.
2003	Basewide PAH Investigation	Collect sufficient PAH data to calculate exposure point concentrations for risk assessments at CERCLA sites.	At Site 6, PAHs [expressed as B(a)P] were detected in all soil samples. However, only 1 of 80 soil samples exhibited a B(a)P-equivalent concentration exceeding the human health screening criterion of 0.62 mg/kg.

Notes:

B(a)P Benzo(a)Pyrene
CERCLA Comprehensive Environmental Response, Compensation, and Liability Act
CPT Cone penetrometer test
IR Installation Restoration
MCL Maximum contaminant level
mg/kg Milligram per kilogram
PAH Polycyclic aromatic hydrocarbon
PCB Polychlorinated biphenyl
PRG Preliminary remediation goal
RI Remedial Investigation
SVOC Semivolatile organic compound
TPH Total petroleum hydrocarbons
VOC Volatile organic compound

TABLE 2-2: SUMMARY OF RCRA INVESTIGATION ACTIVITIES AT SITE 6

Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Date	Investigation/Activity	Objective	Summary of Findings
1992	RCRA Facility Assessment	Identify SWMUs and AOCs, collect preliminary information on all actual or potential chemical releases from these SWMUs and AOCs, and evaluate the need and scope of a RCRA facility investigation.	Most of the SWMUs were identified at Alameda Point.
2001	EBS Investigation (under the Base Realignment and Closure property transfer program)	Evaluate additional SWMUs at Site 6.	Identified four SWMUs at Site 6 in addition to those identified during the RCRA Facility Assessment.
2005	SWMU Evaluation	Identify the need for further actions at SWMUs, and identify SWMUs that should be managed under the Navy's CERCLA or Alameda Point TPH programs.	Based on evaluations conducted by the Navy using requirements stipulated in the final hazardous waste facility permit for Alameda Point, the Navy has recommended no further corrective action for NAS GAP 25 (SulTech 2004). DTSC recommended no further corrective action for NAS GAP 25. The selected soil remedy within this ROD is intended to address the additional actions necessary to obtain "corrective action complete" status for OWSs 040A, 040B, and 041, and WDs 040 and 041A at Site 6.

Notes:

AOC Area of concern
CERCLA Comprehensive Environmental Response, Compensation, and Liability Act
DTSC Department of Toxic Substances Control
EBS Environmental baseline survey
GAP Generator accumulation point
NAS Naval Air Station
OWS Oil-water separator
RCRA Resource Conservation and Recovery Act
ROD Record of decision
SWMU Solid waste management unit
TPH Total petroleum hydrocarbons
WD Washdown area

Sources:

DTSC. 2005. Letter Providing DTSC Comments on the Draft OU-1 Sites 6, 7, 8 and 16 Proposed Plan. From DTSC. To Thomas Macchiarella BRAC Environmental Coordinator, BRAC Program Management Office West. December 29.

SulTech. 2004. "Draft Appendix I Solid Waste Management Unit Evaluation Report for Operable Unit 1 (Sites 6, 7, 8, and 16), Hazardous Waste Permit EPA ID Number CA 2170023236, Naval Air Station Alameda, Alameda Point, Alameda, California." September 30.

TABLE 2-3: SUMMARY OF NAVY AND DTSC DETERMINATIONS FOR SWMUS LOCATED WITHIN SITE 6
Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

SWMU Identification	Navy Determination (SulTech 2004)	DTSC Determination		Final Determination in the ROD
		Based on DTSC Letter Dated December 29, 2005 (DTSC 2005)	April 4, 2007 Telephone Conference Determination (Steven Peck and Dot Lofstrom 2007)	
NAS GAP 25	No Further Corrective Action	Further Corrective Action	No Further Corrective Action	No RCRA corrective action
OWS 040A	Further Corrective Action	Further Corrective Action		The selected soil remedy within this ROD is intended to address the additional actions necessary to fulfill CERCLA requirements and obtain "corrective action complete" status for this SWMU.
OWS 040B	Further Corrective Action	Further Corrective Action		Same as above
OWS 041	Further Corrective Action	Further Corrective Action		Same as above
WD 040	Further Corrective Action	Further Corrective Action		Same as above
WD 041A	Further Corrective Action	Further Corrective Action		Same as above

Notes:

CERCLA Comprehensive Environmental Response, Compensation, and Liability Act
DTSC Department of Toxic Substances Control
GAP Generator accumulation point
NAS Naval Air Station
OWS Oil-water separator
RCRA Resource Conservation and Recovery Act
ROD Record of decision
SWMU Solid waste management unit
WD Washdown area

Sources:

DTSC. 2005. Letter Providing DTSC Comments on the Draft OU-1 Sites 6, 7, 8 and 16 Proposed Plan. From DTSC. To Thomas Macchiarella BRAC Environmental Coordinator, BRAC Program Management Office West. December 29.

Steven Peck and Dot Lofstrom. 2007. Telephone Conference between Steven Peck, Project Manager, Alameda Point Team, BRAC Program Management Office West and Dot Lofstrom, DTSC at 13:20 Regarding No Further Corrective Action for NAS GAP 25. April 4.

SulTech. 2004. "Draft Appendix I Solid Waste Management Unit Evaluation Report for Operable Unit 1 (Sites 6, 7, 8, and 16), Hazardous Waste Permit EPA ID Number CA 2170023236, Naval Air Station Alameda, Alameda Point, Alameda, California." September 30.

TABLE 2-4: SUMMARY OF EBS AND TPH INVESTIGATION ACTIVITIES AT SITE 6
Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Date	Investigation/Activity	Objective	Summary of Findings
1994	EBS Phase 1	Inventory all Alameda Point property on a parcel-by-parcel basis and identify known or suspected hazards associated with historical and recent uses of each parcel.	Results of the site visits, employee interviews, historical research, and inventory of all property indicated that sampling should be conducted to confirm if a release or disposal of hazardous substances or petroleum products had occurred.
1994 to 1998	EBS Phases 2A and 2B	Collect environmental samples from potentially contaminated areas.	Based on the Phase 2A investigation, low concentration of metals, VOCs, and TPH were detected at Parcel 71. Analytical results from the Phase 2B investigation indicated VOCs exceeded the tap water PRG in on groundwater sample collected at Site 6. Additionally, TPH as diesel was detected in both soil samples collected at Parcel 96; however, the detections were less than screening criteria.
1994	TPH Strategy	Examine the condition of fuel lines, identify CAAs, and decommission all USTs.	At Fuel Line CAA B, fuel lines were cleaned, inspected, filled with grout and sealed at the ends at each excavation. No underground storage tanks were removed at Site 6.
1998	Data Gaps Sampling	Perform confirmation sampling along abandoned fuel lines.	No chemicals were detected in soil samples. TPH as gasoline was detected in groundwater samples. Analytical results for soil and groundwater indicated Fuel Line CAA B meets all Water Board criteria for closure of low-risk fuel sites; as a result, no further corrective action was recommended by the Navy.
2000	Storm Sewer Study Report	Identify sections of storm sewers that are below the water table, in bad condition, and correlate with those locations with groundwater plume locations.	Analytical results indicated low concentrations of VOCs, SVOCs, and TPH. No additional sampling was recommended.

Notes:

CAA	Corrective action area	TPH	Total petroleum hydrocarbons
EBS	Environmental baseline survey	UST	Underground storage tank
PRG	Preliminary remediation goal	VOC	Volatile organic compound
SVOC	Semivolatile organic compound	Water Board	San Francisco Bay Regional Water Quality Control Board

TABLE 2-5: SUMMARY OF ALAMEDA POINT FACT SHEETS, NEWSLETTERS, AND THE PROPOSED PLAN RELATED TO OU-1

Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Document Number	Date	Title
1	March 1990	Fact Sheet 1: RI/FS Update
2	September 1990	Fact Sheet 2: RI/FS Update
3	May 1991	Fact Sheet 3: RI/FS 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
9	June 13,2005	Fact Sheet 9: Draft Proposed Plan for Groundwater at the Western Hangar Zone
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		
--	April 27, 2006	Proposed Plan for OU-1 Sites 6, 7, 8, and 16

Notes:

-- Not applicable
FS Feasibility study
OU Operable unit
RI Remedial investigation

TABLE 2-6: CHEMICALS REPORTED IN SOIL FOR SITE 6

Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Analyte[a,b]	Frequency of Detection (%)	Range of Detected Concentrations	Units	Residential PRG	Units	Above Background[c]
Arsenic[d]	98	0.66 to 12.7	mg/kg	0.39	mg/kg	No
Iron[d]	100	6,030 to 44,200	mg/kg	23,000	mg/kg	No
Benzo(a)pyrene[d]	85	0.4 to 600	µg/kg	62	µg/kg	--
Benzo(k)fluoranthene[d]	66	0.3 to 450	µg/kg	380[e]	µg/kg	--
Dibenzo(a,h)anthracene[d]	35	0.3 to 98	µg/kg	62	µg/kg	--

Notes:

a Only chemicals where detected concentrations exceeded the 2002 PRGs are included on this table (EPA 2002a).

b This table includes results from all investigations listed in Section 2.2.2 except for TPH investigations. PAH data provided in this table are from the basewide PAH investigation only.

c Yes indicates site concentrations exceeded background concentrations for Alameda Point. This comparison was made for inorganic chemicals only, primarily metals.

d This chemical was not identified as a chemical of concern.

e CAL-Modified PRG.

-- Not applicable

µg/kg Microgram per kilogram

mg/kg Milligram per kilogram

PRG Preliminary remediation goal, U.S. Environmental Protection Agency, Region IX or CAL-Modified

TABLE 2-7: CHEMICALS REPORTED IN GROUNDWATER FOR SITE 6

Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Analyte[a]	Frequency of Detection (%)	Range of Detected Concentrations (µg/L)	Tap Water PRG (µg/L)	MCL (µg/L)	Above Background[b]
Antimony[c]	12	0.085 to 7.9	15	6	Yes
Arsenic[c]	42	2.1 to 13.5	0.045	10	No
Lead[c]	16	0.026 to 17.5	--	15	Yes
Manganese[c]	91	7.1 to 37,000	880	--	No
Thallium[c]	2	51.6 to 51.6	2.4	2	No
1,1-Dichloroethane[c]	25	0.3 to 370	2[d]	5	--
1,2-Dichloroethane[c]	6	0.2 to 2	0.1	0.5	--
1,2-Dichloroethene (Total)	61	1 to 110	61 (cis)	--	--
Benzene[c]	5	0.1 to 0.9	0.3	1	--
Bis(2-Chloroethyl)Ether[c]	3	0.5 to 0.5	0.01	--	--
Chloroethane[c]	2	5 to 100	5	--	--
Chloroform[c]	12	0.2 to 25	0.5[d]	80	--
Chloromethane[c]	2	2 to 3	2	--	--
cis-1,2-Dichloroethene	53	0.7 to 64	61	6	--
Tetrachloroethene	25	0.4 to 95	0.7	5	--
Trans-1,2-Dichloroethene	25	0.2 to 14	120	10	--
Trichloroethene	42	0.2 to 150	0.03	5	--
Vinyl chloride	25	0.6 to 72	0.02	0.5[e]	--

Notes:

a Only chemicals where detected concentrations exceeded the MCLs or the 2002 Tap Water PRGs (EPA 2002a) are included on this table.

b Yes indicates site concentrations exceeded background concentrations for Alameda Point. This comparison was made for inorganic chemicals only, primarily metals.

c This chemical was not identified as a chemical of concern.

d CAL-Modified PRG.

e Child or adult.

-- Not applicable

µg/L Microgram per liter

MCL Maximum contaminant level

PRG Preliminary remediation goal, U.S. Environmental Protection Agency, Region IX or CAL-Modified

TABLE 2-8: EXPOSURE SCENARIOS FOR THE BHHRA

Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Site	Exposure Scenarios for Site 6				Proposed Future Land Use
	Residential	Commercial/ Industrial	Recreational	Construction	
6	X	X	X	X	Commercial/Industrial

Note:

BHHRA Baseline human health risk assessment

TABLE 2-9: SUMMARY OF SITE 6 BHHRA RESULTS

Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Exposure Scenario	Media	Cancer Risk[a]	Noncancer Hazard Index[a]
Residential	Surface Soil	1×10^{-5}	0.2
	Subsurface Soil	1×10^{-5}	0.1
	Groundwater	5×10^{-4}	9
Recreational	Soil	1×10^{-6}	0.02
Commercial/Industrial	Soil	2×10^{-6}	0.009
	Groundwater	6×10^{-5}	0.05
Construction Worker	Soil	2×10^{-7}	0.03

Notes:

The risks in this table are rounded; therefore, they may appear to be higher or lower than the risk numbers presented in the text of this Record of Decision.

a Based on toxicity values derived from the Integrated Risk Information System (U.S. Environmental Protection Agency 2003). Presented risk values show total risk and include risk contributed by background.

BHHRA Baseline human health risk assessment

TABLE 2-10: COMPARATIVE ANALYSIS OF SITE 6 REMEDIAL ALTERNATIVES BY BALANCING CRITERIA
Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Alternative	Long-Term Effectiveness and Permanence	Reduction in Toxicity, Mobility, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost[a]
—	Parameters considered include: • Expected long-term reduction in risk posed by Site 6 • Level of effort needed to maintain the remedy and monitor the area for changes in site conditions • Compatibility of the remedy with planned future use of Site 6 • Adequacy and reliability, including reliance on land disposal, potential need to replace, and risks posed should components need replacement	Parameters considered: • Treatment processes used • Amount of hazardous materials destroyed, recycled, or treated • Degree of expected reduction in toxicity, mobility, or volume and the inherent hazard posed by principal threats at Site 6 • Degree to which the benefits of the remedial alternative are irreversible • 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 effects during remediation • Time required to achieve protection	Parameters considered: • Technical and administrative feasibility • Availability of required resources	Parameters considered: • Capital costs • Operation and maintenance costs • Long-term monitoring costs • IC costs for developing and maintaining the ICs • Net present value
SOIL					
Alternative 1 – No Action	None Not effective and permanent because it would not address potential risks	None Would not reduce toxicity, mobility, or volume of contamination through treatment	None No short-term effectiveness because no remedial action would be proposed	None No remedial action would be implemented	0
Alternative 2 – Sampling and ICs	Moderate Would leave contaminated soil at the site and place restrictions on site use	None Would not reduce toxicity, mobility, or volume of contamination through treatment	High Minimal short-term effects during sampling activities	High Readily implementable	$250,000
Alternative 3 – Sampling and Excavation with Off-Site Disposal of Soil	High Has the highest degree of long-term effectiveness because potentially contaminated soil would be removed from Site 6 so there are no restrictions on site use	None Would not reduce toxicity, mobility, or volume of contamination through treatment	Low Excavation has the potential to create negative, short-term air and possibly water quality effects; however, such effects would be reduced by engineering controls, as appropriate	High Readily implementable	$240,000

TABLE 2-10: COMPARATIVE ANALYSIS OF SITE 6 REMEDIAL ALTERNATIVES BY BALANCING CRITERIA (CONTINUED)
Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Alternative	Long-Term Effectiveness and Permanence	Reduction in Toxicity, Mobility, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost[a]
			GROUNDWATER		
Alternative 1 – No Action	None Not effective and permanent because it would not address potential risks	None Would not reduce toxicity, mobility, or volume of contamination through treatment	None No short-term effectiveness because no remedial action would be proposed	None No remedial action would be implemented	0
Alternative 2 – MNA and ICs	Moderate Prevents exposure until groundwater concentrations degrade to levels within the risk management range for residential use. Longer timeframe than Alternatives 3 and 4.	Low Would not reduce toxicity, mobility, or volume of contamination through treatment	High No short-term risk because no active remediation activities would be proposed	High Readily implementable; may have some difficulty reaching agreement on ICs	$1,100,000
Alternative 3 – Active Treatment to Reduce Risk to Commercial/Industrial Workers with ISCO and Accelerated Bioremediation, MNA, and ICs	Moderate Prevents exposure until groundwater concentrations degrade to levels protective of commercial/industrial property reuse and quickens degradation rate compared with Alternative 2.	High Would reduce toxicity, mobility, or volume of contamination through treatment	Moderate If ISCO is implemented, moderate short-term risks exist during injection of treatment agents. No short-term risks with are associated with introducing hydrogen-releasing compounds.	High Technically feasible. Requires large number of injection points and multiple rounds of injection. Hydrogen-releasing compounds require a larger number of injection points, but fewer rounds of injection than ISCO. May have some difficulty reaching agreement on ICs.	$1,600,000
Alternative 4 – Treatment to Remediation Goals with ISCO and Accelerated Bioremediation, MNA, and Short-Term ICs	High Prevents exposure until groundwater concentrations degrade to levels within the risk management range for residential use and provides the quickest degradation rate.	High Would reduce toxicity, mobility, or volume of contamination through treatment	Moderate Moderate short-term risks exist during the injection of ISCO or treatment agents. No short-term risks are associated with introducing hydrogen-releasing compounds.	High Technically feasible. Requires large number of injection points and multiple rounds of injection. May have some difficulty reaching agreement on ICs.	$3,600,000

Notes:

a Based on net present value

IC Institutional control
ISCO *In-situ* chemical oxidation
MNA Monitored natural attenuation

TABLE 2-11: COST COMPARISON OF SITE 6 REMEDIAL ALTERNATIVES
Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Remedial Alternatives	Estimated Cost[a]
SOIL	
Alternative 1 – No Action	0
Alternative 2 – Sampling and ICs	$250,000
Alternative 3 – Sampling and Excavation with Off-Site Disposal of Soil	$240,000
GROUNDWATER	
Alternative 1 – No Action	0
Alternative 2 – MNA and ICs	$1,100,000
Alternative 3 – Active Treatment to Reduce Risk to Commercial/Industrial Workers with ISCO and Accelerated Bioremediation, MNA, and ICs	$1,600,000
Alternative 4 – Treatment to Remediation Goals with ISCO and Accelerated Bioremediation, MNA, and Short-Term ICs	$3,600,000

Notes:

a Based on net present value

IC Institutional control
ISCO *In-situ* chemical oxidation
MNA Monitored natural attenuation

TABLE 2-12: COST ESTIMATE SUMMARY FOR SITE 6 SOIL ALTERNATIVE 3
Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Cost Category	Capital Costs	O&M Costs
Fencing	5,000	--
One-Time Sampling	43,000	--
Excavation of OWSs 040A and 040B	31,000	--
Decontamination	6,000	--
Transportation and Disposal of Debris Off Site	14,000	--
Remedial Action Report	48,000	--
Professional Labor	56,000	--
Subtotal	**203,000**	**0**
Contingency	37,000	0
Total Alternative 3 Costs	**240,000**	

Notes:

O&M *Operation and maintenance*
OWS Oil-water separator

TABLE 2-13: COST ESTIMATE SUMMARY FOR SITE 6 GROUNDWATER ALTERNATIVE 4
Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Cost Category	Capital Costs	O&M Costs	Periodic Costs
Sampling to Further Delineate the VOC plume	54,000	--	--
In-Situ Chemical Oxidation	1,423,000	--	--
Groundwater Monitoring Well Installation	17,000	--	--
Groundwater Monitoring	67,000	13,000	--
Treatment with Hydrogen-Releasing Compounds	477,000	--	--
Vapor Removal System	110,000	10,000	--
Institutional Controls	107,000	--	--
Professional Labor	489,000	--	--
Contingency Treatment Costs	213,000	--	--
Reports/Reviews	--	23,000	219,000
Subtotal	**2,957,000**	**46,000**	**219,000**
Contingency		378,000	
Total Alternative 4 Costs		**3,600,000**	

Notes:

-- Not applicable
O&M Operation and maintenance
VOC Volatile organic compound

3.0 SITE 7

This section provides the site name, location, and brief description of Site 7; the site history and investigation activities; community participation; scope and role of OU and response actions; site characteristics; current and potential future site and resource uses; summary of site risks; RAOs; a description of the remedial alternatives; a comparative analysis of the remedial alternatives; the principal threat waste; and the selected remedy at Site 7.

3.1 SITE NAME, LOCATION, AND DESCRIPTION

Site 7, known as the Navy Exchange Service Station, is located along the eastern boundary of Alameda Point, approximately 1,840 feet from the San Francisco Bay (Figure 3-1). The site is located between Main Street and Serenade Place near West Tower Avenue. It is approximately 5.6 acres in size and comprises Parcels 112, 113, and 114. Approximately 70 percent of Site 7 is open space covered primarily with asphalt and concrete and some bare ground. Buildings, including 284 and 459, and structures cover approximately 30 percent of the site, and little vegetation is present (Tetra Tech 2004).

Site 7 contains the following SWMUs: NAS GAP 30, OWS 459, UST(R)-15/NAS GAP 16, and UST(R)-16. NAS GAP 30 and OWS 459 are addressed in this ROD. UST(R)-15/NAS GAP 16 and UST(R)-16 are being addressed under the Alameda Point TPH program.

3.2 SITE HISTORY AND INVESTIGATION ACTIVITIES

This section summarizes the history and investigation activities performed at Site 7. Section 2.2 provides a general description of the history of Alameda Point and the investigation activities at OU-1 Site 7.

3.2.1 Site History

Site 7 contains several features where the Navy conducted activities that may have contributed to soil and groundwater contamination identified in the OU-1 Sites 6, 7, 8, and 16 RI Report (Tetra Tech 2004). These site features included Building 459, Structure 284, USTs 459-1 through 459-4, UST 459-7 [also known as UST 506-1/UST(R)], UST 459-8 [also known as UST (R)-15/NAS GAP 16], an incinerator in former Building 68-3, the craft/hobby shop in former Building 158, a former maintenance building (503), NAS GAP 30, three electrical transformers, industrial waste sewer lines, and storm sewer lines (see Figure 3-1). Because of possible petroleum product contamination from automotive-related activities and USTs, Site 7 is designated as CAA 7. Navy activities associated with each site feature are discussed below.

Building 459 operated as a repair shop and parts store, and Structure 284 was a fuel island operated by base stores from 1966 to 1997 in the southern portion of the site. Floor drains in Building 459 drained into OWS 459. Wastes generated at Building 459, such as used oil filters, fuel filters, oily rags, asbestos brake pads, and lead wheel weights were placed in drums at NAS

GAP 30, located north of Building 459, prior to off-site disposal. Materials stored at NAS GAP 30 included PCE, used oil filters, paint wastes, fuel filters, and dirty rags. Waste oil was collected in UST 459-7 prior to off-base disposal. Used batteries were contained within a metal storage container outside the south side of Building 459.

Before Site 7 was used as an automotive facility, former Building 68-3 was the site of an incinerator surrounded by grassy open space. Building 68-3 was constructed in 1942 to house an incinerator and storage for the fire department, and was demolished in 1963. Building 459 is located at the former location of Building 68-3.

The three electrical transformers were mounted on a utility pole, located centrally within Site 7 above a concrete pad. There are no records of spills or releases from these transformers (ERM-West 1994). Used transformer oils, possibly containing PCBs, were used for weed control throughout the open space at Site 7 until 1963 (ERM-West 1994).

The storm sewers at Site 7 are connected to outfall H. All of the storm sewer lines within Site 7 were determined to be sound, with most of them located above the water table (Tetra Tech 2000c).

3.2.2 Investigation Activities

This section summarizes the results of the basewide environmental investigations as they relate to Site 7 under the CERCLA, RCRA, EBS, and Alameda Point TPH programs. In addition, site-specific investigations are also summarized in this section. Section 2.2.2 provides a general description of the different types of basewide environmental investigations conducted across Alameda Point.

3.2.2.1 CERCLA Investigation Activities

Each of the CERCLA investigations conducted at Site 7 between 1991 and 2006 are described below. Table 3-1 summarizes the CERCLA investigation activities at Site 7.

Installation Restoration Program Phases 2B and 3 Investigation, 1991

This investigation included collecting soil and groundwater samples and installing monitoring wells (PRC and JMM 1992). Seven soil borings and four monitoring wells were installed as part of this investigation.

Based on this investigation, metals, VOCs, pesticides, PCBs, and TPH were detected in Site 7 soils. Beryllium and mercury concentrations appeared elevated when compared with their concentrations in soils at other sites at Alameda Point. Ethylbenzene, toluene, and xylene were occasionally identified at elevated concentrations in soil in the vicinity of the abandoned USTs. Pesticides identified in soil were probably related to past weed and pest control practices.

Concentrations of metals, VOCs, an SVOC, PAHs, and TPH were detected in Site 7 groundwater. No pesticides or PCBs were detected in groundwater. Copper and manganese exceeded the EPA acute and chronic water quality standards, respectively. VOCs were detected in wells near the existing and former fuel islands and tank. The SVOC bis(2-ethylhexyl)phthalate was detected in samples from five wells. PAHs were detected in samples from wells W-1 through W-3. TPH was detected in samples from wells located within the UST backfill area (PRC and JMM 1992).

Follow-On Investigation to Installation Restoration Program Phases 2B and 3 Sites, 1994

This investigation was conducted to provide additional lithologic, chemical, and hydrogeologic information, and to assess the nature and extent of soil and groundwater contamination for use in the OU-1 Sites 6, 7, 8, and 16 RI and FS Reports (PRC and JMM 1995). The follow-on field investigation included collecting soil and nonpoint source samples, collecting groundwater samples using CPT and direct-push technology, installing monitoring wells, and performing one quarter (out of four planned) of groundwater monitoring (PRC and JMM 1995).

Two surface soil samples and 18 subsurface soil samples were collected from B07A-10, B07A-11, B07A-12, M07A-08, and M07A-09. Surface samples were analyzed for pesticides and PCBs, but these chemicals were not detected. TPH was detected in borings located along the eastern boundary of Site 7 (PRC and JMM 1995).

CPT and direct-push groundwater samples were collected to evaluate the lithology and hydrogeologic characteristics below a depth of 15 feet, to assess the thickness of the SWBZ, and to assess the lithology at direct-push groundwater sampling locations adjacent to Site 7. Four deep direct-push groundwater samples were collected from the SWBZ, and seven direct-push groundwater samples were collected from the fill layer in the northern and eastern portions of Site 7 (PRC and JMM 1995).

Two shallow monitoring wells were installed in the FWBZ outside the eastern boundary of Site 7, and three deep monitoring wells were installed in the SWBZ. Solvent-related VOCs were detected in the vicinity of the waste oil tanks; petroleum hydrocarbon-related VOCs, SVOCs, and TPH were detected in the northern and eastern areas of Site 7 and south of the pump islands (PRC and JMM 1995).

Follow-On Investigation, 1998

This investigation was conducted to obtain analytical data to characterize the distribution and concentration of chemicals in groundwater at Site 7 (Tetra Tech and Uribe & Associates 1998). Groundwater samples were collected from five monitoring wells during the first two quarters of the groundwater monitoring program. During the third and fourth quarters, groundwater samples were collected from four additional wells. Groundwater samples were analyzed for metals, VOCs, TPH, and general water quality parameters (such as anions, nitrate/nitrite as nitrogen, total dissolved solids, sulfide, and alkalinity). Groundwater samples were collected from wells

located within the plume and at the perimeter of Site 7 to assess whether chemicals were migrating across site boundaries. Metals, VOCs, and TPH were detected in groundwater samples collected during this investigation (Tetra Tech and Uribe & Associates 1998).

Storm Sewer Removal Action, 1996-1997

This removal action was conducted to address elevated concentrations of inorganic and organic chemicals in sediments and debris located within the storm sewer system at Site 7. Site 7 contained elevated concentration of VOCs, SVOC, and TPH as gasoline (Tetra Tech 2000c). The specific objectives of this removal action are discussed in Section 2.2.2.1.

Site 7 contains storm sewer lines that are part of Subsystems G and H. The findings from the video review of Subsystems G and H showed some residual sediment and cemented deposits were observed in a line in the southeastern corner of Site 7 (Tetra Tech 2000c). In 1998, IT Corp. plugged and filled specific storm sewer lines at Building 459 at Site 7 with cement to prevent the transport of petroleum through damaged lines (IT Corp. 1997).

Based on the results of the storm sewer removal action, no further action was recommended for sediments in the storm sewer system lines identified as being cleaned in the 1997 closure report (IT Corp. 1997).

Sewer Corridor Sampling, 2000

A Storm Sewer Study Report was completed in December 2000 (Tetra Tech 2000c). The purpose of this report was to identify sections of storm sewer that are located below the water table, correlate those sections with sections that are in poor condition, and identify the location of groundwater contaminant plumes to determine the likelihood that storm sewers are acting as migration pathways. At Site 7, data gaps were identified requiring further investigation. Additional sampling was recommended (Tetra Tech 2000c).

Supplemental Remedial Investigation Data Gaps Sampling, 2001

The objective of this investigation was to delineate dioxins and furans in Site 7 soil for potential removal actions. It was believed that dioxins and furans originated from the incinerator located at former Building 68 (Tetra Tech 2001a). Dioxins and furans were detected in soil at 0.5 to 1.0 feet bgs and 2.0 to 2.5 feet bgs; however, results of this study were inconclusive in delineating dioxins and furans in soil.

Basewide Groundwater Monitoring, 2002 through 2006

The basewide groundwater monitoring program started in June 2002 and is ongoing at Site 7. Groundwater samples were initially collected at 10 monitoring wells; currently, groundwater samples are being collected from 14 monitoring wells at Site 7 (Shaw 2003b; ITSI 2006). The basewide groundwater monitoring program was initiated to (1) monitor the status of contaminant

plumes in groundwater, (2) evaluate the potential for natural degradation of contaminant plumes, (3) identify the direction of groundwater flow and the gradient, and (4) identify locations where additional wells are needed and locations where existing wells can be abandoned. Select wells were identified for quarterly or semiannual monitoring. Groundwater at the top of the FWBZ at Site 6 was targeted for sampling (Shaw 2003b).

Analytical results indicated arsenic, VOCs, and TPH were present in groundwater at Site 7. Arsenic concentrations have been known to increase when pH in FWBZ groundwater is higher. In summer 2005, one groundwater sample exhibited arsenic concentrations above the MCL. Arsenic concentrations in samples from all other wells have been below detection limits or below the MCL and have continued decreasing during the basewide monitoring program (ITSI 2006).

One VOC (methyl tertiary butyl ether [MTBE]) was detected at concentrations exceeding the MCL in samples from the easternmost monitoring wells in the FWBZ at Site 7. In these wells, MTBE concentrations have all declined over time, and as of summer 2005, all but one monitoring well had MTBE concentrations below MCLs.

Although no screening criteria are established for TPH, detected TPH concentrations ranged from trace to maximum concentrations in the FWBZ monitoring wells in winter 2004. Since that time, concentrations of TPH have declined at FWBZ monitoring wells.

No other chemicals were detected at concentrations exceeding MCLs. Evidence for biodegradation of organic chemicals at Site 7 was not readily apparent from the data collected during this monitoring program.

Basewide Polycyclic Aromatic Hydrocarbon Investigation, 2003

The objective of the PAH investigation was to collect sufficient PAH data to calculate EPCs for risk assessments at CERCLA sites (Bechtel 2003). The historical PAH data collected at Site 7 were used to estimate the mean and standard deviation of B(a)P concentrations to determine the appropriate number of samples to collect at the site. At Site 7, 33 soil borings were advanced using direct-push technology. Four samples were collected from each location at depths ranging from 0 to 0.5, 0.5 to 2.0, 2.0 to 4.0, and 4.0 to 8.0 feet bgs. PAHs (expressed as a B[a]P equivalent) were detected in all 130 soil samples; however, only 21 of those detections exceeded the human health screening criterion of 0.62 mg/kg.

Site 7 Supplemental Investigation, 2003

The objective of this investigation was to determine the nature and extent of the debris area in the parking area south of Building 459 (Tetra Tech 2003d). Data collected during this investigation were used to assess human health and ecological risk believed to be associated with the former incinerator at Site 7. Soil samples were collected from 23 locations where the debris area was previously identified. Samples were visually inspected for debris and analyzed for total

metals. Selected samples also were analyzed for pesticides, PCBs, dioxins/furans, and chromium speciation (Tetra Tech 2003d).

Analytical results indicated nine metals (antimony, arsenic, barium, cadmium, chromium, copper, iron, lead, and manganese) exceeded EPA 2002 residential PRGs. Pesticides were not detected. The RI Report indicates that the metallic debris layer is believed to be incinerator or building demolition debris. Because dioxins were detected at such low concentrations in soil during this investigation, it can be deduced that the debris layer consists of building demolition debris as opposed to incinerator debris (Tetra Tech 2003d).

Remedial Investigation Report, 2004

An RI Report for OU-1 Sites 6, 7, 8, and 16 was prepared and became final in November 2004 (Tetra Tech 2004). This report provided a complete discussion of the history and setting of Sites 6, 7, 8 and 16; summarized previous investigations conducted at each site and the nature and extent of contamination; and included both a BHHRA and a modified ecological risk assessment (ERA). The RI Report recommended further evaluation of soil at Sites 6, 7, 8 and 16 and groundwater at Sites 6 and 16 in an FS to address risks identified in the BHHRA.

Feasibility Study, 2005

A Final OU-1 Sites 6, 7, 8, and 16 FS Report was issued in July 2005 (SulTech 2005; EPA 2005a). This FS Report summarized the results of the OU-1 Sites 6, 7, 8, and 16 RI Report, developed RAOs and remedial alternatives for each site, and evaluated the alternatives against the NCP criteria.

Proposed Plan, 2006

In April 2006, the Navy distributed a Proposed Plan recommending (1) remedial action for soil at IR Sites 6, 7, 8, and 16; (2) remedial action for groundwater at IR Sites 6 and 16; and (3) no action under CERCLA for groundwater at IR Sites 7 and 8 (SulTech 2006). This Proposed Plan summarized the history of sites, including the environmental investigations conducted, and notified the community of the public meeting and public comment period.

3.2.2.2 RCRA Investigation Activities

Section 2.2.2.2 describes the Navy's basewide approach to the RCRA investigations conducted across Alameda Point.

The RCRA investigation activities conducted at Site 7 between 1992 and 2005 are described below. Table 3-2 summarizes the RCRA investigation activities at Site 7. Table 3-3 summarizes the status of each SWMU located within Site 7.

The following four SWMUs were identified within Site 7 (DTSC 1992):

- NAS GAP 30
- OWS 459
- UST(R)-15/NAS GAP 16
- UST(R)-16

NAS GAP 30 and OWS 459 are addressed in this ROD, whereas UST(R)-15/NAS GAP 16 and UST(R)-16 are being addressed under the Alameda Point TPH program.

No further corrective action was recommended for NAS GAP 30. NAS GAP 30 consisted of various containers, mostly 55-gallon storage drums, on asphalt pavement. Containers were placed on wooden pallets to allow removal with a forklift. NAS GAP 30 was approximately 20 feet by 30 feet (listed as 20 feet by 25 feet in the RFA) located southwest (listed as northwest in the RFA) of Building 408. Results of the OU-1 Sites 6, 7, 8, and 16 RI Report concluded that NAS GAP 30 is not a likely source of contamination at Site 7 (Tetra Tech 2004).

In a letter dated December 29, 2005, DTSC recommended no further corrective action for NAS GAP 30. DTSC requested clarification as to the whereabouts of NAS GAP 30 because the RFA reported a different location than the EBS. DTSC requested two additional sampling locations be selected in the area southwest of former Building 408, and two additional sampling locations be selected in the area northwest of Building 408 (DTSC 2005).

No further corrective action was recommended for OWS 459. OWS 459 is located within CAA 7 and Site 7 at the southeastern side of Building 459. Results for soil samples collected from locations adjacent to the floor drains in the repair shop in Building 459 indicated motor oil concentrations were less than the preliminary remediation criteria (Navy 2001b). Analytical results for these soil samples also indicated diesel concentrations were less than the 2002 residential PRG. Three soil locations were analyzed for VOC and SVOCs, which were either not detected or were detected at concentrations that were orders of magnitude less than the 2002 residential PRGs. Results of the OU-1 Sites 6, 7, 8, and 16 RI Report concludes that OWS 459 is not a likely source of contamination at Site 7 (Tetra Tech 2004). However, EPA and DTSC subsequently requested and the Navy agreed to perform further sampling during the remedial design phase to evaluate the nature and extent of potential soil and groundwater contamination beneath and adjacent to OWS 459 at Site 7 (Tetra Tech 2004; DTSC 2005). As a result, the RCRA requirements will be satisfied.

3.2.2.3 Environmental Baseline Survey Activities

As mandated by the Base Closure and Realignment Act, the Navy conducted a series of basewide investigations at Alameda Point as part of the EBS as described in Section 2.2.2.2.

Site 7 consists of Parcels 112, 113, and 114 (see Figure 3-1). As part of the EBS, these parcels were investigated under the Phase 2A, 2B, and 2C investigations, as well as a storm water corridor investigation. Table 3-4 summarizes the EBS investigation activities conducted at Site 7.

Based on the Phase 2A investigation, low concentrations (below the 1996 PRGs) of metals, VOCs, SVOCs, and TPH were identified at Site 7. SVOCs, pesticides, oil and grease, and several tentatively identified compounds were detected in both sewer line samples.

A Phase 2B sampling event was recommended based on the detected concentrations of (1) lead in soil samples collected between the south side of Building 459 and the OWS, (2) VOCs in a soil sample collected south of Building 506, and (3) TPH in surface and subsurface soil samples collected southeast of Building 506. During the Phase 2B sampling, eight soil and one direct-push groundwater sample were collected. Analytical results from the Phase 2B investigation indicated that TPH was detected in soil samples at concentrations below petroleum risk-based screening levels and TPH criteria. No VOCs were detected in soil, and the VOC concentrations detected in the groundwater sample were less than the respective PRGs. SVOC PAHs were detected in soil from one sampling location at a concentration above PRGs, and B(a)P was detected in soil from one sampling location at a concentration above the PRG. Metals were detected at concentrations that exceeded the 1996 PRGs and background metals concentrations (Tetra Tech 2004).

A Phase 2C sampling event was recommended based on the detected concentrations of (1) PAHs in surface soil samples collected from locations southeast of Building 506, (2) VOCs in groundwater, and (3) SVOCs in sediment samples collected during Phase 2B. Groundwater samples also had detected concentrations of metals and TPH (IT Corp. 2001a). Based on these results, it was recommended that an RI be conducted under CERCLA to define the nature and extent of soil and groundwater contamination at Site 7.

As part of a Storm Water Corridor Study, soil samples were collected at one location adjacent to the storm sewer lines. Analytical results indicated low concentrations of VOCs, TPH, and SVOCs. Metals were detected at concentrations below 1996 Region IX residential PRGs and background levels except for beryllium, which exceeded the 1996 residential PRG. Based on the low chemical concentrations detected, no additional sampling was recommended along the storm sewer lines at Site 7.

3.2.2.4 TPH Investigation Activities

Each of the TPH investigations conducted at Site 7 between 1995 and 2003 are described below. Table 3-4 summarizes the TPH investigation activities at Site 7.

Underground Storage Tank Removals, 1995 to 1998

In February 1995, UST 506-1, a 1,400-gallon tank containing lubricating oil located on the west side of Building 506, was removed. Soil contamination was observed during removal of the tank and associated piping. Over-excavation of soil continued until contamination was removed, which was confirmed by visual inspection and photoionization detector readings (Public Works Center 1997a). A request for no further corrective action for UST 506-1 was submitted to the Water Board in February 2000 (Tetra Tech 2003c). The Water Board concurred with no further corrective action status for UST 506-1 in June 2000.

USTs 459-1 through 459-4 were removed on November 13, 1998. The capacity of each of these USTs was 10,000 gallons. Fuel lines connecting USTs 459-1 through 459-4 and the fuel pumps were also removed. Although the USTs showed no evidence of leaks, a strong hydrocarbon odor was present during excavation activities. Analytical results for samples collected from the excavations confirmed groundwater within the excavation contained benzene, toluene, ethylbenzene, and xylene (BTEX) and naphthalene concentrations above the TPH criteria (Tetra Tech 2003c).

In April 1995, USTs 459-5 and 459-6 were removed. UST 459-5 and UST 459-6 both contained gasoline and held 10,000 gallons and 8,000 gallons of fuel, respectively. Both USTs were located west of the fuel islands at Structure 284. During excavation activities, a petroleum hydrocarbon odor and intermittent staining were noted around the perimeter of the excavation. As a result, soil and groundwater samples were collected from the excavation for analysis (Public Works Center 1997b). Analytical results of the samples confirmed groundwater within the excavation contained benzene and xylene concentrations above the TPH criteria (Tetra Tech 2003c).

In January 1995, USTs 459-7 and 459-8 were removed. USTs 459-7 and 459-8 held 2,000 gallons and 600 gallons, respectively, of fuel. Upon removal, water was pumped from the excavation pit of UST 459-7 to remove floating product. Analytical results of confirmation samples indicated soil within the excavation did not contain petroleum constituents at concentrations above TPH criteria (Tetra Tech 2003c).

Free-Phase Floating Product Investigations, 1998 and 2000

In 1998, during the RI data gaps sampling event, the presence of floating product near former USTs 459-1 through 459-4 was assessed. A soil boring was driven, and a piezometer was installed. One groundwater sample was collected from the piezometer, and analytical results for the sample indicated no floating product was present (Tetra Tech 2001b).

In 2000, another floating product investigation was conducted to evaluate whether free-phase floating product was present beneath former USTs at Site 7 and to confirm the findings of free product in a storm drain catch basin (6H-11A) during previous CERCLA investigations. Air monitoring surveys were performed to assess VOC vapors and explosive gas emissions from the

monitoring wells (Tetra Tech 2000a). All of the wells at Site 7 were examined using an oil-water interface probe. Neither the wells nor the storm drain catch basin were found to contain free product.

Corrective Action Investigation, 2001

In April 2000, an investigation was conducted to determine the presence of MTBE in groundwater. Samples indicated the presence of BTEX, and TPH as gasoline and motor oil in soil, as well as MTBE in groundwater. An investigation to further assess the extent of the contamination to support the design, building, and operation of a removal system for MTBE and dissolved-phase TPH in groundwater was conducted at Site 7 (IT Corp. 2001b).

Once plume areas were adequately characterized, a dual-vapor extraction system was designed to remove TPH free product and MTBE from groundwater (IT Corp. 2001b). Once the remedial action is complete, a corrective action plan will be completed to ensure any additional TPH issues are addressed (Tetra Tech 2004).

Total Petroleum Hydrocarbons- and Lead-Contaminated Soil Removal Action, 2002

In October 2002, during excavation of surface soil in preparation for removal of lead-contaminated soil, a blue, crystalline, metal debris layer was identified in shallow soils in the parking area south of Building 459 near the footprint of former Building 68-3, where the incinerator was located. An attempt was made to remove the debris layer by excavating two small areas of surface soil (see Figure 3-1); however, excavation activities were halted so that additional evaluation of the nature and extent of the debris layer could be performed. Prior to halting excavation activities, about 1,320 cubic feet of soil was removed and disposed of off site (Shaw 2003a).

Petroleum-Contaminated Groundwater Removal Action, 2003

In February 2003, a full-scale dual-vapor extraction system began operating to remove TPH in the subsurface at Site 7 (Shaw 2004). Based on results of samples collected after operation of the dual-vapor extraction system, 10 wells and 8 piezometers were selected for further sampling on a monthly basis for 3 months and quarterly thereafter. Samples were analyzed for lead, VOCs, total TPH, hydrogen degrading bacteria count, and natural attenuation parameters. Total TPH concentrations during the November 2003 sampling event increased from the October 2003 sampling event, and free product was detected in one piezometer in November 2003 (Shaw 2004). Samples collected during spring 2004 indicated that concentrations of total TPH, BTEX, and MTBE had generally declined back to the October 2003 concentrations (Shaw 2004).

3.3 COMMUNITY PARTICIPATION

The community activities performed at Site 7 are described in Section 2.3.

3.4 SCOPE AND ROLE OF OPERABLE UNIT AND RESPONSE ACTIONS

This ROD addresses OU-1 Sites 6, 7, 8, and 16, which were designated as OU-1 because they were mostly used for light industrial purposes. For Site 7, the scope of this ROD includes the additional investigation of soil and groundwater beneath and adjacent to OWS 459 to evaluate the nature and extent of potential soil and groundwater contamination. Soil containing arsenic, cadmium, or lead at concentrations exceeding remediation goals will be excavated and transported to a landfill for disposal. Petroleum-contaminated areas of Site 7 (CAA 7) are not addressed by this ROD and are currently being addressed under the Alameda Point TPH program, with regulatory oversight provided by the Water Board.

Based on evaluations conducted by the Navy using requirements stipulated in the final hazardous waste facility permit for Alameda Point, the Navy has recommended no further corrective action for NAS GAP 30 and OWS 459 (SulTech 2004). Further corrective action was recommended for UST(R)-15/NAS GAP 16 (recommended for integration with the Alameda Point TPH program because of the absence of CERCLA contaminants). In a letter dated December 29, 2005 (DTSC 2005), DTSC disagreed with the no further corrective action status for NAS GAP 30 and OWS 459. During the June 19, 2006, site walk, the DTSC concurred with the no further corrective action determination for NAS GAP 30. EPA and DTSC requested and the Navy agreed to perform further sampling during the remedial design phase to evaluate the nature and extent of potential soil and groundwater contamination beneath and adjacent to OWS 459 at Site 7 (Tetra Tech 2004; DTSC 2005).

The selected soil remedy within this ROD is intended to address the additional actions necessary to fulfill CERCLA requirements and obtain "corrective action complete" status for OWS 459. As a result, the RCRA requirements will be satisfied.

3.5 SITE CHARACTERISTICS

This section summarizes information on the geology, hydrogeology, and the nature and extent of contamination in soil and groundwater at Site 7. Sections 2.5.1 and 2.5.2, respectively, provide an overview of the basic geologic and hydrogeologic features of Alameda Point. A complete discussion of evaluation methods, sampling locations, chemicals detected at each site, nature and extent of contamination, fate and transport, and evaluation of human and ecological risks is presented in the OU-1 Sites 6, 7, 8, and 16 RI Report (Tetra Tech 2004). An evaluation of RCRA activities is presented in the SWMU evaluation report (SulTech 2004).

3.5.1 Geology

At Site 7, the BSU is present beneath the fill from approximately 5 feet to depths between 40 and 51 feet bgs. It consists of dark brown to olive brown, soft, and moist silty clay to clay, with a trace amount of plant remains and shell fragments. Also, two types of Artificial Fills were identified at Site 7. Most of Site 7 is covered by approximately 1 foot of asphalt. Beneath the asphalt is Artificial Fill consisting of gravelly sand and approximately 1 to 2 feet thick that was

used as base rock material. The second type of Artificial Fill material consists of sand that is typically 4 feet thick but can be up to 9 feet thick.

3.5.2 Hydrogeology

The measured groundwater gradient at Site 7 within the FWBZ varied between 0.0039 and 0.0013 feet per foot. The average groundwater velocity is 0.4 feet per year. Groundwater at Site 7 flows to the north.

3.5.3 Nature and Extent of Contamination in Soil and Groundwater

Activities associated with known or potential chemical releases at Site 7 were identified and environmental investigations were conducted to identify and assess the nature and extent of contaminants in soil and groundwater (see Section 3.2.2). Areas that were investigated included NAS GAP 30, UST(R)-16, UST(R)-15/NAS GAP 16, OWS 459, and former Building 68-3. The following discussion of nature and extent compares detected concentrations of chemicals to the 2002 residential PRG, tap water PRG, and MCL values. Each chemical with one or more exceedances of the PRG or MCL is discussed in later sections of this ROD but is not necessarily selected as a COC at Site 7.

3.5.3.1 Site 7 Soil

During the 2002 TPH- and lead-contaminated soil removal action at Site 7, a blue, crystalline, metal debris layer was identified in shallow soils in the parking area near the footprint of the former incinerator. This area is known as the debris area soil. Therefore, the discussion of soils is divided into two parts: the debris area soil and nondebris area soil.

Debris Area Soil

Soil samples from the debris area soil were analyzed for metals (including hexavalent chromium), VOCs, SVOCs, dioxins, pesticides, and PCBs. Hexavalent chromium, VOC, pesticide, PCB, and dioxin concentrations were detected below the residential PRGs (Tetra Tech 2004).

Nine metals were detected at concentrations above the residential PRGs (see Table 3-5). A background comparison was not conducted for the debris area soil (Tetra Tech 2004). The maximum concentration of arsenic in the debris area soil detected was observed at location S07-SSI-SS11. Cadmium and lead concentrations may be associated with activities around the incinerator (former Building 68). The maximum concentration of copper was detected in soil in the south central portion of Site 7. However, copper is a naturally occurring component in soil and no former activities performed at Site 7 would have resulted in a release of copper.

Several non-PAH SVOCs were sporadically detected in the debris area soil at Site 7 at concentrations below their respective PRGs. Six PAH SVOCs were detected at concentrations

above EPA 2002 residential PRGs (EPA 2002a) (see Table 3-5). However, PAHs are not COCs at Site 7, and PAH concentrations are below the site average threshold level of 0.62 mg/kg for B(a)P-equivalent chemicals. The horizontal and vertical spatial pattern of detections of PAH SVOCs was not indicative of a release at Site 7. The source of PAHs outside of the debris area is attributable to the subsurface soil layer known as the "Marsh Crust" and to dredged materials from San Francisco Bay used to construct Alameda Point. PAHs are not designated as COCs in the RI Report. Petroleum contamination at Site 7 is being addressed under the Alameda Point TPH program

EPA and DTSC requested and the Navy agreed to perform further sampling during the remedial design phase to evaluate the nature and extent of potential soil and groundwater contamination beneath and adjacent to OWS 459 (Tetra Tech 2004; DTSC 2005). At the time of preparation of this ROD, the Navy is working collaboratively with the agencies on the work plan associated with this sampling event.

Nondebris Area Soil

Soil samples from the nondebris area soil were analyzed for metals, VOCs, SVOCs, pesticides, PCBs, dioxins, and herbicides.

Antimony, arsenic, cadmium, and iron were detected at concentrations above the 2002 residential PRGs (see Table 3-5). The maximum concentration of arsenic was detected in a sample collected at a depth of 2 to 3.5 bgs from location B07A-05, which is near former Building 158 and a sanitary sewer line. Antimony and cadmium concentrations in the nondebris area soil at Site 7 are attributable to Alameda Point background concentrations (see Table 3-5). Although iron concentrations are statistically greater than background concentrations, iron is an essential human nutrient and is toxic at only very high doses. For this reason, iron was eliminated as a COPC and therefore was not evaluated in the risk assessments (Tetra Tech 2004).

Four VOCs (benzene, toluene, ethylbenzene, and xylene) were detected at concentrations above the 2002 residential PRGs (see Table 3-5). These VOCs were detected in the southeast portion of Site 7 near former USTs 459-1 through 459-6.

Several non-PAH SVOCs were sporadically detected in nondebris area soil at Site 7 at concentrations below the PRGs. Additionally, seven PAH SVOCs were detected in nondebris area soil at Site 7 at concentrations exceeding residential PRGs (see Table 3-5). PAH SVOCs are not related to Navy activities and were below the site average threshold level of 0.62 mg/kg for the B(a)P-equivalent. The distribution of PAH SVOCs in soil in the nondebris area occurs largely at depth and is consistent with the known depth of the Marsh Crust (approximately 5-7 feet bgs). Consequently further action to address PAH SVOCs in the nondebris area will not be conducted since PAH SVOCs associated with the Marsh Crust are being addressed by the Marsh Crust ROD (Navy 2001a).

Pesticides, PCBs, dioxins, and herbicides were detected at concentrations below the 2002 residential PRGs (EPA 2002a; Tetra Tech 2004).

3.5.3.2 Site 7 Groundwater

Groundwater samples collected as part of environmental investigations at Site 7 were analyzed for metals, VOCs, SVOCs, PAHs, PCBs, and pesticides. Metals, VOCs, SVOCs, and PAHs were detected in groundwater at Site 7, while pesticides and PCBs were not detected.

Six metals (antimony, arsenic, cadmium, iron, manganese, and thallium) were detected in groundwater at Site 7 at concentrations above either their respective tap water PRG or the MCL (see Table 3-6). Arsenic concentrations in groundwater at Site 7 were attributable to background; therefore, its nature and extent groundwater was not evaluated further (Tetra Tech 2004). Data from recent (2002 to 2006) groundwater monitoring samples show that in wells that previously exhibited arsenic concentrations of 100 to 398 µg/L, concentrations have decreased to less than 10 µg/L (the MCL for arsenic) (ITSI 2006). Manganese concentrations in groundwater at Site 7 were highest in the area where a TPH release has occurred (Tetra Tech 2004). Recent monitoring shows concentrations of thallium in groundwater are decreasing (ITSI 2006). This decrease is likely from precipitation or sorption reactions between groundwater and the aquifer material.

Eight VOCs (benzene, chloroform, ethylbenzene, MTBE, toluene, TCE, xylene, and 1,1-DCA) were detected at concentrations above the tap water PRG or MCL values (Tetra Tech 2004). BTEX and MTBE were detected near former USTs 459-1 through 459-6. The maximum concentration of chloroform was detected near the industrial storm sewer line. The only detection of TCE occurred in 1995 in one soil sample collected near UST(R)-15/NAS GAP 16.

Five SVOCs (2,4-dimethylphenol, 4-methylphenol, bis(2-ethylhexyl)phthalate, carbazole, and pentachlorophenol) were detected above the tap water PRG or MCL values.

Eight PAHs [benzo(a)anthracene, B(a)P, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, and naphthalene] were detected at concentrations above the tap water PRG or MCL values (Tetra Tech 2004). PAHs concentrations were elevated at sampling locations near former NAS GAP 30; however, PAHs are distributed throughout Site 7.

Metals, VOCs, SVOCs, and PAHs have been detected at concentrations above MCLs at varying frequencies in groundwater at Site 7. Groundwater at Site 7 also contains petroleum-related contamination. The elevated concentrations of arsenic and PAHs were likely mobilized from fill material by the presence of petroleum-related products that altered the subsurface chemical conditions at the site (see Table 3-6). Metals other than arsenic, VOCs and SVOCs were not consistently detected above the MCL over time, and therefore, are not identified as chemicals of concern. It is anticipated that remediation activities being conducted under the Alameda Point TPH program will reduce arsenic and PAH concentrations in groundwater at Site 7. Recent

groundwater monitoring data show that arsenic levels have decreased substantially and are frequently less than the MCL (ITSI 2006). Concentrations of PAHs in recent groundwater monitoring data generally show nondetected PAH concentrations (ITSI 2006). Thus, there does not appear to be any ongoing commingled groundwater contamination. As a result, the OU-1 Sites 6, 7, 8, and 16 RI Report recommended no action for groundwater under CERCLA at Site 7 (Tetra Tech 2004).

3.6 CURRENT AND POTENTIAL FUTURE SITE AND RESOURCE USES

This section discusses (1) current and reasonably anticipated future land uses, (2) current and potential groundwater uses, and (3) surface water uses at Site 7. This information was incorporated into the development of exposure scenarios for the BHHRA and the development and evaluation of remedial alternatives.

3.6.1 Future Land Uses

Site 7 is an IR site at Alameda Point, which is under the jurisdiction of the Navy. At Site 7, buildings and structures cover about 30 percent of the site, and the remainder is open space with asphalt, concrete, and bare ground. Most likely future reuses of Site 7 include commercial/industrial and residential activities. Site 7 is presently occupied by Hung's Construction and Armkea, Inc.

According to the NAS Alameda Community Reuse Plan, Site 7 is located in the Main Street Neighborhoods land use area (EDAW, Inc. 1996). The Main Street Neighborhoods land use area was planned to consist of approximately 265 acres of primarily residential buildings, along with a daycare center and a school (EDAW, Inc. 1996). According to the General Plan Amendment (City of Alameda 2003), this area was renamed to become the West Neighborhoods, but land use was generally the same.

Eventually, Site 7 will be transferred to a non-federal entity. According to the Alameda Point Preliminary Development Concept (Alameda Reuse and Redevelopment Agency and Roma Design Group 2006), Site 7 is to be redeveloped as part of a residential area. Based on the above information, the reasonably anticipated future land use for Site 7 is residential.

3.6.2 Groundwater Uses

See Section 2.6.2 for determined groundwater uses for the central portion of Alameda Point.

3.6.3 Surface Water Uses

OU-1 Sites 6, 7, 8, and 16 do not have naturally occurring surface streams or ponds. Storm water at Site 7 is presently handled via storm sewers.

3.7 SUMMARY OF SITE 7 RISKS

This section summarizes the potential risks to human health and the environment at Site 7. Section 2.7 provides a general discussion of the methods used to conduct the BHHRA and the modified ERA.

3.7.1 Baseline Human Health Risk Assessment Approach

Unlike Site 6, the anticipated future use of Site 7 is residential; however, the commercial/industrial and construction worker scenarios were also evaluated. The remainder of this section discusses the site-specific BHHRA approach and the results for Site 7. The overall BHHRA approach is presented in Section 2.7.1. The recreational exposure scenario was not evaluated at Site 7 because recreation is not designated in the reuse plan as a future reuse for the site (EDAW, Inc. 1996).

At Site 7, although CERCLA chemicals were identified in groundwater, including arsenic, no plumes associated with the CERCLA chemicals were defined; therefore, the site boundaries were used to define the exposure area for groundwater at Site 7. The maximum arsenic concentrations in groundwater are not associated with the soil debris area, where elevated arsenic concentrations are present in soil. Instead, it was postulated that the release of TPH at Site 7 may have changed the geochemical conditions (reducing conditions) of the shallow groundwater aquifer, resulting in increased arsenic solubility. Although the CERCLA constituents found in TPH were evaluated by the risk assessment, the TPH contamination present in groundwater at Site 7 is being addressed under the Alameda Point TPH program. The Navy anticipates that arsenic concentrations present at Site 7 will decrease upon completion of the groundwater remedial actions under the Alameda Point TPH program.

A conceptual site model (see Figure 3-2) was presented in the OU-1 Sites 6, 7, 8, and 16 RI Report and used to support the BHHRA by identifying the potential receptors and exposure pathways associated with each of the sources of chemicals at Site 7. The chemicals identified are associated with the historical activities that occurred at Site 7, in particular automotive maintenance and fueling. Most site contamination is associated with leaking USTs that served fueling pumps at the automotive service station. TPH components associated with these USTs are being remediated through the Alameda Point TPH program and were not evaluated in the OU-1 Sites 6, 7, 8, and 16 RI Report. The detailed approach and results of the Site 7 risk assessment are presented in Section 5.3 of the OU-1 Sites 6, 7, 8, and 16 RI Report (Tetra Tech 2004).

3.7.1.1 Identification of Chemicals of Potential Concern

Data for soil and groundwater samples were collected within and around the site boundaries for Site 7. The soil data were aggregated in depth intervals of 0 to 2 feet bgs and 0 to 8 feet bgs to evaluate potential exposures associated with site use. At the soil debris area, a depth interval of 0 to 8 feet bgs was used. Although CERCLA chemicals are present in groundwater at Site 7, no

plumes associated with the CERCLA chemicals have been defined; therefore, the site boundaries were used to define the exposure area for groundwater. TPH contamination present in groundwater at Site 7 is being addressed separately under the Alameda Point TPH program.

The BHHRA quantitatively evaluated all detected chemicals identified as COPCs for soil and groundwater. The soil debris area was evaluated separately from the remainder of Site 7. Thus, two sets of COPCs were identified for soil based on the results of investigations conducted within Site 7. For example, lead was identified as a COPC within the debris area soil but not within the nondebris area soil (Tetra Tech 2004). The background comparison was not a consideration in selecting COPCs; therefore, all metals in soil or groundwater were retained as COPCs regardless of their background concentrations. All Site 7 COPCs are presented in the OU-1 Sites 6, 7, 8, and 16 RI Report (Tetra Tech 2004).

3.7.1.2 Exposure Assessment

The anticipated future use of Site 7 is residential; however, the BHHRA also evaluated the commercial/industrial and construction worker scenarios (see Table 3-7). The residential scenario is considered to be the most conservative scenario. The exposure assumptions for each of these scenarios are summarized in Section 2.7.1.2.

3.7.1.3 Soil Risk Characterization

Risk characterization results for Site 7 soil are presented below. The general risk characterization assumptions, description of the risk management range, and cancer risks and noncancer HIs are provided in Section 2.7.1.

Debris Area Soil

For the commercial/industrial and construction worker scenarios, the highest cancer risk from the soil debris area at Site 7 is 1×10^{-5} for the commercial/industrial scenario (see Table 3-8), which is within the risk management range (EPA 1991). The highest noncancer HI is 1 for the construction worker; all HIs for target organs are less than 1. The noncancer HI for the commercial/industrial receptor is 0.4, which is less than 1 (Tetra Tech 2004).

For the residential scenario, the total RME cancer risk (including background) is 1×10^{-4}, which is within the risk management range (EPA 1991). The RME HI for a child is 6. Arsenic contributes most of the cancer risk (9×10^{-5}), while cadmium contributes most of the noncancer risk (4) at Site 7. Both arsenic and cadmium are likely related to site activities. PAH SVOCs were not identified as risk drivers within the debris area at Site 7.

Nondebris Area Soil

For soil, the total RME cancer risk (including background) for the commercial/industrial scenario is 9×10^{-6}, which is within the risk management range (EPA 1991). The RME HI

(including background) for commercial/industrial receptors is 0.04, which is below 1. The RME HI (including background) for construction worker receptors is 0.1 for soil from 0 to 2 feet bgs and is 1 for soil from 0 to 8 feet bgs.

The anticipated reuse for Site 7 is residential. For the residential scenario at Site 7, the total RME cancer risk (including background) for surface soil (0 to 2 feet bgs) is 8×10^{-5}, which is within the risk management range (EPA 1991). The RME HI for a child (including background) is 0.7, which is less than 1. Cancer risk drivers for surface soil using the residential scenario are arsenic and PAHs [B(a)P].

For subsurface soil (0 to 8 feet bgs) at Site 7, the total RME cancer risk (including background) is 2×10^{-4}. The RME HI for a child (including background) is 4. Cancer risk drivers for subsurface soil are arsenic, benzene, ethylbenzene, and PAHs. Noncancer risk is attributed primarily to benzene and xylene (total) through the inhalation of ambient air pathway.

Arsenic is above background concentrations and benzene and xylene are related to TPH at Site 7. Because of the sediments used to construct the base, an ambient concentration of PAHs also exists at Alameda Point. In surface soil, cancer risk from arsenic and PAHs is 6×10^{-5} and 6×10^{-5}, respectively. In subsurface soil, cancer risk from arsenic and PAHs is 3×10^{-5} and 3×10^{-5}, respectively. RME cancer risk from background metals in soil in this portion of Alameda Point is 2×10^{-5}, and the adult and child HIs are less than 1. The incremental cancer risk for surface and subsurface soil is 6×10^{-5} and 2×10^{-4}, respectively.

3.7.1.4 Groundwater Risk Characterization

Groundwater pathways for construction worker receptors were not considered complete at Site 7; therefore, groundwater was not evaluated for this scenario. Groundwater was evaluated for the commercial/industrial and residential scenarios. Only inhalation of vapors from groundwater to indoor air was evaluated for the commercial/industrial scenario. The total RME cancer risk from groundwater to commercial/industrial receptors was 2×10^{-11}, which is below the risk management range (EPA 1991), and the noncancer risk (0.000002) was below 1 (see Table 3-8).

Using the residential scenario at Site 7, the total RME cancer risk (including background) is 2×10^{-3}, which is above the risk management range (EPA 1991). The highest RME HI (for the child resident, including background) is 21, which is above an HI of 1. Cancer and noncancer drivers for groundwater are arsenic, thallium, and PAHs. Risk from arsenic is attributed to background, although concentrations may have been affected by releases of TPH. The HI for a child from thallium (8) is driven by the maximum groundwater concentration of 17.3 µg/L collected in 1995; more recent data indicated thallium concentrations are decreasing to nondetectable levels.

Historically, high concentrations of arsenic in groundwater at Site 7 led to elevated levels of risk. Although the distribution of arsenic concentrations were found to be similar to background, the high variability in concentrations led to the use of the maximum concentration, rather than the 95

percent upper confidence limit, as the EPC for arsenic. Use of the maximum concentration resulted in an elevated estimate of risk, and also resulted in a risk estimate for Site 7 that is an order of magnitude higher than the background risk estimate. The incremental site risk is unexpectedly elevated because of excessive variability in the data used to calculate the EPC for arsenic. Arsenic concentrations in groundwater may have been influenced by the release of TPH at Site 7. Thus, arsenic is considered a COC for Site 7. However, the most recent groundwater monitoring data presented in the OU-1 Sites 6, 7, 8, and 16 RI Report showed that the maximum arsenic concentrations was present in samples collected in the 1990s from wells located near the former gas station where the TPH release occurred and not from a well located in the soil debris area (Tetra Tech 2004). More recent groundwater monitoring data (2003 and 2004) showed that arsenic concentrations in this area have largely decreased to nondetect levels that are similar to the MCL of 10 μg/L (EPA 2002b). Since TPH is being remediated at Site 7 and arsenic concentrations have decreased to nondetect levels, there is no significant risk of exposure to arsenic in groundwater.

3.7.2 Modified Ecological Risk Assessment Approach

Ecological habitat capable of supporting significant wildlife is not present at Site 7; however, exposure pathways for terrestrial receptors were considered potentially complete to provide a conservative estimate of risk (Tetra Tech 2004). Groundwater was not evaluated because the exposure pathways for aquatic receptors were considered incomplete.

Results of the modified ERA indicated potential risk is posed to ecological receptors by aluminum, copper, and lead in soil at Site 7 (Tetra Tech 2004). Ecological receptors evaluated included small mammals, passerines, and raptors. Copper and lead in soil were identified as a potential site risk to small mammals. Aluminum and lead were identified as a potential site risk to raptors. No potential site risks to passerines were identified. Risk from the soil debris area is expected to be low because of the limited area for exposure (less than 1 acre).

3.7.3 Chemicals of Concern for Site 7

Based on the results of the BHHRA, arsenic, cadmium, and lead were identified as COCs in the soil debris area at Site 7 (Tetra Tech 2004). Elevated concentrations of PAHs were detected in soil at Site 7; however, PAHs were not considered to be COCs because the main sources of PAHs are from the Marsh Crust and materials dredged from San Francisco Bay that were used to construct Alameda Point. No COCs were identified in the BHHRA for groundwater at Site 7 (Tetra Tech 2004). Risks from TPH-related compounds in groundwater are being addressed under the Alameda Point TPH program.

The modified ERA did not identify any COCs for ecological receptors (Tetra Tech 2004). The lack of habitat, including nesting and foraging range, makes for minimal likelihood of exposure and hazards to the ecological receptors.

3.8 REMEDIAL ACTION OBJECTIVES FOR SITE 7

This section summarizes the RAOs developed for soil and groundwater at Site 7 based on the identified COCs, potential receptors and exposure pathways, ARARs, and remediation goals.

3.8.1 Site 7 Soil

The OU-1 Sites 6, 7, 8, and 16 RI Report concluded that debris area soil at Site 7 poses a significant risk to human health or to the environment. In addition, the RI Report did not include a sufficient characterization of the soil beneath and adjacent to OWS 459. The planned future use for Site 7 is residential. Therefore, the RAOs listed below were identified for soil at Site 7.

- For debris area soil, prevent exposure of residents (from ingestion and dermal contact) to soil with elevated concentrations of arsenic, cadmium, and lead.
- Prevent the potential risk of exposure (through ingestion or dermal contact) of a future resident to COCs in the soil surrounding OWS 459.

The remediation goals for the debris area soil are as follows:

- 9.1 mg/kg for arsenic based on the Alameda Point background concentration for arsenic
- 37 mg/kg for cadmium based on EPA's 2004 residential PRGs (EPA 2004)
- 230 mg/kg for lead based on DTSC's lead risk computer model LeadSpread 7 (DTSC 2003); a lead concentration of 230 mg/kg in soil equates to the comparison criteria of 10 micrograms per deciliter child blood lead level when EBMUD is the drinking water source

Remediation goals for any COCs that might be identified during analysis of samples collected at OWS 459 will be based on EPA's 2004 residential PRGs (EPA 2004), or background concentrations if higher than residential PRGs. The sampling effort and any subsequent remediation activities at OWS 459 are expected to result in no further corrective action status for the SWMU at Site 7.

3.8.2 Site 7 Groundwater

The OU-1 Sites 6, 7, 8, and 16 RI Report concluded that groundwater at Site 7 does not pose a significant risk to human health or the environment from CERCLA chemicals (Tetra Tech 2004). Risks for residential exposure to groundwater reported in the risk assessment are driven by an abnormally high variability in arsenic concentrations in groundwater samples collected from 1994 to 1998. The high concentrations were attributed to changes in geochemistry caused by the

release of petroleum products from USTs. Data from recent groundwater monitoring indicates arsenic concentrations have decreased to less than 10 µg/L (the MCL for arsenic) (ITSI 2006).

Groundwater samples will be collected beneath and adjacent to OWS 459 and analyzed to verify that groundwater CERCLA contamination is not present. Groundwater contamination associated with the release of petroleum products from USTs at Site 7 is being addressed under the Alameda Point TPH program.

3.9 DESCRIPTION OF REMEDIAL ALTERNATIVES FOR SITE 7 SOIL

Remedial alternatives for soil at Site 7 were developed in accordance with the requirements identified in CERCLA, as amended by Superfund Amendments and Reauthorization Act of 1986, 42 USC § 9601, et seq. and the NCP. Two alternatives were developed for soil, as listed below. These alternatives, including the evaluation of the technologies and screening process that led to the development of these alternatives, were presented in the OU-1 Sites 6, 7, 8, and 16 FS Report (SulTech 2005).

- Remedial Alternative 1 – No Action
- Remedial Alternative 2 – Sampling and Excavation with Off-Site Disposal of Soil

Each of these alternatives is further described below.

3.9.1 Remedial Alternative 1: No Action

Under Alternative 1, no remedial actions would be performed. This alternative provides a baseline for comparing all other alternatives. No cost is associated with this alternative.

3.9.2 Remedial Alternative 2: Sampling and Excavation with Off-Site Disposal of Soil

Alternative 2 will involve collection and analysis of additional soil samples to evaluate the nature and extent of potential soil contamination, followed by excavation and off-site disposal of contaminated soil. The numbers and types of samples to be collected will be determined by the Navy and regulatory agencies during the remedial design. A number of soil samples will be collected above the groundwater table, and at least one groundwater sample will be collected to characterize soil contamination below the groundwater table. This alternative would effectively reduce potential site risks to human health that may result from soil exposures under unrestricted land use. Any groundwater contamination in such a small area that was not identified during the RI or by the Alameda Point TPH program would be associated with soil pore water, which would be removed with the soil. Additional actions necessary to obtain "corrective action complete" status for OWS 459 will be identified and addressed in the remedial design. ICs are not required for Alternative 2 because contaminated soil is removed and the site will be suitable for unrestricted use.

3.10 COMPARATIVE ANALYSIS OF REMEDIAL ALTERNATIVES FOR SITE 7

This section summarizes the comparative analysis that was conducted to evaluate the relative performance of each remedial alternative in relation to the nine criteria outlined in CERCLA § 121 (b), as amended. Table 3-9 summarizes the results of the comparative analysis, and Table 3-10 summarizes the costs for each of the alternatives.

3.10.1 Overall Protection of Human Health and the Environment

Results of the BHHRA indicated that contaminated soil presents unacceptable risks to human health at Site 7 (Tetra Tech 2004). In addition, the extent of contamination, if any, is unknown in soil beneath and adjacent to OWS 459. Alternative 1 (No Action) would not eliminate or reduce risk or define the extent of contamination in soil beneath and adjacent to OWS 459 at Site 7 or in the debris area. Alternative 2 (Sampling and Excavation with Off-Site Disposal of Soil) would reduce risks at Site 7 such that there would be no restrictions on the site use by removing potentially contaminated soil beneath and adjacent to OWS 459 and within the debris areas that does not achieve the RAOs.

3.10.2 Compliance with Applicable or Relevant and Appropriate Requirements

Alternative 1 would not trigger ARARs for Site 7. Alternative 2 will meet ARARs for soil at Site 7 based on the respective reuse scenarios for the alternative.

3.10.3 Long-Term Effectiveness and Permanence

Alternative 2 would result in the highest degree of long-term effectiveness and permanence because potentially contaminated soil would be removed from Site 7 such that there are no restrictions on site use. Alternative 1 would leave contaminated soil at Site 7.

3.10.4 Reduction of Toxicity, Mobility, or Volume

Alternative 1 would not reduce the toxicity, mobility, or volume of potentially contaminated soil through treatment or disposal. Alternative 2 would reduce the mobility of COCs by removing and treating (if appropriate) soil at an off-site facility, thus preventing exposure of COCs to human or ecological receptors.

3.10.5 Short-Term Effectiveness

Alternative 1 would have no short-term effects on the environment. Alternative 2 includes excavation, which has the potential to create negative short-term air and water quality effects; however, such effects would be reduced through use of dust and erosion control methods.

Neither of the alternatives would be expected to pose unacceptable short-term risks to site workers or the community.

3.10.6 Implementability

Both of the alternatives would be readily implementable.

3.10.7 Cost

Alternative 1 is based on an assumption of zero cost. Alternative 2 has an estimated cost of $1.3 million. The cost of each alternative is summarized in Table 3-10.

3.10.8 State Acceptance

The State of California concurs with the Navy's selected remedial alternative (Alternative 2).

3.10.9 Community Acceptance

The OU-1 Sites 6, 7, 8, and 16 Proposed Plan was presented to the community and discussed during a public meeting held on May 16, 2006 (Navy 2006). Attachment C, the Responsiveness Summary, of this ROD addresses the public's comments and concerns about the selected remedial alternative for soil at Site 7.

3.10.10 Conclusion

Alternative 2, Sampling and Excavation with Off-Site Disposal of Soil, was selected as the preferred remedial alternative for Site 7 soil based on the following:

- Protects human health and the environment and fully complies with ARARs
- Provides excellent long-term protection by significantly removing COCs and their associated risk at a reasonable cost within a reasonable time frame
- Prevents further migration of chemicals

3.11 PRINCIPAL THREAT WASTE

Principal threat wastes are source materials considered to be highly toxic, highly mobile, or those that would present a significant risk to human health or the environment should exposure occur. No soils at Site 7 were identified as being a principal threat waste. Petroleum-contaminated groundwater at Site 7 is being addressed under the Alameda Point TPH program, thus it is not considered a principal threat waste under CERCLA.

3.12 SELECTED REMEDY FOR SITE 7

Based on the results of the RI Report (Tetra Tech 2004), FS Report (SulTech 2005), and documents provided in the administrative record for Site 7 (see Attachment A), as well as an evaluation of all comments on the OU-1 Sites 6, 7, 8, and 16 Proposed Plan (SulTech 2006) submitted by interested parties during the public comment period, the Navy has selected Alternative 2 as the remedy for soil and no action for groundwater. The selected remedies will achieve remedial objectives that would allow residential land use at Site 7.

Alternative 2 includes the following components:

- Sampling
- Excavation and disposal of soil at an off-site facility (if chemicals are present in soil at concentrations exceeding remediation goals)

The Navy has determined that groundwater at Site 7 does not pose an unacceptable risk to human health or the environment from CERCLA chemicals. Accordingly, no CERCLA remedial action is appropriate for Site 7 groundwater; the Navy's selection of no action for groundwater reflects the determination that site-specific CERCLA releases do not represent a threat to human health or to the environment. Groundwater contamination associated with the release of petroleum products from USTs at Site 7 is being addressed under the Alameda Point TPH program.

The following subsections discuss the rationale for selecting the remedy, describe the remedy, its estimated costs, and expected outcomes.

3.12.1 Summary of the Rationale for the Selected Remedy

The Navy has determined that soil and groundwater sampling is required beneath and adjacent to OWS 459 and within the debris area at Site 7 to identify and address any potential risk to human health based on exposures through ingestion or dermal contact of a resident to COCs in the soil. The Navy has selected an alternative that provides for unrestricted site use. Alternative 2 is the selected alternative for soil at Site 7 because it provides long-term protection by significantly removing COCs and their associated risk. Alternative 2 also protects human health and the environment and fully complies with ARARs. There are no CERCLA contaminants requiring a site use restriction at Site 7. However, the portion of Site 7 encompassed by CAA 7 may have site use restrictions depending on the outcome of TPH remediation at CAA 7.

3.12.2 Description of the Selected Soil Remedy

Each of the components (sampling, excavation, and off-site disposal of soil) of Alternative 2 are described below.

3.12.2.1 *Sampling*

Alternative 2 involves collection of soil and groundwater samples to delineate the nature and extent of soil contamination beneath and adjacent to OWS 459 and within the debris area at Site 7. The soil and groundwater samples will be collected from locations and depths to be determined during the remedial design.

3.12.2.2 *Excavation*

Soil within the Site 7 debris area containing arsenic at concentrations above the Alameda Point background concentration, cadmium at concentrations above the EPA 2004 residential PRG, and lead at concentrations above 230 mg/kg will be excavated as part of the remedy for Site 7. In addition, excavation would also be performed to remove potentially contaminated soil beneath and adjacent to OWS 459 that pose unacceptable risk. The excavation would be accomplished with conventional heavy construction equipment, including backhoes, cranes, bulldozers, loaders, scrapers, and haulers. The estimated volume of soil to be removed is approximately 1,800 cubic yards. This volume may change if the excavation boundaries are revised based on results of additional sampling in this area or contamination is encountered during field activities.

3.12.2.3 *Off-Site Disposal of Soil*

Disposal refers to the impoundment of excavated materials at a facility that is approved to accept them. Soils classified as hazardous waste under state and federal laws would be transported to an appropriate facility for treatment, if necessary, and disposal. Soils classified as nonhazardous would be transported to an appropriate facility for disposal.

3.12.3 Estimated Costs of the Selected Soil Remedy

Alternative 2 is estimated to cost $1,300,000. This estimate is based on the best available information regarding the anticipated scope of the remedy, includes capital and operation and maintenance costs, and is based on present costs. Table 3-11 summarizes the estimated costs for Alternative 2. This cost is an order-of-magnitude engineering cost estimate that is expected to be within +50 to -30 percent of the actual project cost for remedial design and remedial action phase of site cleanup. A detailed cost estimate is presented in the OU-1 Sites 6, 7, 8, and 16 FS Report (SulTech 2005). Costs may change as a result of new information and data collected during implementation of the selected remedy. Significant changes may be documented in a memorandum to the administrative record, explanation of significant differences, or as an amendment to this ROD (EPA 1999c).

3.12.4 Expected Outcomes of the Selected Soil Remedy

The selected remedy for Site 7 soil includes characterization of soil beneath and adjacent to OWS 459 and in the debris area. The Site 7 SWMUs are discussed in Section 3.2.2.2 and summarized in Table 3-3. The expected outcome for OWS 459 is to prevent the potential risk of

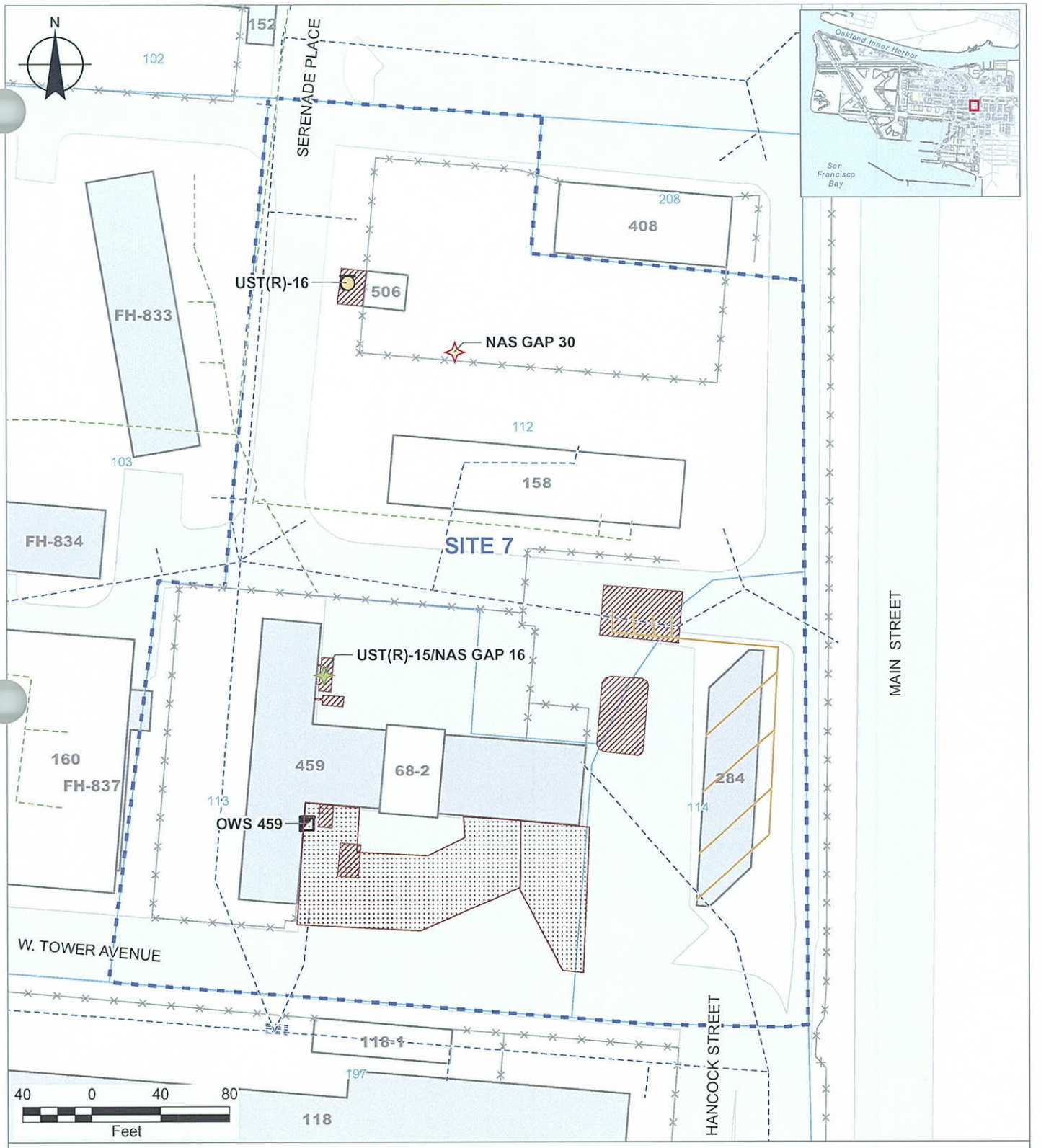
exposure to unacceptable levels of COCs in the surrounding soil. The expected outcome for the debris area is to prevent exposure of residents to soil with elevated concentrations of arsenic, cadmium, and lead.

The remedy selected for both areas of Site 7 involves three separate components: (1) soil and groundwater sampling, (2) excavation, and (3) off-site disposal of soil. Figures 3-3 and 3-4 illustrate the decision logic for implementing the selected remedy at OWS 459 and debris area, respectively.

The performance objective of the soil sampling is to delineate the nature and extent of soil contamination beneath and adjacent to OWS 459 and in the debris area. The objective of the excavation at OWS 459 is to remove contaminated soil that contains COCs that pose unacceptable risk. The objective of the excavation at the debris area is to remove soil that contains arsenic, cadmium, and lead at concentrations above soil remediation goals of 9.1, 37, and 230 mg/kg, respectively. The objective of off-site disposal is to place contaminated soil in an appropriate facility for treatment, if necessary, and disposal.

Following implementation of the remedy, the Navy in collaboration with the regulatory agencies will determine if the performance objectives (including the RAOs) have been achieved.

FIGURES



NAS Generator Accumulation Point (GAP)
Oil Water Separator (OWS)
Underground Storage Tank
CERCLA Site 7 Boundary
Environmental Baseline Survey Parcel
Proposed Excavation
Previous Excavation
Fence
Fuel Pipeline
Sanitary Sewer
Storm Drain Pipeline
Building
Former Building
Paved Road

Note:
CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act

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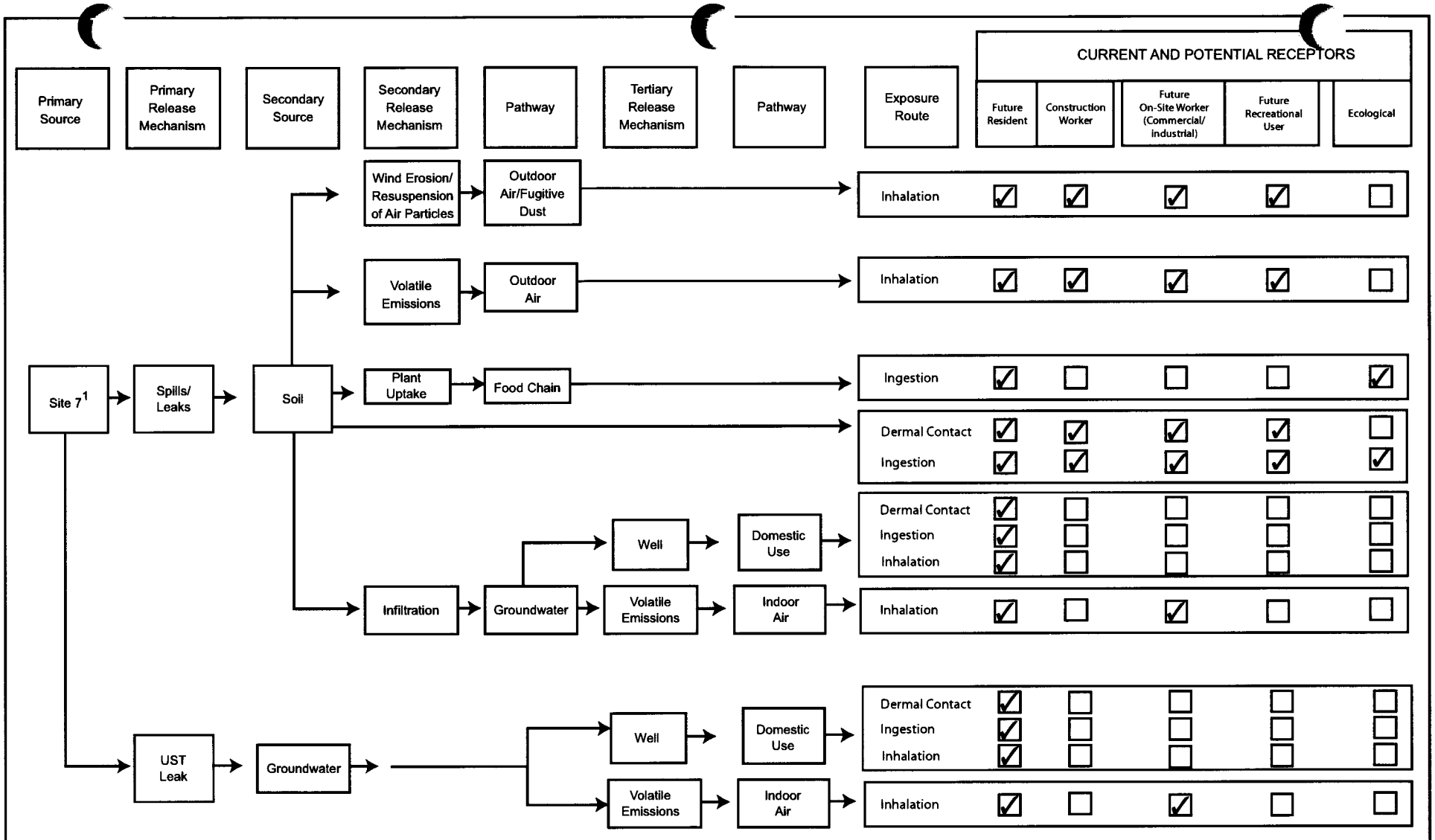
Alameda Point, Alameda, CA
U.S. Department of the Navy, BRAC PMO West, San Diego CA

FIGURE 3-1

SITE 7 FEATURES MAP

Record of Decision for Operable Unit 1
Sites 6, 7, 8, and 16

2006/06/05 V:\Projects\B142\ROD\Figure 3-1.mxd SULLIVAN SD D. Wise



[1] Former USTs 459-1 through 459-6, UST(R)/NAS GAP 16, Building 459, Former Building 68-3

☑ Potentially complete pathway, exposure quantified

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FIGURE 3-2

SITE 7
CONCEPTUAL SITE MODEL

Record of Decision for Operable Unit 1
Sites 6, 7, 8, and 16

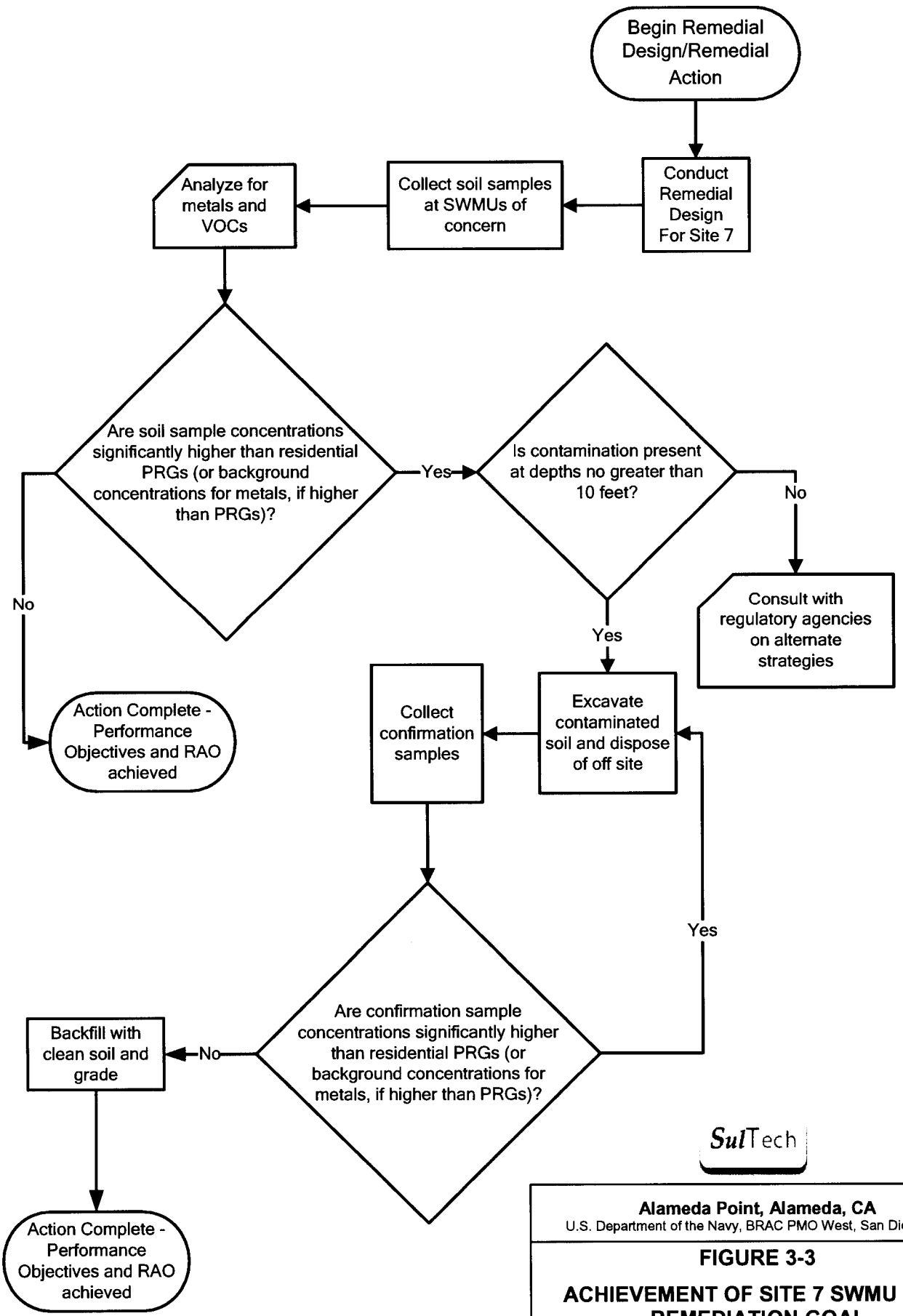

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FIGURE 3-3

ACHIEVEMENT OF SITE 7 SWMU SOIL REMEDIATION GOAL

Record of Decision for Operable Unit 1
Sites 6, 7, 8, and 16

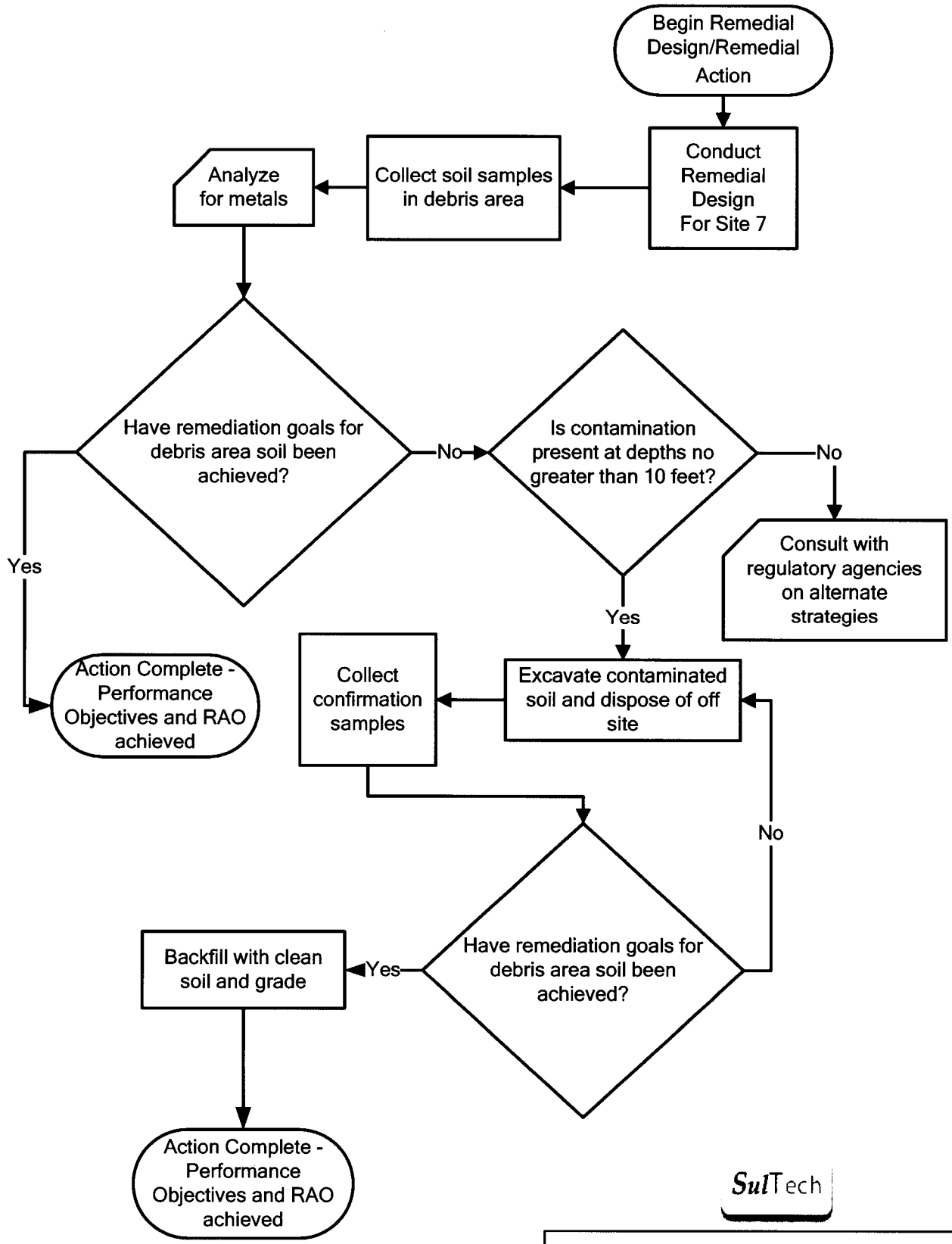

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FIGURE 3-4

ACHIEVEMENT OF THE SITE 7 SOIL DEBRIS AREA REMEDIATION GOALS

Record of Decision for Operable Unit 1
Sites 6, 7, 8, and 16

TABLES

TABLE 3-1: SUMMARY OF CERCLA INVESTIGATION ACTIVITIES AT SITE 7
Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Date	Investigation/Activity	Objective	Summary of Findings
1991	IR Program Phases 2B and 3 Investigation	Collect soil and groundwater samples for analysis to determine whether chemicals are present in soil and groundwater at Site 7.	Metals, VOCs, pesticides, PCBs, and TPH were detected in soil samples. Metals, SVOCs, and TPH were detected in groundwater. No pesticides or PCBs were detected in groundwater at Site 7.
1994	Follow-On Investigation to IR Program Phases 2B and 3 Investigation	Provide additional lithologic, chemical, and hydrogeologic information to assess the nature and extent of soil and groundwater contamination to help prepare an RI and FS for Site 7.	No pesticides and PCBs were detected in soil samples at Site 7. TPH was detected in soil samples. Solvent-related VOCs, petroleum-hydrocarbon-related VOCs, SVOCs, and TPH were detected in groundwater.
1996 to 1997	Storm Sewer Removal Action	Assess elevated concentrations of inorganic and organic chemicals in sediments and debris located within the storm sewer system.	Most of the storm sewer lines at Site 7 were cleaned and were sediment free, with only small quantities of residual sediment remaining in some lines and larger amounts of cemented deposits in others.
1998	Follow-On Investigation	Obtain analytical data to characterize the distribution and concentration of chemicals in groundwater.	Metals, VOCs, and TPH were detected in water samples collected at Site 7.
2001	Supplemental RI Data Gaps Sampling	Delineate dioxins and furans in soil to determine whether removal actions are necessary.	Dioxins and furans were detected in soil. Dioxins and furans potentially originated from the incinerator located at former Building 68. This study was inconclusive in delineating the extent of dioxins and furans in soil.
2002	TPH and Lead-Contaminated Soil Removal Action	Remove the debris layer by excavating two small areas of surface soil.	Excavation activities were halted so that additional evaluation of the nature and extent of the debris layer could be performed.
2002 to Present	Basewide Groundwater Monitoring	Monitor the status of contaminant plumes in groundwater, determine the potential for natural degradation, and determine the direction and gradients of groundwater.	Arsenic was detected at concentrations above the maximum contaminant level in one sample from 2005. Some VOCs and TPH were detected in groundwater samples.
2003	Basewide PAH Investigation	Collect sufficient PAH data to calculate exposure point concentrations for risk assessments at CERCLA sites.	PAHs [expressed as a B(a)P-equivalent] were detected in all 130 soil samples collected for analysis. Only 21 of those detections exceeded the human health screening criterion of 0.62 mg/kg.

TABLE 3-1: SUMMARY OF CERCLA INVESTIGATION ACTIVITIES AT SITE 7 (CONTINUED)
Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Date	Investigation/Activity	Objective	Summary of Findings
2003	Supplemental Investigation	Determine the nature and extent of the debris area in the parking area south of Building 59.	Metals, PCBs, and dioxins were detected in soil. Only a few metals exceeded the 2002 residential PRG. Pesticides were nondetected in soil.

Notes:

B(a)P	Benzo(a)pyrene
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
FS	Feasibility study
IR	Installation Restoration
mg/kg	Milligram per kilogram
PAH	Polycyclic aromatic hydrocarbon
PCB	Polychlorinated biphenyl
PRG	Preliminary remediation goal
RI	Remedial investigation
SVOC	Semivolatile organic compound
TPH	Total petroleum hydrocarbons
VOC	Volatile organic compound

TABLE 3-2: SUMMARY OF RCRA INVESTIGATION ACTIVITIES AT SITE 7
Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Date	Investigation/ Activity	Objective	Summary of Findings
1992	RCRA Facility Assessment	Identify SWMUs and AOCs, collect preliminary information on all actual or potential contaminant releases from these SWMUs and AOCs, and to evaluate the need and scope of a RCRA facility investigation.	Four SWMUs (NAS GAP 30, OWS 459, UST(R)-15/NAS GAP 16 and UST(R)-16) were identified within Site 7.
2005	SWMU Evaluation	Identify the need for further actions at SWMUs, and identify SWMUs that should be managed under the Navy's CERCLA or Alameda Point TPH programs.	Based on evaluations conducted by the Navy using requirements stipulated in the final hazardous waste facility permit for Alameda Point, the Navy recommended no further corrective action for NAS GAP 30 and OWS 459 (SulTech 2004). During the June 19, 2006, site walk, DTSC concurred with the no further corrective action recommendation for NAS GAP 30 and UST(R)-16. UST(R)-15/NAS GAP 16 has been deferred to the Alameda Point TPH program. The selected soil remedy within this ROD is intended to address the additional actions necessary to obtain "corrective action complete" status for OWS 459 at Site 7.

Notes:

AOC Area of concern
CERCLA Comprehensive Environmental Response, Compensation, and Liability Act
DTSC Department of Toxic Substances Control
GAP Generator accumulation point
OWS Oil-water separator
NAS Naval Air Station
RCRA Resource Conservation and Recovery Act
ROD Record of decision
SWMU Solid waste management unit
TPH Total petroleum hydrocarbons
UST Underground storage tank

Source:

SulTech. 2004. "Draft Appendix I Solid Waste Management Unit Evaluation Report for Operable Unit 1 (Sites 6, 7, 8, and 16), Hazardous Waste Permit EPA ID Number CA 2170023236, Naval Air Station Alameda, Alameda Point, Alameda, California." September 30.

TABLE 3-3: SUMMARY OF NAVY AND DTSC DETERMINATIONS FOR SWMUS LOCATED WITHIN SITE 7

Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

SWMU Identification	Navy Determination (SulTech 2004)	DTSC Determination: Based on DTSC Letter Dated December 29, 2005 (DTSC 2005b)	DTSC Determination: June 19, 2006 Site Walk Determination	Final Determination in the ROD
NAS GAP 30	No Further Corrective Action	Further Corrective Action	No Further Corrective Action	No RCRA corrective action
OWS 459	No Further Corrective Action	Further Corrective Action		The selected soil remedy within this ROD is intended to address the additional actions necessary to fulfill CERCLA requirements and obtain "corrective action complete" status for this SWMU.
UST(R)-15/ NAS GAP 16	Further Corrective Action	Further Corrective Action		Deferred to the Alameda Point TPH program. No action under CERCLA.
UST(R)-16	Closed by the Water Board	Pertinent closure data requested or further characterization	No Further Corrective Action	Deferred to the Alameda Point TPH program. No action under CERCLA.

Notes

CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DTSC	Department of Toxic Substances Control
GAP	Generator accumulation point
NAS	Naval Air Station
OWS	Oil-water separator
RCRA	Resource Conservation and Recovery Act
ROD	Record of decision
SWMU	Solid waste management unit
TPH	Total petroleum hydrocarbons
UST	Underground storage tank
Water Board	San Francisco Bay Regional Water Quality Control Board

Sources:

DTSC. 2005b. Letter providing comments on OU-1 Proposed Plan dated December 29, 2005. From DTSC. To Thomas Macchiarella BRAC Environmental Coordinator, BRAC Program Management Office West. December 29.

SulTech. 2004. "Draft Appendix I Solid Waste Management Unit Evaluation Report for Operable Unit 1 (Sites 6, 7, 8, and 16), Hazardous Waste Permit EPA ID Number CA 2170023236, Naval Air Station Alameda, Alameda Point, Alameda, California." September 30.

TABLE 3-4: SUMMARY OF EBS AND TPH INVESTIGATION ACTIVITIES AT SITE 7
Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Date	Investigation/Activity	Objective	Summary of Findings
1994 to 1998	EBS Phase 2A	Soil samples investigation.	Metals, TPH as motor oil, and low concentrations of VOCs and SVOCs were detected at Site 7. Oil, grease, pesticides, and SVOC compounds were detected in both sewer line samples.
	EBS Phase 2B	Recommended because of the detection of TPH as motor oil compounds in surface and subsurface in soil samples.	TPH was detected in surface and subsurface soil samples. Lead and VOCs were detected in soil samples.
	EBS Phase 2C	Recommended because of the detection of VOCs in groundwater and SVOCs in sediment samples during Phase 2B.	Metals, VOCs, and TPH were detected in groundwater samples collected at Site 7. As a result, a remedial investigation was recommended under CERCLA to define the nature and extent of soil and groundwater contamination.
2001	Storm Water Corridor Study	Collect samples at one location adjacent to storm sewer lines.	Low concentration of metals (only one metal was detected above the PRGs), VOCs, SVOCs, and TPH were detected in samples from the sewer lines.
1995 to 1998	UST Removals	Remove USTs at Site 7 responsible of contamination in soil and groundwater.	UST 506-1(soil contamination and associated piping), USTs 459-1 through 459-4, USTs 459-5 and 459-6), USTs 459-7 and 459-8 (soil and groundwater contamination) were removed from Site 7. UST 506-1 was closed with no further corrective action recommended.
1998 and 2000	Free-Phase Floating Product Investigations	Evaluate whether free-phase floating product is present beneath former USTs at Site 7.	Neither the wells nor the storm drain catch basin were found to contain free product.
2001	Corrective Action Investigation	Determine the presence of MTBE in groundwater.	MTBE was detected in groundwater at Site 7. As a result, an extraction system was designed to remediate the TPH plume for TPH free product and MTBE.
2002	TPH- and Lead-Contaminated Soil Removal Action	Remove the blue, crystalline, metal debris layer identified at Site 7.	Excavation activities were halted so additional evaluation of the nature and extent of the debris layer could be performed.
2002 to 2003	Petroleum-Contaminated Groundwater Removal Action	Remove TPH in the subsurface at Site 7.	Total TPH and free product were detected in groundwater samples.

TABLE 3-4: SUMMARY OF EBS AND TPH INVESTIGATION ACTIVITIES AT SITE 7 (CONTINUED)
Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Notes:

CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
EBS	Environmental baseline survey
MTBE	Methyl tertiary butyl ether
PRG	Preliminary remediation goal
SVOC	Semivolatile organic compound
TPH	Total petroleum hydrocarbons
UST	Underground storage tank
VOC	Volatile organic compound

TABLE 3-5: CHEMICALS REPORTED IN SOIL FOR SITE 7
Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Analyte[a,b]	Frequency of Detection (%)	Range of Detected Concentrations	Units	Residential PRG	Units	Above Background[c]
Debris Area Soil						
Antimony[d]	32	2.6 to 163	mg/kg	31	mg/kg	--[e]
Arsenic	98	1.1 to 112	mg/kg	0.39	mg/kg	--[e]
Barium[d]	100	25 to 8,460	mg/kg	5,400	mg/kg	--[e]
Cadmium	52	0.17 to 125	mg/kg	37	mg/kg	--[e]
Chromium[d]	100	13.8 to 1,000	mg/kg	210	mg/kg	--[e]
Copper[d]	100	2.9 to 4,130	mg/kg	3,100	mg/kg	--[e]
Iron[d]	100	7,210 to 119,000	mg/kg	23,000	mg/kg	--[e]
Lead	91	3.7 to 6,760	mg/kg	150[f]	mg/kg	--[e]
Manganese[d]	100	70.6 to 48,400	mg/kg	1,800	mg/kg	--[e]
Benzo(a)anthracene[d]	33	8,000 to 8,000	µg/kg	620	µg/kg	--
Benzo(a)pyrene[d]	33	22,000 to 22,000	µg/kg	62	µg/kg	--
Benzo(b)fluoranthene[d]	33	11,000 to 11,000	µg/kg	620	µg/kg	--
Benzo(k)fluoranthene[d]	33	9,400 to 9,400	µg/kg	380[f]	µg/kg	--
Chrysene[d]	67	260 to 3,900	µg/kg	3,800[f]	µg/kg	--
Indeno(1,2,3-cd)pyrene[d]	33	8,100 to 8,100	µg/kg	620	µg/kg	--
Non Debris Area Soil[g]						
Antimony[d]	39	0.41 to 44.5	mg/kg	31	mg/kg	No
Arsenic[d]	95	1.4 to 47.9	mg/kg	0.39	mg/kg	Yes
Cadmium[d]	33	0.08 to 56.6	mg/kg	37	mg/kg	No
Iron[d]	100	7,720 to 49,300	mg/kg	23,000	mg/kg	Yes
Lead[d]	96	2.4 to 101	mg/kg	150[f]	mg/kg	Yes
Benzo(a)anthracene[d]	91	0.2 to 4,500	µg/kg	620	µg/kg	--

TABLE 3-5: CHEMICALS REPORTED IN SOIL FOR SITE 7 (CONTINUED)
Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Analyte[a,b]	Frequency of Detection (%)	Range of Detected Concentrations	Units	Residential PRG	Units	Above Background[c]
Non Debris Area Soil[g] (Continued)						
Benzo(a)pyrene[d]	82	0.3 to 8,100	µg/kg	62	µg/kg	--
Benzo(b)fluoranthene[d]	79	0.4 to 5,100	µg/kg	620	µg/kg	--
Benzo(k)fluoranthene[d]	84	0.2 to 3,900	µg/kg	380[f]	µg/kg	--
Chrysene[d]	88	0.3 to 5,200	µg/kg	3,800[f]	µg/kg	--
Dibenzo(a,h)anthracene[d]	66	0.2 to 490	µg/kg	62	µg/kg	--
Indeno(1,2,3-cd)pyrene[d]	82	0.4 to 7,100	µg/kg	620	µg/kg	--
Benzene[d]	14	3 to 250,000	µg/kg	600	µg/kg	--
Ethylbenzene[d]	19	6 to 420,000	µg/kg	8,900	µg/kg	--
Toluene[d]	17	31 to 1,300,000	µg/kg	520,000	µg/kg	--
Xylene (total)[d]	24	6 to 2,900,000	µg/kg	270,000	µg/kg	--

Notes:

a Only chemicals where detected concentrations exceeded MCLs and the 2002 Tap Water PRGs (EPA 2002a) are included on this table.
b This table includes results from all investigations listed in Section 3.2.2 except for TPH investigations.
c Yes indicates site concentrations exceeded background concentrations for Alameda Point. This comparison was made for inorganic chemicals only, primarily metals.
d This chemical was not identified as a chemical of concern.
e A background comparison to residential PRGs was not performed for these analytes since a removal action is planned for the soil debris area (Tetra Tech 2004).
f CAL-Modified PRG.
g PAH data provided in this section of the table are from the basewide PAH Investigation only.

-- Not applicable
µg/kg Microgram per kilogram
mg/kg Milligram per kilogram
PRG Preliminary remediation goal, U.S. Environmental Protection Agency, Region IX or CAL-Modified

TABLE 3-6: CHEMICALS REPORTED IN GROUNDWATER FOR SITE 7

Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Analyte[a]	Frequency of Detection (%)	Range of Detected Concentrations (µg/L)	Tap Water PRG (µg/L)	MCL (µg/L)	Above Background[b]
Antimony[c]	21	0.089 to 35	15	6	Yes
Arsenic[c]	59	1.9 to 398	0.045	10	No
Cadmium[c]	36	0.1 to 9.5	18	5.0	Yes
Iron[c]	97	26.1 to 42,000	11,000	--	Yes
Manganese[c]	99	51 to 13,700	880	--	Yes
Thallium[c]	7	0.27 to 19.6	2.4	2.0	Yes
Benzene[c]	27	0.2 to 3,700	0.3	1	--
Chloroform[c]	3	0.7 to 2	0.5[d]	80	--
Ethylbenzene[c]	22	0.4 to 2,100	3	300	--
Methyl-tertiary-butyl ether[c]	37	0.9 to 31	6[d]	13	--
Toluene[c]	20	0.1 to 8,800	720	150	--
Trichloroethene[c]	1	2 to 2	0.03	5	--
Xylene (total)[c]	34	0.4 to 16,000	210	1,800	--
1,1-dichloroethane[c]	4	0.1 to 2	2[d]	5	--
2,4-dimethylphenol[c]	14	0.7 to 850	730	--	--
4-methylphenol[c]	12	0.5 to 390	180	--	--
Bis(2-ethylhexyl)phthalate[c]	2	460 to 460	5	--	--
Carbazole[c]	2	34 to 34	3	--	--
Pentachlorophenol[c]	4	0.9 to 1	0.6	1	--
Benzo(a)anthracene[c]	4	0.6 to 1	0.09	0.1	--
Benzo(a)pyrene[c]	11	0.6 to 1	0.009	0.2	--
Benzo(b)flouranthene[c]	11	0.6 to 2	0.09	--	--
Benzo(k)flouranthene[c]	2	0.5 to 0.5	0.06[d]	--	--
Chrysene[c]	5	0.9 to 2	0.6[d]	--	--
Dibenzo(a,h)anthracene[c]	2	0.5 to 0.5	0.009	--	--
Indeno(1,2,3-CD)pyrene[c]	5	0.5 to 1	0.09	--	--
Naphthalene[c]	31	0.5 to 620	6	--	--

Notes:

a Only chemicals where detected concentrations exceeded the MCLs or the 2002 Tap Water PRGs (EPA 2002a) are included on this table.

b Yes indicates site concentrations exceeded background concentrations for Alameda Point. This comparison was made for inorganic chemicals only, primarily metals.

c This chemical was not identified as a chemical of concern.

d CAL-Modified PRG.

-- Not applicable

µg/L Microgram per liter

MCL Maximum contaminant level

PRG Preliminary remediation goal, U.S. Environmental Protection Agency, Region IX or CAL-Modified

TABLE 3-7: EXPOSURE SCENARIOS FOR THE BHHRA

Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Site	Exposure Scenarios for Site 7			Proposed Future Land Use
	Residential	Commercial/ Industrial	Construction	
7	X	X	X	Residential

Note:

BHHRA Baseline human health risk assessment

TABLE 3-8: SUMMARY OF SITE 7 BHHRA RESULTS FOR DEBRIS AREA SOIL, NONDEBRIS AREA SOIL, AND GROUNDWATER

Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Exposure Scenarios	Media	Cancer Risk[a]	Noncancer Hazard Index[a]
Debris Area Soil			
Residential	Subsurface Soil	1×10^{-4}	6
Commercial/Industrial	Subsurface Soil	1×10^{-5}	0.4
Construction Worker	Subsurface Soil	1×10^{-6}	1
Nondebris Area Soil			
Residential	Subsurface Soil	2×10^{-4}	4
Commercial/Industrial	Subsurface Soil	9×10^{-6}	0.04
Construction Worker	Subsurface Soil	3×10^{-6}	1
Groundwater[b]			
Residential[c]	Groundwater	2×10^{-3}	21
Commercial/Industrial	Groundwater	2×10^{-11}	<1

Notes: The risks in this table are rounded; therefore, they may appear to be higher or lower than the risk numbers presented in the text of this Record of Decision.

The soil risk is the higher of the surface soil or subsurface soil pathways.

BHHRA Baseline human health risk assessment

a Based on toxicity values derived from the Integrated Risk Information System (U.S. Environmental Protection Agency 2003). Presented risk values show total risk and include risk contributed by background.

b Risks presented for groundwater are only for Comprehensive Environmental Response, Compensation, and Liability Act contaminants and do not include risks from petroleum contamination. Groundwater contamination associated with the release of petroleum products from underground storage tanks at Site 7 is being addressed under the Navy's Total Petroleum Hydrocarbons program.

c Risks for residential exposure to groundwater reported in the risk assessment are driven by an abnormally high variability in arsenic concentrations in groundwater samples collected from 1994 to 1998. The high concentrations were attributed to changes in geochemistry caused by the release of petroleum products from underground storage tanks. Data from recent (2002 to 2006) groundwater monitoring samples show that in wells that previously exhibited arsenic concentrations of 100 to 398 micrograms per liter, concentrations have decreased to less than 10 micrograms per liter (the maximum contaminant level for arsenic).

TABLE 3-9: COMPARATIVE ANALYSIS OF SITE 7 REMEDIAL ALTERNATIVES BY BALANCING CRITERIA
Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Alternative	Long-Term Effectiveness and Permanence	Reduction in Toxicity, Mobility, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost[a]
—	Parameters considered include: • Expected long-term reduction in risk posed by Site 7 • Level of effort needed to maintain the remedy and monitor the area for changes in site conditions • Compatibility of the remedy with planned future use of Site 7 • Adequacy and reliability, including reliance on land disposal, potential need to replace, and risks posed should components need replacement	Parameters considered include: • Treatment processes used • Amount of hazardous materials destroyed, recycled, or treated • Degree of expected reduction in toxicity, mobility, or volume and the inherent hazard posed by principal threats at Site 7 • Degree to which the benefits of the remedial alternative are irreversible • Types, quantities, persistence, toxicity, and propensity to bioaccumulate treatment residuals that remain following treatment	Parameters considered include: • Protection of the community during the remedial alternative • Protection of workers during the remedial alternative • Environmental effects during remediation • Time required to achieve protection	Parameters considered include: • Technical and administrative feasibility • Availability of required resources	Parameters considered include: • Capital costs • Operation and maintenance costs • Long-term monitoring costs • IC costs for developing and maintaining the ICs • Net present value
SOIL Alternative 1 – No Action	None Not effective and permanent because it would not address potential risks	None Would not reduce toxicity, mobility, or volume of contamination through treatment	None No short-term effectiveness because no remedial action would be proposed	None No remedial action would be implemented	0
Alternative 2 –Sampling and Excavation with Off-Site Disposal of Soil	High Has the highest degree of long-term effectiveness because potentially contaminated soil would be removed from Site 7 so there are no restrictions on site use	None Would not reduce toxicity, mobility, or volume of contamination through treatment	Low Excavation has the potential to create negative short-term air and possibly water quality effects; however, such effects would be reduced by engineering controls, as appropriate	High Readily implementable	$1,300,000

Note:
a Based on net present value

TABLE 3-10: COST COMPARISON OF SITE 7 REMEDIAL ALTERNATIVES

Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Remedial Alternatives	Estimated Cost[a]
SOIL	
Alternative 1 – No Action	0
Alternative 2 –Sampling and Excavation with Off-Site Disposal of Soil	$1,300,000

Note:

a Based on net present value

TABLE 3-11: COST ESTIMATE SUMMARY FOR SITE 7 SOIL ALTERNATIVE 2
Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Cost Category	Capital Cost	Operation and Maintenance Cost
Fencing	5,000	
One-Time Sampling	28,000	
Excavation	169,000	
X-Ray Fluorescence for Quantification of Contamination	32,000	
Decontamination	71,000	
Transportation and Disposal of Debris Off Site	525,000	
Remedial Action Report	48,000	
Professional Labor	131,000	
Subtotal	**878,000**	**0**
Contingency	220,000	0
Total Alternative 2 Costs	**$1,300,000**	

4.0 SITE 8

This section provides the site name, location, and brief description of Site 8; the site history and investigation activities; community participation; scope and role of OU and response actions; site characteristics; current and potential future site and resource uses; summary of site risks; RAOs; a description of the remedial alternatives; a comparative analysis of the remedial alternatives; the principal threat waste; and the selected remedy at Site 8.

4.1 SITE NAME, LOCATION, AND DESCRIPTION

Site 8, known as Building 114, is about 4.3 acres and was formerly a pesticide storage area. Site 8 is located in the central portion of Alameda Point. Approximately 80 percent of Site 8 consists of asphalt, concrete, buildings, roads, and parking lots (see Figure 4-1). Site 8 is located on the east side of Saratoga Avenue, between West Midway Avenue and West Ranger Avenue.

Site 8 contains the following SWMUs: NAS GAP 03, OWS 114, and WD 114. NAS GAP 03 was an approximately 30- by 20-foot room located in Building 114, and was used to store hazardous wastes. Additionally, Site 8 contains Building 191, Building 391, storm sewer lines, open space, and subsurface sewage pumping station 10 (also known as Building 469). Building 191 was used as a storage building for the Public Works Department, and Building 391 was used to store paints, degreasers, petroleum products, and hazardous waste. Pesticides, herbicides and other chemical were reportedly stored at Site 8.

Other physical features present at Site 8 include storm sewer lines, subsurface sewage pumping station 10, and open space. Eighty percent of the open space is paved and was used for vehicle parking and the unpaved areas are covered with grass.

4.2 SITE HISTORY AND INVESTIGATION ACTIVITIES

This section summarizes the history and investigations at Site 8. Section 2.2 provides a general description of the history of Alameda Point and the investigation activities at OU-1 Sites 6, 7, 8, and 16.

4.2.1 Site History

Site 8, known as the pesticide storage area, contains several features where the Navy conducted activities that may have contributed to soil and groundwater contamination at this site (see Figure 4-1). These site features include Building 114, NAS GAP 03, WD 114, OWS 114, and Building 391. Site 8 is also identified as a corrective action area (CAA 8) because of its close proximity to a fuel line located outside the boundary of the site. No USTs or ASTs were associated with Site 8 activities. The history and activities conducted at each of these site features are discussed below.

Building 114 was constructed in 1944 and covers approximately 77,000 square feet of Site 8, is constructed of wood with concrete floors, and is U-shaped with an interior paved courtyard (see Figure 4-1). Building 114 was operated by the Public Works Department where it was the center for weed and pest control until 1997. Building 114 also was used as a maintenance and storage shop for the Public Works Department, an office equipment area, an appliance repair shop and an administrative office (PRC and JMM 1992). Storage and maintenance activities associated with Building 114 included the presence of pesticides (such as chlordane, lindane, dichlorodiphenyltrichloroethane, malathion, and diazinon), herbicides (such as Telvar, Chlorvar, 2,4-D, Roundup, Princep, and Krovar I), paints, adhesives, fuels, oils, solvents, and cleaners (IT Corp. 2001a). No documented incidents, such as fires, mishaps, or flooding have occurred within Building 114 (IT Corp. 2001a).

The small chemical storage room, NAS GAP 03, is approximately 30 feet by 20 feet with a cement floor and one entrance from the interior courtyard (see Figure 4-1). Chemicals and materials of concern stored in this room included paints, solvents, acids, fluorescent light bulbs and ballasts, Freon, petroleum products, and batteries (IT Corp. 2001a). According to the RFA, NAS GAP 03 exhibited a low potential for releases into the soil, groundwater, and surface water because this SWMU was indoors on a concrete floor (DTSC 1992).

WD 114 and OWS 114 are located on the eastern side of Building 114 inside the paved interior courtyard (see Figure 4-1). Equipment steam cleaning, paint stripping, and paint spray booth activities conducted within WD 114 generated approximately 250 gallons of wastewater per day, which was discharged directly to the storm drains (IT Corp. 2001a). OWS 114 was intended to separate the sludge and floating scum from the wastewater stream; however, this system is known to have operated inadequately (PRC and JMM 1992). Several stained areas, which appeared to be petroleum products, were observed on the asphalt during the Phase 1 EBS site inspection (IT Corp. 2001a).

Pesticides were stored in a shed located on the eastern side of Building 114, within WD 114 (IT Corp. 2001a). The shed has a corrugated metal roof, an asphalt floor, and is surrounded by Building 114 to the south and an asphalt berm on the remaining sides (see Figure 4-1). No sanitary sewers or storm drain lines are connected to this shed.

Building 391 is located within the interior courtyard of Building 114, is approximately 2,000 square feet, and has a concrete floor (see Figure 4-1). This building served as a storage facility for paints, degreasers, petroleum products, and hazardous materials in support of the Public Works Department. These chemicals were documented as being stored within a hazardous chemical storage locker at the north end of the building (IT Corp. 2001a). No sanitary sewer or storm drains are connected to this building.

Building 191, a 5,000-square-foot, open-sided, single-story structure with corrugated metal walls and an asphalt floor, was constructed in 1944 and is located within the interior courtyard of Building 114 (see Figure 4-1). No staining at this building observed during previous inspections (IT Corp. 2001a). No documented incidents such as fires, spills, mishaps, or flooding have occurred within the building. A storm drain line is connected to this building.

4.2.2 Investigation Activities

This section summarizes the results of the basewide environmental investigations as they relate to Site 8 under the CERCLA, RCRA, EBS, and Alameda Point TPH programs. Section 2.2.2 provides a general description of the different types of basewide environmental investigations conducted across Alameda Point.

4.2.2.1 CERCLA Investigation Activities

Each of the CERCLA investigations conducted at Site 8 between 1991 and 2006 are described below. Table 4-1 summarizes the CERCLA investigation activities at Site 8.

Installation Restoration Program Phases 2B and 3 Investigation, 1991

The purpose of this investigation was to determine whether surface spills or leaks from the industrial sewer line had introduced contamination into surface or subsurface soils. Based on historical site use, suspected contaminants included PCBs, pesticides, and herbicides. The investigation included collecting soil and groundwater samples for analysis, installing groundwater monitoring wells, and performing groundwater monitoring (PRC and JMM 1992).

Four soil samples (one surface soil and three subsurface) were collected from each of 12 soil borings. Surface soil samples were analyzed for metals, SVOC, pesticides, PCBs, herbicides, and general chemistry. Subsurface soil samples were analyzed for the same chemicals, as well as VOCs. Selected samples also were analyzed for total organic carbon and soil pH (PRC and JMM 1992).

Metal concentrations were not compared with background concentrations during this investigation because background soil samples were not collected. Concentration of metals at Site 8 did not appear to be elevated when compared with results for samples collected from other sites during this investigation (PRC and JMM 1992).

Five VOCs were detected in Site 8 soils. SVOCs also were detected in most borings at Site 8. PAHs were detected at low concentrations in the fill material and at higher concentrations in native sediments underlying the fill material. The highest concentrations of PAHs were detected in the southeast and southwest portions, as well as the north side, of Site 8. Pesticides, PCBs, and herbicides were detected in eight soil borings, with three compounds detected at deeper than 2 feet bgs.

Groundwater monitoring wells were constructed at 5 of the 12 soil borings (Canonie 1989, 1990), with groundwater samples collected from each well (PRC and JMM 1992). Metals were not compared to background concentrations, as noted above. EPA acute water quality criteria for marine aquatic life were considered for this investigation (PRC and JMM 1992). Concentrations of copper and manganese in groundwater samples were detected above the EPA acute water quality criteria for marine aquatic life in three and four wells, respectively. However, after the

order of magnitude attenuation factor was applied, only manganese in one well exceeded its respective water quality criterion (PRC and JMM 1992). Concentrations of VOCs and SVOCs (all PAHs) were detected in all wells except one. Pesticides were detected in one groundwater sample.

Follow-On Investigation to Installation Restoration Program Phases 2B and 3 Sites, 1994

The purpose of this investigation was to further characterize PCBs in surface soil and VOCs and SVOCs detected in groundwater during Phase 2B and 3 investigations. Monitoring wells were installed to obtain additional soil data in the vadose zone and to assess groundwater quality and the direction of groundwater flow in the FWBZ (PRC and Montgomery Watson 1996). Activities included performing CPTs, collecting direct-push groundwater samples and surface and subsurface soil samples, and installing and collecting samples from monitoring wells.

Three surface soil samples were collected adjacent to the monitoring well where Phase 2B and 3 investigations indicated elevated concentrations of PCBs were present in surface soil. One soil boring was advanced to an approximate depth of 5 feet bgs and was converted to a monitoring well. Subsurface soil samples were collected from 2 to 5 feet bgs during installation of the well. Low concentrations of VOCs were detected in two of five soil sampling locations from the northeast and southeast corners of Site 8, and low concentrations of PAH-related SVOCs were detected in one soil boring at the southwest corner of Site 8. The VOCs and SVOCs detected were consistent with the concentrations detected during the Phase 2B and 3 investigations. Slightly elevated concentrations of PCBs were detected at three surface soil locations northeast of Building 114, also consistent with the previous investigations. Low concentrations of pesticides to the northeast of Building 114 indicated a decrease in these concentrations from the previous investigations (PRC and Montgomery Watson 1996).

At Site 8, direct-push groundwater samples were collected approximately 5 feet away from each advanced CPT location. Low concentrations of VOCs, as well as some metals, were detected in the direct-push groundwater samples. One additional monitoring well was installed with a screen depth of 70 feet bgs at the northwest corner of Building 114 to assess the deep groundwater flow gradient and further characterize VOCs and SVOCs in the FWBZ. Quarterly groundwater samples were collected from June 1994 to April 1995. Low concentrations of VOCs and SVOCs were detected in groundwater from the FWBZ in six of the seven monitoring wells sampled. SVOC concentrations have increased south of Building 114, as compared with the previous investigation results (PRC and Montgomery Watson 1996).

Additional soil and groundwater samples were collected in November 1998 to assess whether the catch basin associated with the storm water sewer or the fuel line south of Building 114 was a source of previously detected high benzene concentrations (PRC and Montgomery Watson 1996).

Based on review of the data, the chemicals detected during this investigation were similar in nature and extent to those found during previous investigations. Additionally, the extent of the potential chemicals of interest in soil and groundwater at Site 8 appeared to be adequately

characterized for the purpose of conducting an RI/FS. No further sampling was recommended for Site 8 (PRC and Montgomery Watson 1996).

Storm Sewer Removal Action, 1997-1998

This removal action was conducted to address elevated concentrations of inorganic and organic chemicals in sediments and debris located within the storm sewer system. Vacuum removal of sediments and debris within the catch basins of the storm sewer system (Phase I of the removal action) and removal of sediments and debris in the storm sewer system lines and associated manholes (Phase II of the removal action) were conducted. The objectives of this removal action were to reduce the potential for sediments and debris in the storm sewer system, which contained elevated concentrations of heavy metals, VOCs, SVOCs, pesticides, and fuel-related hydrocarbons, from affecting nearby human populations, animals, the food chain, drinking water supplies, and sensitive ecosystems (IT Corp. 1997).

Site 8 contains five storm sewer lines that are part of Subsystems D and G. Review of the video tape after two cleanings of both Subsystems D and G determined that most of the storm sewer lines were sediment free, with only small quantities (up to 5 percent) of residual sediment remaining in some lines and larger amounts of cemented deposits in others. These lines were prioritized based on the potential for contaminated groundwater to travel downgradient from the contamination source via storm sewers and infiltrate uncontaminated areas. The storm sewer lines also were categorized based on the condition of the line and whether it is submerged in groundwater (IT Corp. 1997).

The industrial activities potentially affecting the storm sewer system were conducted in Building 114 (IT Corp. 1997). Two VOC plumes, benzene and naphthalene, appeared to be associated with Site 8, and Building 114 was the likely source of contamination. The storm sewer system, co-located with the fuel lines of CAA 8, most likely served as a transport mechanism for these plumes (IT Corp. 1997).

Supplemental Remedial Investigation Data Gaps Sampling, 2001

The specific objective of data gaps sampling at Site 8 was to collect soil samples for analysis of both total chromium and hexavalent chromium to properly assess human health risk at the site. Previous samples collected during the RI/FS were analyzed for total chromium; however, the two common species of chromium (trivalent chromium and hexavalent chromium) were not distinguished by the standard analytical method used for metals analyses. To properly assess human health risk, a soil sample was collected and analyzed for both total chromium and hexavalent chromium (Tetra Tech 2002). Only total chromium was detected in the sample collected, and the detection did not exceed the 1999 Region IX residential PRG (Tetra Tech 2002). No detection limit or data quality issues were documented for Site 8. Soil gas samples also were collected from a single location to support vapor intrusion modeling in the BHHRA.

Basewide Groundwater Monitoring, 2002 through 2006

The basewide groundwater monitoring program started in June 2002 and is ongoing. Initially, groundwater samples were collected from eight monitoring wells, while currently samples are collected from nine monitoring wells at Site 8. These wells were identified for quarterly or semiannual monitoring. Groundwater samples were collected from the top of the FWBZ in the initial eight monitoring wells and from the SWBZ in the newest monitoring well. Groundwater samples were analyzed for metals, VOCs, pesticides, TPH, anions, ferrous iron, sulfide, alkalinity, and dissolved gases. The specific objectives of this investigation were to (1) define contaminant plumes in groundwater, (2) identify general types and number of plumes, and (3) determine the main COCs in groundwater at Site 8 (Shaw 2003b).

Metals, VOCs, TPH, alkalinity, dissolved gases, acetone, anions, chloride, sulfide, sulfate, and methane were detected in the groundwater samples. Metals were not detected at concentrations above the MCLs (Tetra Tech 2004).

Concentrations of benzene were sporadically detected above and below the MCL from 2002 through 2006.

TPH was detected in samples from all monitoring wells at Site 8; however, screening criteria were not established for comparison purposes. TPH concentrations have increased in the same monitoring well in which the benzene concentrations increased (Tetra Tech 2004).

No other chemicals exceeded MCLs. Evidence for biodegradation of organic chemicals at Site 8 was not readily apparent from the data collected during this investigation. Of further note, several recommended revisions were made to the sampling program after the summer 2003 sampling event. The specific recommendations are discussed in the OU-1 Sites 6, 7, 8, and 16 RI Report (Tetra Tech 2004).

Basewide Polycyclic Aromatic Hydrocarbon Investigation, 2003

The objective of the PAH study was to collect sufficient PAH data to calculate EPCs for risk assessments at CERCLA sites (Bechtel 2003). Borings were advanced using direct-push sample methods, and 72 samples were collected at discrete depths bgs (Bechtel 2004). At Site 8, PAHs [expressed as B(a)P equivalents] were detected in 61 of the 72 soil samples collected. However, only five of 72 samples collected from three locations had a B(a)P-equivalent concentration exceeding the human health screening criterion of 0.62 mg/kg. Data were determined to be adequate (99.7 percent of the data collected was usable) (Bechtel 2004).

Remedial Investigation Report, 2004

An RI Report for OU-1 Sites 6, 7, 8, and 16 was prepared and became final in November 2004 (Tetra Tech 2004). This report provided a complete discussion of the history and setting of Sites 6, 7, 8 and 16; summarized previous investigations conducted at each site and the nature

and extent of contamination; and included both a BHHRA and a modified ecological risk assessment (ERA). The RI Report recommended further evaluation of soil at Sites 6, 7, 8 and 16 and groundwater at Sites 6 and 16 in an FS to address risks identified in the BHHRA.

Feasibility Study, 2005

A Final OU-1 Sites 6, 7, 8, and 16 FS Report was issued in July 2005 (SulTech 2005; EPA 2005a). This FS Report summarized the results of the OU-1 Sites 6, 7, 8, and 16 RI Report, developed RAOs and remedial alternatives for each site, and evaluated the alternatives against the NCP criteria.

Proposed Plan, 2006

In April 2006, the Navy distributed a Proposed Plan recommending (1) remedial action for soil at IR Sites 6, 7, 8, and 16; (2) remedial action for groundwater at IR Sites 6 and 16; and (3) no action under CERCLA for groundwater at IR Sites 7 and 8 (SulTech 2006). This Proposed Plan summarized the history of sites, including the environmental investigations conducted, and notified the community of the public meeting and public comment period.

4.2.2.2 RCRA Investigation Activities

Section 2.2.2.2 describes the Navy's basewide approach to the RCRA investigations conducted across Alameda Point.

The RCRA investigation activities conducted at Site 8 between 1992 and 2004 are described below. Table 4-2 summarizes the RCRA investigation activities at Site 8. Table 4-3 summarizes the status of each SWMU located within Site 8.

Three SWMUs were identified within Site 8 (DTSC 1992). These three sites included:

- NAS GAP 03
- OWS 114
- WD 114

OWS 114 and WD 114 are addressed in this ROD. The Navy has recommended no further corrective action for NAS GAP 03 (SulTech 2004), and DTSC has concurred with this recommendation (DTSC 2005).

NAS GAP 03 consisted of various containers, including 55-gallon storage drums, located in a small room on the first floor of Building 114. Containers were placed on top of wooden pallets inside cardboard boxes. According to the RFA, NAS GAP 03 exhibited a low potential for

releases into soil, groundwater, and surface water because this SWMU was inside on a concrete floor (DTSC 1992). A description of NAS GAP 03 was included in the Parcel 75 evaluation data summary report located in Zone 13 of the EBS (IT Corp. 2001a). Further sampling was not conducted as part of the EBS because the exact location of NAS GAP 03 could not be determined at the time of the EBS investigation. An RFI was not requested by DTSC because the GAP was located inside on a concrete floor; no sampling was conducted in or near NAS GAP 03. The Navy has recommended no further corrective action for NAS GAP 03 (SulTech 2004), and DTSC has concurred with this recommendation (DTSC 2005).

OWS 114 is located within CERCLA Site 8 and CAA 8 in the north-central portion of WD 114. (see Figure 4-1). Soil samples were collected from three locations near OWS 114 and analyzed for VOCs, SVOCs, PAHs, pesticides, TPH, and herbicides. All detected chemicals in soil were either less than residential PRGs or preliminary remediation criteria (for TPH only) (Tetra Tech 2004). Benzene was detected in one groundwater monitoring well located just south of OWS 114 at a concentration exceeding the MCL. The RI Report indicated WD 114 and OWS 114 are likely sources of contamination (Tetra Tech 2004). As a result, further corrective action was recommended for OWS 114 in the FS Report.

WD 114 is associated with OWS 114 and is within Site 8 and CAA 8, located at the eastern portion of Building 114 in the eastern portion of the courtyard (see Figure 4-1). Soil samples were collected from four locations and analyzed for VOCs, SVOCs, TPH, pesticides, and herbicides. All detected chemicals in soil were either less than residential PRGs or preliminary remediation criteria (for TPH only) (Tetra Tech 2004). Analytical results for soil samples from four other locations were less than residential PRGs except for TPH, which was not analyzed for in these samples. Benzene was detected in a sample from one groundwater monitoring well located north of WD 114 at a concentration exceeding the MCL. Benzene and TCE were also detected in samples from a second groundwater monitoring well northeast of WD 114 at concentrations exceeding MCLs. The OU-1 Sites 6, 7, 8, and 16 RI Report identified WD 114 and OWS 114 as likely sources of contamination at Site 8 (Tetra Tech 2004). As a result, further corrective action was recommended for WD 114 in the FS Report.

4.2.2.3 Environmental Baseline Survey Activities

As mandated by the Base Closure and Realignment Act, the Navy conducted a series of basewide investigations at Alameda Point as part of the EBS as described in Section 2.2.2.2. Site 8 consists of Parcels 75 and 76. As a part of the EBS, these parcels were investigated under the Phase 1 and Phase 2A investigations and the storm water corridor study. Table 4-4 summarizes the EBS investigation activities conducted at Site 8.

During Phase 1 activity, Parcel 75 was designated as BRAC Area Type 6, which is an "area of known contamination where required response actions have not yet been implemented" (ERM-West 1994). "Parcel 76 was designated as BRAC Area Type 7, which is an areas that are [sic] unevaluated or that require further evaluation" (ERM-West 1994). Parcels classified in this category have data gaps that would require additional physical inspection, site history investigation, or sampling. Therefore, Site 8 was included in the next phase (2A) of the EBS.

Based on the data gaps identified at Site 8, soil samples were collected from Parcel 75 during Phase 2A. No samples were collected from Parcel 76 because it is located entirely within Parcel 75 and surrounded by Building 114. These sampling locations targeted the interior corridor of Building 114 and OWS 114. Low concentrations (below 1996 PRGs) of pesticides were detected in soil samples. No groundwater samples were collected during this phase of the EBS. Based on these results, it was recommended that an RI under CERCLA be conducted to define the nature and extent of soil contamination at Site 8 (IT Corp. 2001a).

Soil and sediment samples were collected at three sampling locations within Parcel 75 as part of the storm water corridor study. Samples were analyzed for metals, VOCs, SVOCS, pesticides, TPH, herbicides, and general chemistry parameters. Based on the low concentrations of the detected chemicals, no additional sampling at Site 8 was recommended (IT Corp. 2001a).

4.2.2.4 TPH Investigation Activities

Under the Alameda Point TPH program, data gaps sampling was conducted in 1998 within Fuel Line CAA B at Site 8. Previous investigations conducted at Fuel Line CAA B included exposing portions of the fuel lines. At each excavation, fuel lines were cleaned, inspected, filled with grout, and sealed at the ends; however, confirmation sampling was not conducted along the abandoned fuel lines (Tetra Tech 2001a). In 1998, four soil samples were collected from two locations along the fuel line. One groundwater sample was also collected from each sampling location. All samples were analyzed for lead, VOCs, and TPH.

No chemicals were detected in the soil samples; however, TPH as gasoline was detected in the one groundwater sample collected (Tetra Tech 2001c). Fuel Line CAA B met all of the Water Board criteria for closure of low risk fuel sites; as a result, no further corrective action was recommended by the Navy (Tetra Tech 2003c). Table 4-4 summarizes the TPH investigation activities conducted at Site 8.

4.3 COMMUNITY PARTICIPATION

OU-1 Sites 6, 7, 8, and 16 have undergone the same community participation activities. Please refer to Section 2.3 for a discussion of the community participation.

4.4 SCOPE AND ROLE OF OPERABLE UNIT AND RESPONSE ACTION

This ROD addresses OU-1 Sites 6, 7, 8, and 16, which were designated as OU-1 because they were mostly used for light industrial purposes. For Site 8, responses addressed under this ROD include additional investigation of soil and groundwater beneath and adjacent to OWS 114. Soil found to contain COCs at concentrations exceeding remediation goals will be excavated and transported to a landfill for disposal.

Based on evaluations conducted by the Navy using requirements stipulated in the final hazardous waste facility permit for Alameda Point, the Navy has recommended no further corrective action

for NAS GAP 03, and further corrective action for OWS 114 and WD 114 (SulTech 2004). In a letter dated December 29, 2005 (DTSC 2005), DTSC concurred with the no further corrective action recommendation for NAS GAP 03.

The selected soil remedy within this ROD is intended to address the additional actions necessary to fulfill CERCLA requirements and obtain "corrective action complete" status for OWS 114 and WD 114. As a result, the RCRA requirements will be satisfied.

4.5 SITE CHARACTERISTICS

This section summarizes information on the geology, hydrogeology, and the nature and extent of contamination in soil and groundwater at Site 8. Sections 2.5.1 and 2.5.2, respectively, provide an overview of the basic geologic and hydrogeologic features of Alameda Point. A complete discussion of sampling locations, evaluation 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 OU-1 Sites 6, 7, 8, and 16 RI Report (Tetra Tech 2004). An evaluation of RCRA activities is presented in the SWMU evaluation report (SulTech 2004).

4.5.1 Geology

At Site 8, the BSU is present beneath the Artificial Fill from approximately 11 to 15.5 feet bgs. It consists of an interbedded clayey sand and silty clay unit. The clay horizon was described as an olive-gray, medium dense, wet, 15 to 80 percent fines, and fine-grained sand, with abundant shell fragments in layers.

Artificial Fill consists of clean, fine-grained, well-sorted sand with high hydraulic conductivity. It is present from the ground surface to approximately 11 feet bgs. In some portions of Site 8, gravelly sand is directly beneath the 1-foot layer of asphalt. This sand was presumably used as a base rock foundation.

4.5.2 Hydrogeology

The following shallow hydrogeologic units are present at Site 8 (Tetra Tech 2004):

- FWBZ
- Aquitard
- SWBZ
- Regional aquitard

The first of these units is the unconfined FWBZ, which is encountered within the Artificial Fill material at 6 to 10 feet bgs and extends to a depth of approximately 11 feet bgs. The upper portion of the BSU acts as an aquitard between the FWBZ and the SWBZ; it varies from approximately 11 to 15.5 feet thick. The semiconfined SWBZ occupies the lower portion of the BSU, Merritt Sand, and upper unit of the San Antonio Formation. The lower unit of the San Antonio Formation acts as the regional aquitard.

4.5.3 Nature and Extent of Contamination in Soil and Groundwater at Site 8

Activities associated with known or potential chemical releases at Site 8 were identified and environmental investigations were conducted to identify and assess the nature and extent of contamination in soil and groundwater. Areas that were investigated included Building 114, NAS GAP 03, WD 114, OWS 114, and Building 391. The following discussion of nature and extent compares detected concentrations of chemicals to the 2002 residential PRG, tap water PRG, and MCL values. Each chemical with one or more exceedances of the PRG or MCL is discussed in later sections of this ROD but is not necessarily selected as a COC at Site 8.

4.5.3.1 Site 8 Soil

The chemicals detected in soil at Site 8 included metals, VOCs, SVOCs, PAHs, pesticides, PCBs, and TPH. Chemicals detected in soil at Site 8 are generally consistent with historical activities.

Three metals (arsenic, iron, and lead) were detected at concentrations above residential PRGs (see Table 4-5). Of these metals, arsenic did not exceed background concentrations for Alameda Point (SulTech 2005). Although iron concentrations are statistically greater than background concentrations, iron is an essential human nutrient and is toxic at only very high doses. For this reason, iron was eliminated as a COPC and therefore was not evaluated in the risk assessments (Tetra Tech 2004). Lead is considered a COC because its concentration is both above the residential PRG and site background concentrations. The highest concentration of lead was observed in the northeast corner of Site 8.

All non-PAH SVOCs were detected at concentrations below their respective PRGs. Seven PAH SVOCs were detected at concentrations above EPA 2002 residential PRGs (EPA 2002a) (see Table 4-5). However, PAHs are not COCs at Site 8, and PAH concentrations are below the site average threshold level of 0.62 mg/kg for B(a)P-equivalent chemicals. The horizontal and vertical spatial pattern of detections of PAH SVOCs was not indicative of a release at Site 8. The source of PAHs is attributable to materials dredged from San Francisco Bay used to construct Alameda Point. Consequently, the RI Report recommends no CERCLA action for PAHs at Site 8.

One pesticide (dieldrin) and two PCBs (Aroclor-1254 and Aroclor-1260) were detected at concentrations above residential PRGs (see Table 4-5). The highest PCB concentrations were

observed in the northeast corner of Site 8, while dieldrin and the PCBs were detected in surface soil near OWS 114 and the hazardous chemical storage locker at Building 391, respectively.

PCBs were detected sporadically in several surface samples (0.5 to 1 foot below ground surface) and in a deep sample (11 to 12.5 feet below ground surface) along the southern boundary of Site 8 at concentrations similar to the EPA Region 9 preliminary remediation goal of 220 µg/kg. Sample quantitation limits were elevated in some samples along the southern boundary due to matrix interferences, possibly attributed to petroleum hydrocarbons in asphalt (surface samples) or the Marsh Crust (deep sample). Sixty-three samples were collected across Site 8 and analyzed for PCBs; but 10 had detectable concentrations. The distribution of detected PCB concentrations in soil does not suggest a release or origin for the PCBs.

EPA and DTSC requested and the Navy agreed to perform further sampling during the remedial design phase to evaluate the nature and extent of potential soil and groundwater contamination beneath and adjacent to OWS 114 (Tetra Tech 2004; DTSC 2005). At the time of preparation of this ROD, the Navy is working collaboratively with the agencies on the work plan associated with this sampling event.

4.5.3.2 Site 8 Groundwater

The chemicals detected in groundwater at Site 8 included metals, VOCs, SVOCs, PAHs, pesticides, PCBs, and TPH (Tetra Tech 2004). Table 4-6 lists the chemicals detected in groundwater at concentrations exceeding tap water PRGs or the MCLs. Detected chemicals at Site 8 are generally consistent with historical activities. TPH-associated components (lead, benzene, and MTBE) were detected in groundwater at Site 8. The highest of these detections occurred near the northeastern and northwestern sides of Building 114, within and around WD 114, and near sanitary sewer lines in the southern portion of Site 8 (Tetra Tech 2004). Analytical results from 2002 through 2006 for the basewide groundwater monitoring program (Shaw 2003b and 2003c; ITSI 2006) show that benzene was sporadically detected at concentrations both above and the below MCL and that TCE was consistently detected at concentrations below the MCL. Benzene contamination will be evaluated under the Alameda Point TPH program.

4.6 CURRENT AND POTENTIAL FUTURE SITE AND RESOURCE USES

This section discusses (1) current and reasonably anticipated future land uses, (2) current and potential groundwater uses, and (3) surface water uses at Site 8. This information was incorporated into the development of exposure scenarios for the BHHRA and the development and evaluation of remedial alternatives.

4.6.1 Future Land Uses

Site 8 is an IR site at Alameda Point, which is under the jurisdiction of the Navy. About 80 percent of Site 8 is covered by asphalt, concrete, buildings, roads, and parking lots. Currently,

Site 8 is used as an office building by the Navy. The most likely future reuse of Site 8 is residential.

According to the NAS Alameda Community Reuse Plan, Site 8 is located in the Civic Core (EDAW, Inc. 1996). The Civic Core land use area consists of approximately 334 acres located in the central part of Alameda Point. According to the General Plan Amendment (City of Alameda 2003), potential redevelopment of the Civic Core includes the development of parks and public open space, medium-density residential, and public and institutional uses for the area along the Oakland Estuary. Further inland, and incorporating the NAS Historic District, redevelopment includes two or more uses on a single site or within a single building and may include a business park, offices, and commercial uses.

Eventually, Site 8 will be transferred to a non-federal entity. According to the Alameda Point Preliminary Development Concept (Alameda Reuse and Redevelopment Agency and Roma Design Group 2006), Site 8 is to be redeveloped as part of a residential area. Based on the above information, the reasonably anticipated future land use for Site 8 is residential.

4.6.2 Groundwater Uses

See Section 2.6.2 for determined groundwater uses for the central portion of Alameda Point.

4.6.3 Surface Water Uses

OU-1 Sites 6, 7, 8, and 16 do not have naturally occurring surface streams or ponds. Storm water at Site 8 is presently handled via storm sewers.

4.7 SUMMARY OF SITE 8 RISKS

This section summarizes the potential risks to human health and the environment at Site 8. Section 2.7 provides a general discussion of the methods used to conduct the BHHRA and the modified ERA.

4.7.1 Baseline Human Health Risk Assessment Approach

The anticipated future use of Site 8 is residential; however, the BHHRA also evaluated the commercial/industrial, recreational and construction worker scenarios. The remainder of this section discusses the BHHRA approach and the results for Site 8. The overall BHHRA approach is discussed in Section 2.7.1.

A conceptual site model (see Figure 4-2) was presented in the OU-1 Sites 6, 7, 8, and 16 RI Report and used to support the BHHRA by identifying the potential receptors and exposure pathways associated with each of the sources of chemicals at Site 8. The chemicals identified are associated with the historical activities that occurred at Site 8, such as weed and pest control,

chemical storage and mixing, and painting. The detailed approach and results of the Site 8 risk assessment are presented in Section 6.3 of the OU-1 Sites 6, 7, 8, and 16 RI Report (Tetra Tech 2004).

4.7.1.1 Identification of Chemicals of Potential Concern

Data for soil and groundwater samples were collected within and around the site boundaries for Site 8. The soil data were aggregated in depth intervals of 0 to 2 feet bgs and 0 to 8 feet bgs to evaluate potential exposures associated with site use. Groundwater data were aggregated by contaminant plume. Soil gas data were used in the risk evaluation of subsurface vapor migration to indoor air at Site 8, thus complementing groundwater data.

Lead was identified as a COPC in soil at Site 8. The background comparison showed that one COPC, arsenic, was statistically similar to background concentrations for both soil and groundwater. All metals were retained as COPCs regardless of their presence in the background. All Site 8 COPCs are presented in the OU-1 Sites 6, 7, 8, and 16 RI Report (Tetra Tech 2004).

4.7.1.2 Exposure Assessment

The anticipated future use of Site 8 is residential; however, the BHHRA also evaluated the commercial/industrial and construction worker scenarios (see Table 4-7). The residential scenario is considered to be the most conservative scenario. The exposure assumptions for each of these scenarios are summarized in Section 2.7.1.2.

4.7.1.3 Soil Risk Characterization

Risk characterization results for Site 8 soil are presented below. The general risk characterization assumptions, description of the risk management range, and cancer risks and noncancer HIs are provided in Section 2.7.1.

The residential scenario is considered the most likely scenario at Site 8 based on discussions between the Navy and the Alameda Reuse and Redevelopment Authority. For soil, the total RME cancer risk (including background) for the commercial/industrial worker is 7×10^{-6} and for the construction worker scenario the risk is 7×10^{-7} (surface soil) (see Table 4-8). The RME HI (including background) for commercial/industrial receptors is 0.04, while the RME HI for the construction worker is 0.1 (surface soil), both of which are below 1 (Tetra Tech 2004).

For the residential scenario, soil data were aggregated in depth intervals of 0 to 2 feet bgs (surface soil) and 0 to 8 feet bgs (subsurface soil). For surface soil, the total RME cancer risk (including background) is 6×10^{-5} for Site 8, which is within the risk management range (EPA 1991). The RME HI for a child (including background) is 0.6 for surface soil, which is less than 1. For subsurface soil, the total RME cancer risk (including background) is 4×10^{-5}, which is within the risk management range (EPA 1991), and the RME HI for a child (including background) is 0.5, which is less than 1.

Soil risks are attributed primarily to metals (arsenic only), PAHs, pesticides (dieldrin only), and PCBs (Aroclor-1254 and Aroclor-1260). Arsenic is attributed to background. Because of the use of sediments to construct the base, an ambient concentration of PAHs also exists at Alameda Point. Cancer risk from PAHs alone is 1×10^{-5} in surface soil and subsurface soil at Site 8. Cancer risk from dieldrin is 1×10^{-5} for surface soil; dieldrin is not a COC for subsurface soil. Cancer risks from Aroclor-1254 and Aroclor-1260 are 2×10^{-6} and 1×10^{-5}, respectively. The variability in concentrations of Aroclor-1260 in soil necessitated the use of the maximum detected concentration (1,500 µg/kg) as the exposure point concentration, rather than the 95 percent upper confidence limit of the mean. The Aroclor-1260 concentration in the majority of samples collected at Site 8 (47 of 63) was less than a sample quantitation limit of 50 µg/kg. Consequently, the risk assessment is very conservative with respect to potential exposure to Aroclor-1260 at site 8.

RME cancer risk from background soil in this portion of Alameda Point is 2×10^{-5}. When risk from the background metals is subtracted from the total risk for surface and subsurface soil, the incremental risk for surface and subsurface soil is 1.4×10^{-5} and 1.0×10^{-5}, respectively.

4.7.1.4 Groundwater Risk Characterization

Because groundwater pathways for the recreational and construction worker receptors were not considered complete at Site 8, groundwater was not evaluated for these scenarios. Groundwater was evaluated for the commercial/industrial and residential scenarios. Only inhalation of indoor vapors that migrate from groundwater was evaluated for the commercial/industrial scenario. No inhalation cancer toxicity factors were available for groundwater COPCs, so no cancer risk was calculated. The noncancer HI (including background) for the commercial/industrial scenario is 0.0002, which is less than 1 (see Table 4-9).

For groundwater, using the residential scenario, the total RME cancer risk (including background) is 2×10^{-4}, which is above the risk management range (EPA 1991). The residential RME HI for a child (including background) is 3, which exceeds an HI of 1. Groundwater risk at Site 8 is attributed primarily to arsenic, benzene, and TCE. Arsenic is considered to be naturally occurring. TCE risk is based on groundwater data from 1994; TCE was not detected in subsequent groundwater monitoring data (less than 0.5 µg/L). Risk from benzene alone is 2×10^{-5}. The combined risk from benzene and TCE is 4×10^{-5}, which is within the risk management range of 10^{-4} to 10^{-6}. Analytical results from 2002 through 2006 for the basewide groundwater monitoring program (Shaw 2003b and 2003c; ITSI 2006) show that benzene was sporadically detected at concentrations both above and the below MCL and that TCE was consistently detected at concentrations below the MCL. Therefore, it is likely that the combined risk from benzene and TCE is overestimated. Because risk from arsenic is attributed to background and risk from benzene and TCE is likely overestimated, no CERCLA action is recommended for groundwater at Site 8. Benzene contamination will be evaluated under the Alameda Point TPH program. The Navy has agreed to perform further sampling during the remedial design phase to evaluate the nature the extent of potential soil and groundwater contamination beneath and adjacent to OWS 114 at Site 8 (Tetra Tech 2004; DTSC 2005).

RME cancer risk from background groundwater is 2×10^{-4}, which is equal to the Site 8 groundwater risk of 2×10^{-4}. As a result, incremental cancer risk from groundwater at Site 8 is considered minimal. The child HI for background groundwater is 13, which is greater than the child Site 8 HI of 3; therefore, incremental noncancer risk also is considered minimal at Site 8.

4.7.2 Modified Ecological Risk Assessment Approach

Ecological habitat capable of supporting significant wildlife is not present at Site 8; however, exposure pathways for terrestrial receptors were considered potentially complete to provide a conservative estimate of risk (Tetra Tech 2004). Groundwater was not evaluated because the exposure pathways for aquatic receptors were considered incomplete.

Results of the modified ERA indicated potential risk is posed to ecological receptors by lead and PAHs in soil at Site 8 (Tetra Tech 2004). Ecological receptors evaluated included small mammals, passerines, and raptors. Lead in soil was identified as a potential site risk to small mammals, passerines, and raptors. PAHs in soil were identified as a potential site risk to passerines and raptors.

4.7.3 Chemicals of Concern at Site 8

Results of the BHHRA identified lead, dieldrin, Aroclor-1254, Aroclor-1260, and total PCBs as COCs in soil at Site 8. Elevated concentrations of PAHs were detected in soil at Site 8; however, PAHs were not considered to be COCs because the main source of PAHs is from materials dredged from San Francisco Bay that were used to construct Alameda Point. Arsenic concentrations in Site 8 soils were background or naturally occurring in soil and were not related to activities conducted at the site. Petroleum-related products were detected in soil and groundwater at various locations of Site 8. No COCs were identified for groundwater because the risk assessment results were based on historical data. Analytical results from 2002 through 2006 for the basewide groundwater monitoring program (Shaw 2003b and 2003c; ITSI 2006) show that benzene was sporadically detected at concentrations both above and below the MCL; therefore, benzene contamination will be evaluated under the Alameda Point TPH program.

The modified ERA did not identify any COCs for ecological receptors at Site 8. The lack of habitat, including nesting and foraging range, makes for minimal likelihood of exposure and hazards to the ecological receptors.

4.8 Remedial Action Objectives for Site 8

This section summarizes the RAOs developed for soil and groundwater at Site 8 based on the identified COCs, potential receptors and exposure pathways, ARARs, and remediation goals. The intended future land use of Site 8 is residential.

4.8.1 Site 8 Soil

The OU-1 Sites 6, 7, 8, and 16 RI Report concluded that soil in the northwest corner of Site 8 poses a significant risk to human health or to the environment (Tetra Tech 2004). In addition, the RI Report did not sufficiently characterize soil beneath and adjacent to OWS 114. Therefore, the following RAOs were identified for soil at Site 8:

- For the northeast corner of the site, prevent exposure of residents from ingestion and dermal contact to soil with unacceptable levels of lead, dieldrin, and PCB.
- Prevent the potential risk of exposure (through ingestion or dermal contact) of a future resident to unacceptable levels of COCs in the soil surrounding OWS 114.

Lead is the principal COC for Site 8. Dieldrin and PCB are included in the remedial action because the highest concentrations of these compounds were detected in proximity to the samples with elevated lead concentrations.

The remediation goals for soil in the northeast corner of the site are as follows:

- 230 mg/kg for lead based on DTSC's lead risk computer model LeadSpread 7 (DTSC 2003)
- 0.03 mg/kg for dieldrin based on EPA's 2004 residential PRGs (EPA 2004)
- 1.0 mg/kg for total PCBs based on the Toxic Substances Control Act (TSCA) PCB remediation waste requirements for PCB-contaminated soil[2]

Remediation goals for any COCs that might be identified during sampling at OWS 114 will be based on EPA's residential PRGs (EPA 2004), or background concentrations if higher than PRGs. The sampling effort and any subsequent remediation activities at OWS 114 are expected to result in no further corrective action status for this SWMU at Site 8.

4.8.2 Site 8 Groundwater

The OU-1 Sites 6, 7, 8, and 16 RI Report concluded that groundwater at Site 8 does not pose a significant risk to human health or the environment from CERCLA chemicals (Tetra Tech 2004). As a result, no RAOs are included for Site 8 groundwater. Groundwater sampling will be conducted beneath and adjacent to OWS 114 to verify that groundwater CERCLA contamination is not present.

[2] The Navy and EPA have selected a RG of 1.0 mg/kg for total PCBs. DTSC's position is that the EPA PCB Aroclor-1260 PRG of 0.220 mg/kg for residential use is the appropriate RG for Site 8. However, DTSC concurs with the RG in this case because the selected remedy will result in a sitewide average of less than 0.220 mg/kg for PCBs.

4.9 DESCRIPTION OF REMEDIAL ALTERNATIVES FOR SITE 8 SOIL

Remedial alternatives for soil at Site 8 were developed in accordance with the requirements identified in CERCLA, as amended by Superfund Amendments and Reauthorization Act of 1986, 42 USC § 9601, et seq., and the NCP. Three alternatives were developed for soil, as listed below. These alternatives, including the evaluation of the technologies and screening process that led to the development of these alternatives, were presented in the OU-1 Sites 6, 7, 8, and 16 FS Report (SulTech 2005).

- Remedial Alternative 1 – No Action
- Remedial Alternative 2 – Sampling and ICs
- Remedial Alternative 3 – Sampling and Excavation with Off-Site Disposal of Soil

Each of these alternatives is further described below.

4.9.1 Remedial Alternative 1: No Action

Under Alternative 1, no remedial actions would be performed. This alternative provides a baseline for comparing all other alternatives. No cost is associated with this alternative.

4.9.2 Remedial Alternative 2: Sampling and Institutional Controls

Alternative 2 would involve collection and analysis of additional samples to evaluate the nature and extent of potential contamination beneath and adjacent to OWS 114. The sampling effort and any subsequent remediation activities at OWS 114 are expected to result in no further corrective action status for this SWMU. The numbers and types of samples to be collected will be determined by the Navy and regulatory agencies during the remedial design; a number of soil samples will be collected above the groundwater table and at least one groundwater sample will be collected to characterize soil contamination below the groundwater table.

If chemicals are present in soil at concentrations exceeding their remediation goals, ICs would be applied to prevent contact through inhalation and ingestion of contaminated soil. These ICs would prohibit excavation without regulatory approval and require installation of vapor barrier and removal systems in buildings. The ICs would be in place until concentrations are within the risk management range for residential use.

4.9.3 Remedial Alternative 3: Sampling and Excavation with Off-Site Disposal of Soil

Alternative 3 would involve collection and analysis of samples to evaluate the extent of potential contamination beneath and adjacent to OWS 114 and an area near the northwest corner of Site 8.

The numbers and types of samples to be collected will be determined by the Navy and regulatory agencies during the remedial design; a number of soil samples will be collected above the groundwater table and at least one groundwater sample will be collected to characterize soil contamination below the groundwater table.

After sampling is performed, contaminated soil would be excavated and disposed of off site. This alternative would effectively reduce potential risks to human health from soil exposures under unrestricted land use, and result in no further corrective action status for OWS 114. Any groundwater contamination in such a small area that was not identified during the RI or as part of investigations under the Alameda Point TPH program would be associated with soil pore water, which would be removed with the contaminated soil. ICs are not required for Alternative 3 because contaminated soil is removed and the site will be suitable for unrestricted use.

4.10 COMPARATIVE ANALYSIS OF REMEDIAL ALTERNATIVES FOR SITE 8

This section summarizes the comparative analysis that was conducted to evaluate the relative performance of each remedial alternative in relation to the nine criteria outlined in CERCLA § 121 (b), as amended. Table 4-9 summarizes the results of the comparative analysis, and Table 4-10 summarizes the costs for each of the alternatives.

4.10.1 Overall Protection of Human Health and the Environment

Results of the BHHRA indicated that contaminated soil in the northeastern corner of Site 8 presents unacceptable risks to human health (Tetra Tech 2004). In addition, the extent of contamination, if any, is unknown in soil and groundwater beneath and adjacent to OWS 114. Alternative 1 (No Action) would not reduce risk or define the extent of soil and groundwater contamination beneath and adjacent to OWS 114 at Site 8. Alternative 2 (Sampling and ICs) would reduce risks at Site 8 to acceptable levels by delineating potentially contaminated soil and groundwater beneath and adjacent to OWS 114 and by implementing ICs to eliminate contact with contaminated soil by preventing domestic use of groundwater from Site 8. Alternative 3 (Sampling and Excavation with Off-Site Disposal of Soil) would reduce risks at Site 8 to acceptable levels such that there would be no restrictions on site use by removing soils with chemical concentrations exceeding EPA 2004 residential PRGs, or background concentrations, if higher than residential PRGs. Elsewhere on the site, risks to human health are within the risk management range as defined by the NCP and the Navy together with the regulatory agencies of the BCT has determined no further action is warranted.

4.10.2 Compliance with Applicable or Relevant and Appropriate Requirements

Alternative 1 would not trigger ARARs for Site 8. Alternatives 2 and 3 will meet ARARs for soil at Site 8 based on the respective reuse scenarios for each alternative.

4.10.3 Long-Term Effectiveness and Permanence

Alternative 3 has the highest degree of long-term effectiveness and permanence because contaminated soil at Site 8 would be removed from Site 8 such that there are no restrictions on site use. Alternatives 1 and 2 would leave contaminated soil at Site 8.

4.10.4 Reduction of Toxicity, Mobility, or Volume through Treatment

None of the remedial alternatives considered for soil at Site 8 involve treatment. Thus, no reduction in toxicity, mobility, or volume would occur through treatment.

4.10.5 Short-Term Effectiveness

Alternative 1 would have no short-term effects on the environment. Alternative 2 would have minimal short-term effects on the environment during sampling activities. Alternative 3 includes excavation, which has the potential to create negative short-term air and water quality effects; such effects would be reduced through use of dust and erosion control methods. None of these alternatives would be expected to pose unacceptable short-term risks to site workers or the community.

4.10.6 Implementability

All of the alternatives would be readily implementable.

4.10.7 Cost

Alternative 1 is based on the assumption of zero cost. Alternatives 2 and 3 would cost of $240,000 and $160,000, respectively. Table 4-10 summarizes the costs of each remedial alternative for Site 8.

4.10.8 State Acceptance

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

4.10.9 Community Acceptance

The OU-1 Sites 6, 7, 8, and 16 Proposed Plan was presented to the community and discussed during a public meeting on May 16, 2006 (Navy 2006). Attachment C, the Responsiveness Summary, of this ROD addresses the public's comments and concerns about the selected remedial alternative for soil at Site 8.

4.10.10 Conclusion

Alternative 3 Soil Sampling and Excavation with Off-Site Disposal of Soil was selected as the preferred remedial alternative for soil based on the following:

- Protects human health and the environment and fully complies with ARARs
- Provides the best long-term protection by removing COCs and their associated risk, with a cost less than Alternative 2
- Prevents migration of chemicals

4.11 PRINCIPAL THREAT WASTE

Principal threat wastes are source materials considered to be highly toxic, highly mobile, or those that would present a significant risk to human health or the environment should exposure occur. No soils or groundwater at Site 8 were identified as being a principal threat waste.

4.12 SELECTED REMEDY FOR SITE 8

Based on the results of the RI Report (Tetra Tech 2004), FS Report (SulTech 2005), and documents provided in the administrative record for Site 8 (see Attachment A), as well as an evaluation of all comments on the OU-1 Sites 6, 7, 8, and 16 Proposed Plan (SulTech 2006) submitted by interested parties during the public comment period, the Navy has selected Alternative 3 as the remedy for soil and no action for groundwater. The selected remedies will achieve remedial objectives that would allow residential land use at Site 8.

The Navy has determined that groundwater at Site 8 does not pose an unacceptable risk to human health or the environment. Accordingly, no remedial action is through CERCLA appropriate for Site 8 groundwater. The Navy's selection of no action for groundwater reflects the determination that site-specific CERCLA releases do not represent a threat to human health or the environment. The Navy intends to address potential TPH contamination under the Alameda Point TPH program.

Alternative 3 for soil includes the following components:

- Sampling
- Excavation
- Disposal of soil at an off-site facility (if COCs are present in soil at concentrations exceeding remediation goals)

The following subsections discuss the rationale for selecting the remedy, describe the remedy, its estimated costs, and expected outcomes.

4.12.1 Summary of the Rationale for the Selected Soil Remedy

The Navy has determined that soil and groundwater sampling is required beneath and adjacent to OWS 114 and in the northeast corner of Site 8 to identify and address any potential risk to human health based on exposures through ingestion or dermal contact of a resident to COCs in soil. The Navy has selected an alternative that provides for unrestricted site use. Alternative 3 is the selected alternative for soil at Site 8 because it provides long-term protection by significantly removing COCs and their associated risk. Alternative 3 also protects human health and the environment and fully complies with ARARs. There are no CERCLA contaminants requiring a site use restriction at Site 8; however, potential benzene contamination in groundwater at Site 8 is being addressed under the Alameda Point TPH program. The remediation of benzene contamination in Site 8 groundwater under the Alameda Point TPH program may result in site use restrictions.

4.12.2 Description of the Selected Soil Remedy

Each of the components (sampling, excavation, and off-site disposal of soil) of Alternative 3 is described below.

4.12.2.1 Sampling

Alternative 3 involves collection of soil and groundwater samples to delineate the nature and extent of soil and groundwater contamination beneath and adjacent to OWS 114 and within the northeastern corner of Site 8. The soil and groundwater samples will be collected from locations and depths to be determined during the remedial design.

4.12.2.2 Excavation

Soil contaminated with COCs at concentrations above EPA 2004 residential PRGs, or background concentrations, if higher than residential PRGs, would be excavated. The excavation would be accomplished with conventional heavy construction equipment, including backhoes, cranes, bulldozers, loaders, scrapers, and haulers. The estimated volume of soil to be removed is 42 cubic yards beneath and adjacent to OWS 114 and 128 cubic yards from the northeastern portion of Site 8. This volume may change depending on whether the excavation boundaries are revised based on results of additional sampling in this area or if contamination is encountered during field activities.

4.12.2.3 Off-Site Disposal of Soil

Disposal refers to the impoundment of excavated materials at a facility that is approved to accept them. Soils classified as hazardous waste under state and federal laws would be transported to

an appropriate facility for treatment, if necessary, and disposal. Soils classified as nonhazardous would be transported to an appropriate facility for disposal.

4.12.3 Estimated Costs of Selected Soil Remedy

Alternative 3 is estimated to cost $160,000. This cost is based on the best available information regarding the anticipated scope of the remedy, includes capital and operation and maintenance costs, and is based on present costs. Table 4-11 summarizes the estimated costs for Alternative 3. This cost is an order-of-magnitude engineering cost estimate that is expected to be within +50 to -30 percent of the actual project cost for remedial design and remedial action phase of site cleanup. A detailed cost estimate is presented in the FS Report (SulTech 2005). Costs may change as a result of new information and data collected during implementation of the selected remedy. Significant changes may be documented in a memorandum to the administrative record, explanation of significant differences, or as an amendment to this ROD (EPA 1999c).

4.12.4 Expected Outcomes of the Selected Soil Remedy

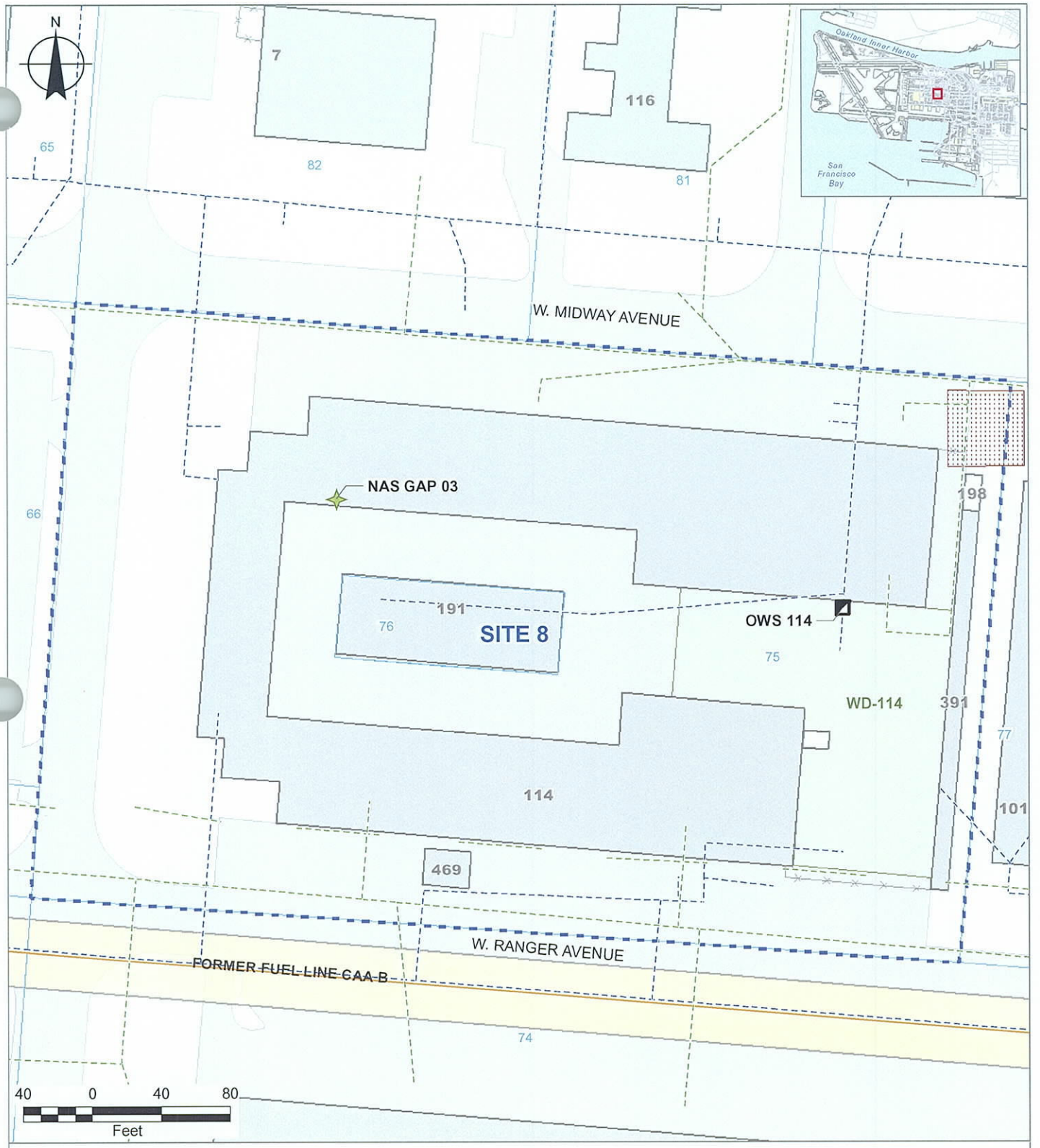
The selected remedy for Site 8 soil includes characterization of soil and groundwater beneath and adjacent to OWS 114, and an area near the northeast corner of the site. The Site 8 SWMUs are discussed in Section 4.2.2.2 and summarized in Table 4-3. The expected outcome for OWS 114 is to prevent the potential risk of exposure to unacceptable levels of COCs in the surrounding soil. The expected outcome for the northeast corner of the site is to prevent exposure of residents to soil with elevated concentrations of lead, dieldrin, and PCBs and meet the RAO.

The remedy selected for both areas of Site 8 involves three separate components: (1) soil and groundwater sampling, (2) excavation, and (3) off-site disposal of soil. Figures 4-3 and 4-4 illustrate the decision logic for implementing the selected remedy at OWS 114, and northeast corner of the site, respectively.

The performance objective of the soil and groundwater sampling is to delineate the nature and extent of soil and groundwater contamination beneath and adjacent to OWS 114, and in the northeast corner of the site. The objective of the excavation at OWS 114 is to remove contaminated soil that contains COCs that pose unacceptable risk. The objective of the excavation at the debris area is to remove soil that contains lead, dieldrin, Aroclor-1254, Aroclor-1260 and total PCBs at concentrations above soil remediation goals. The objective of off-site disposal is to place contaminated soil in an appropriate facility for treatment, if necessary, and disposal.

Following implementation of the remedy, the Navy in collaboration with the regulatory agencies will determine if the performance objectives (including the RAOs) have been achieved.

FIGURES



NAS Generator Accumulation Point (GAP)
Oil Water Separator (OWS)
Proposed Excavation Area
CERCLA Site 8 Boundary
Environmental Baseline Survey Parcel
Corrective Action Area (CAA)
Washdown Area
Fence
Fuel Pipeline
Sanitary Sewer
Storm Drain Pipeline
Building
Former Building
Paved Road

Notes:
RCRA - Resource Conservation Recovery Act
CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act

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

FIGURE 4-1

SITE 8 FEATURES MAP

Record of Decision for Operable Unit 1
Sites 6, 7, 8, and 16

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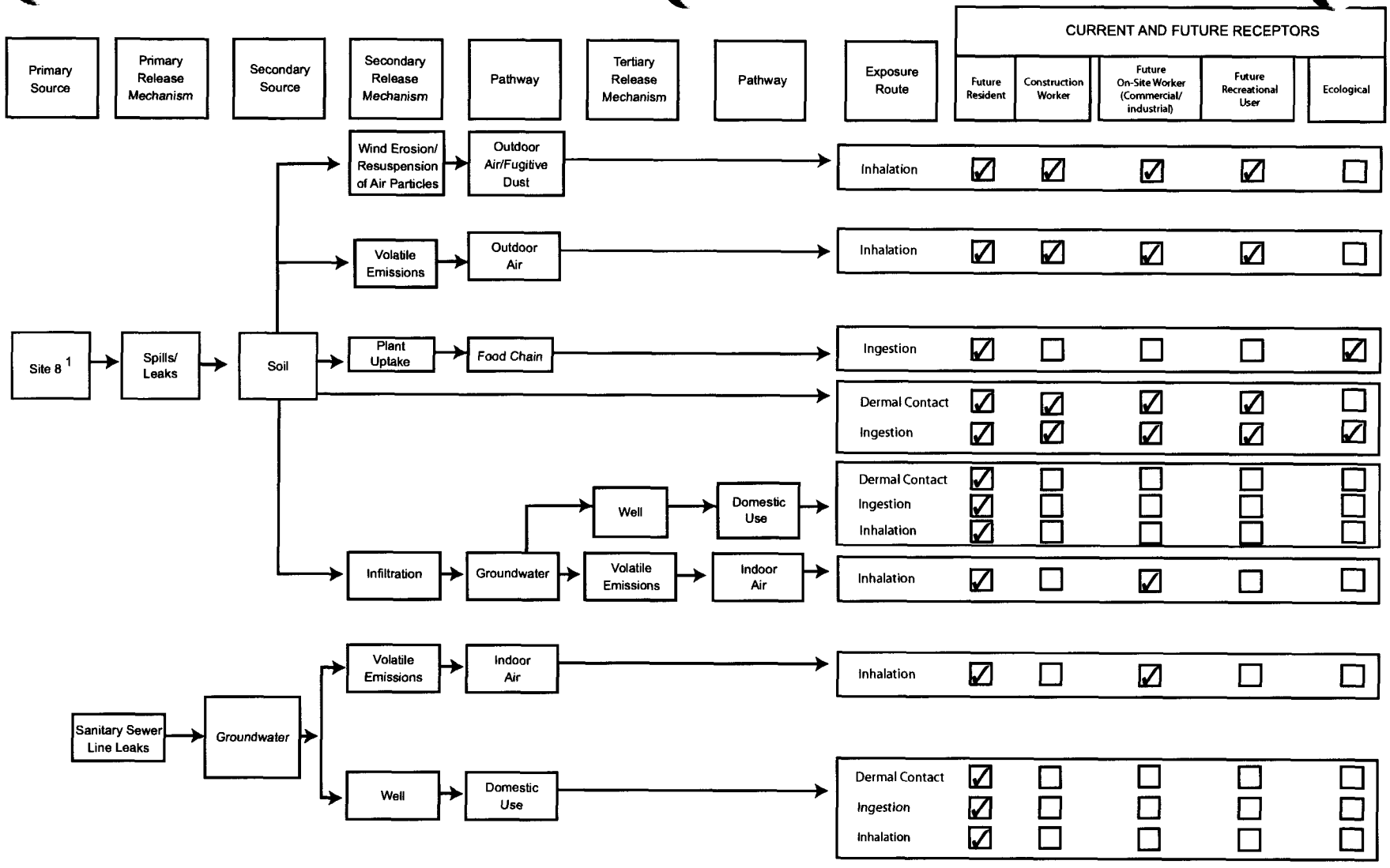

1 Building 114, Oil Water Seperator-114, and Washdown Area-114

☑ Potentially complete pathway, exposure quantified

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FIGURE 4-2

SITE 8

CONCEPTUAL SITE MODEL

Record of Decision for Operable Unit 1
Sites 6, 7, 8, and 16

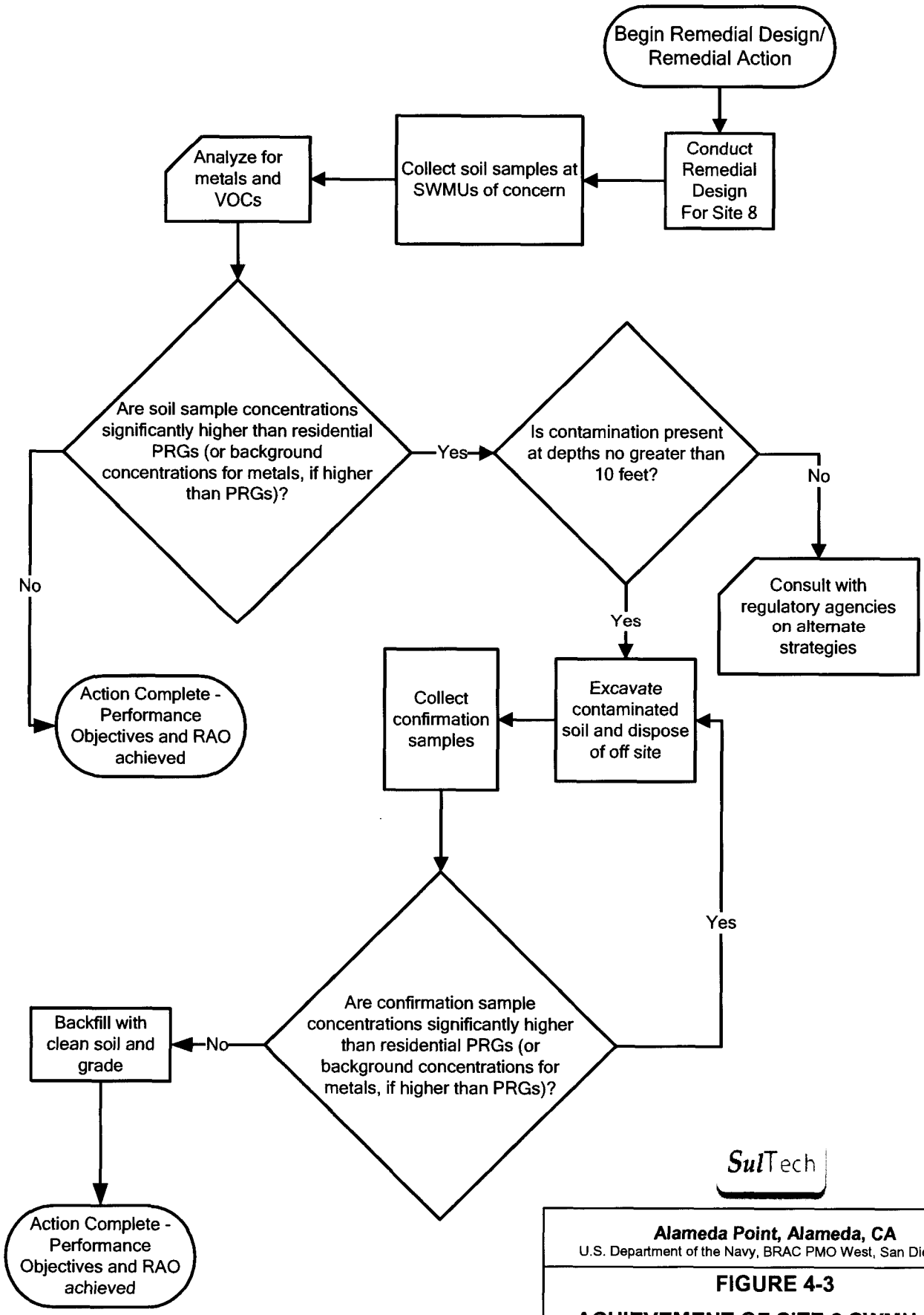

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FIGURE 4-3

ACHIEVEMENT OF SITE 8 SWMU SOIL REMEDIATION GOAL

Record of Decision for Operable Unit 1
Sites 6, 7, 8, and 16

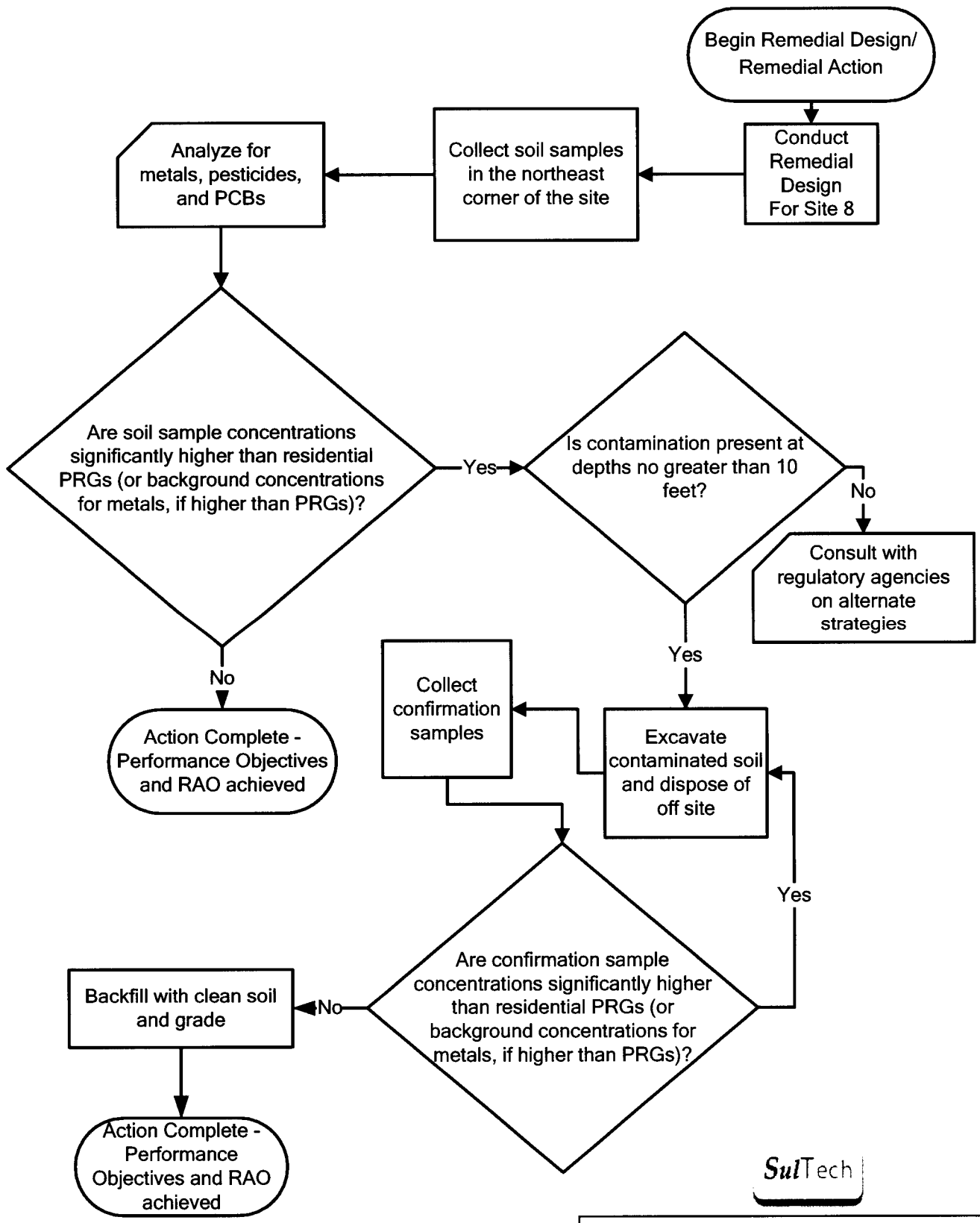

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FIGURE 4-4

ACHIEVEMENT OF SITE 8 SOIL REMEDIATION GOAL

Record of Decision for Operable Unit 1
Sites 6, 7, 8, and 16

TABLES

TABLE 4-1: SUMMARY OF CERCLA INVESTIGATION ACTIVITIES AT SITE 8
Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Date	Investigation/Activity	Objective	Summary of Findings
1991	IR Program Phases 2B and 3 Investigation	Determine whether surface or subsurface soils were contaminated by spills or leaks from industrial sewer line.	Metals, VOCs, SVOCs, PAHs, pesticides, PCBs, and herbicides were detected in soil at Site 8. Metals, VOCs, SVOCs (all PAHs), and pesticides were detected in groundwater.
1994	Follow-On Investigation to IR Program Phases 2B and 3 Investigation	Characterize pesticides and PCBs in surface soil and VOCs and SVOCs in groundwater.	Low concentrations of pesticides and elevated concentrations of PCBs were detected in surface soil. Low concentrations of VOCs and PAH-related SVOCs were detected in soil. Low concentrations of metals, VOCs, and SVOCs were detected in groundwater.
1997-1998	Storm Sewer Removal Action	Assess elevated concentrations of inorganic and organic chemicals in sediment and debris located within the storm sewer system.	Site 8 contains five storm sewer lines, and two VOC plumes appear to be associated with Site 8.
2001	Supplemental RI Data Gaps Sampling	Collect soil samples for analysis of total chromium and hexavalent chromium to assess risk to human health.	Only total chromium was detected, but at concentrations less than the PRG.
2002 to Present	Basewide Groundwater Monitoring	Define contaminant plumes in groundwater, identify number of plumes, and determine the main chemicals of concern.	Metals, acetone, TPH, alkalinity, dissolved gas, anions, chloride, sulfide sulfate, and methane were detected in the groundwater samples.
2003	Basewide PAH Investigation	Collect sufficient PAH data to calculate exposure point concentrations for risk assessment at CERCLA sites.	PAHs [expressed as B(a)P equivalent] were detected in 61 of the 72 soil samples. Only five samples had concentrations exceeding the screening criterion of 0.62 mg/kg.

Notes:

B(a)P Benzo(a)pyrene
CERCLA Comprehensive Environmental Response, Compensation, and Liability Act
IR Installation Restoration
mg/kg Milligram per kilogram
PAH Polycyclic aromatic hydrocarbon
PCB Polychlorinated biphenyl
PRG Preliminary remediation goal
RI Remedial investigation
SVOC Semivolatile organic compound
TPH Total petroleum hydrocarbons
VOC Volatile organic compound

TABLE 4-2: SUMMARY OF RCRA INVESTIGATION ACTIVITIES AT SITE 8
Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Date	Investigation/Activity	Objective	Summary of Findings
1992	RCRA Facility Assessment	Identify the need for further actions at SWMUs, and evaluate the need and scope of a RCRA facility investigation.	Three SWMUs (NAS GAP 03, OWS 114 and WD 114) were identified within Site 8.
2005	SWMU Evaluation	Identify the need for further actions at SWMUs, and identify SWMUs that should be managed under the Navy's CERCLA or Alameda Point TPH programs.	Based on evaluations conducted by the Navy using requirements stipulated in the final hazardous waste facility permit for Alameda Point, the Navy has recommended no further corrective action for NAS GAP 03 and further corrective action for OWS 114 and WD 114 (SulTech 2004). In a letter dated December 29, 2005 (DTSC 2005), DTSC concurred with the no further corrective action recommendation for NAS GAP 03. The selected soil remedy within this ROD is intended to address the additional actions necessary to obtain "corrective action complete" status for OWS 114 and WD 114 at Site 8.

Notes:

CERCLA Comprehensive Environmental Response, Compensation, and Liability Act
DTSC Department of Toxic Substances Control
GAP Generator accumulation point
NAS Naval Air Station
OWS Oil-water separator
RCRA Resource Conservation and Recovery Act
ROD Record of decision
SWMU Solid waste management unit
TPH Total petroleum hydrocarbons
WD Washdown area

Sources:

DTSC. 2005. Letter Providing DTSC Comments on the Draft OU-1 Sites 6, 7, 8 and 16 Proposed Plan. From DTSC. To Thomas Macchiarella BRAC Environmental Coordinator, BRAC Program Management Office West. December 29.

SulTech. 2004. "Draft Appendix I Solid Waste Management Unit Evaluation Report for Operable Unit 1 (Sites 6, 7, 8, and 16), Hazardous Waste Permit EPA ID Number CA 2170023236, Naval Air Station Alameda, Alameda Point, Alameda, California." September 30.

TABLE 4-3: SUMMARY OF NAVY AND DTSC DETERMINATIONS FOR SWMUS LOCATED WITHIN SITE 8
Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

SWMU Identification	Navy Determination (SulTech 2004)	DTSC Determination: Based on DTSC Letter Dated December 29, 2005 (DTSC 2005)	DTSC Determination: June 19, 2006 Site Walk Determination	Final Determination in the ROD
NAS GAP 03	No Further Corrective Action	No Further Corrective Action	N/A	No RCRA corrective action
OWS 114	Further Corrective Action	Further Corrective Action		The selected soil remedy within this ROD is intended to address the additional actions necessary to fulfill CERCLA requirements and obtain "corrective action complete" status for this SWMU.
WD 114	Further Corrective Action	Further Corrective Action		Same as above

Notes:

CERCLA Comprehensive Environmental Response, Compensation, and Liability Act
DTSC Department of Toxic Substances Control
GAP Generator accumulation point
NAS Naval Air Station
OWS Oil-water separator
RCRA Resource Conservation and Recovery Act
ROD Record of decision
SWMU Solid waste management unit
WD Washdown area

Sources:

DTSC. 2005. Letter Providing DTSC Comments on the Draft OU-1 Sites 6, 7, 8 and 16 Proposed Plan. From DTSC. To Thomas Macchiarella BRAC Environmental Coordinator, BRAC Program Management Office West. December 29.

SulTech. 2004. "Draft Appendix I Solid Waste Management Unit Evaluation Report for Operable Unit 1 (Sites 6, 7, 8, and 16), Hazardous Waste Permit EPA ID Number CA 2170023236, Naval Air Station Alameda, Alameda Point, Alameda, California." September 30.

TABLE 4-4: SUMMARY OF EBS AND TPH INVESTIGATION ACTIVITIES AT SITE 8

Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Date	Investigation/Activity	Objective	Summary of Findings
1994	Storm Water Corridor Study	Soil and sediment samples collected to determine the extent of metals, VOCs, SVOCs, pesticides, TPH, herbicides, and general chemistry parameters.	Nickel, B(a)P, and benzo(a) fluoranthene were detected at concentrations above the EPA residential PRGs. Low detection or nondetections of pesticides and PCBs.
1994 to 1998	EBS Phase 1	Identification of areas where contamination is present or that have data gaps.	Part of Site 8 was classified as having known contamination. The rest of Site 8 was classified as unevaluated or requiring further evaluation.
	EBS Phase 2A	Collect soil samples in Parcel 75, targeting the interior corridor of Building 114 and OWS 114.	Low concentrations (below PRGs) of pesticides were detected in soil samples.
1998	TPH Investigation	Examine the condition of fuel lines and identification of CAA.	Although Site 8 is also designated as CAA 8, no investigations were conducted at the site under the Alameda Point TPH program.

Notes:

B(a)P Benzo(a)pyrene
CAA Corrective action area
EBS Environmental baseline survey
EPA U.S. Environmental Protection Agency
PCB Polychlorinated biphenyl
PRG Preliminary remediation goal
OWS Oil-water separator
SVOC Semivolatile organic compound
TPH Total petroleum hydrocarbons
VOC Volatile organic compound

TABLE 4-5: CHEMICALS REPORTED IN SOIL FOR SITE 8
Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Analyte[a,b]	Frequency of Detection (%)	Range of Detected Concentrations	Units	Residential PRG	Units	Above Background[c]
Arsenic[d]	97	0.35 to 7	mg/kg	0.39	mg/kg	No
Iron[d]	100	5,840 to 39,700	mg/kg	23,000	mg/kg	Yes
Lead	94	1.1 to 774	mg/kg	150[e]	mg/kg	Yes
Aroclor-1254	7	27 to 260	µg/kg	220	µg/kg	--
Aroclor-1260	16	52 to 1,500	µg/kg	220	µg/kg	--
Dieldrin	2	53 to 53	µg/kg	30	µg/kg	--
Benzo(a)anthracene[d]	58	0.6 to 6,000	µg/kg	620	µg/kg	--
Benzo(a)pyrene[d]	61	0.7 to 7,000	µg/kg	62	µg/kg	--
Benzo(b)fluoranthene[d]	64	1 to 7,600	µg/kg	620	µg/kg	--
Benzo(k)fluoranthene[d]	50	0.2 to 2,400	µg/kg	380[e]	µg/kg	--
Chrysene[d]	65	2 to 6,400	µg/kg	3,800[e]	µg/kg	--
Dibenzo(a,h)anthracene[d]	48	0.4 to 760	µg/kg	62	µg/kg	--
Indeno(1,2,3-cd)pyrene[d]	58	0.2 to 4,000	µg/kg	620	µg/kg	--

Notes:

a Only chemicals where detected concentrations exceeded the MCLs or 2002 PRGs are included on this table (EPA 2002a).

b This table includes results from all investigations listed in Section 4.2.2 except for TPH investigations. PAH data provided in this table are from the basewide PAH investigation only.

c Yes indicates site concentrations exceeded background concentrations for Alameda Point. This comparison was made for inorganic chemicals only, primarily metals.

d This chemical was not identified as a chemical of concern.

e California-Modified PRG.

-- Not applicable

µg/kg Microgram per kilogram

mg/kg Milligram per kilogram

PRG Preliminary remediation goal, U.S. Environmental Protection Agency Region IX or California-Modified

TABLE 4-6: CHEMICALS REPORTED IN GROUNDWATER FOR SITE 8

Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Analyte[a]	Frequency of Detection (%)	Range of Detected Concentrations (µg/L)	Tap Water PRG (µg/L)	MCL (µg/L)	Above Background[b]
Antimony[c]	24	0.052 to 12.1	15	6	Yes
Arsenic[c]	54	2 to 13.7	0.045	10	No
Barium[c]	100	57.7 to 2,450	2,600	1,000	Yes
Lead[c]	26	0.031 to 16.7	--	15	Yes
Manganese[c]	100	69.9 to 14,600	880	--	No
Benzene[c]	59	0.2 to 130	0.3	1	--
Carbazole[c]	30	0.8 to 16	3	--	--
Chloroform[c]	4	0.3 to 0.8	0.5[d]	80	--
Ethylbenzene[c]	46	0.2 to 130	3	300	--
Methyl-tertiary-butyl ether[c]	17	3 to 11	6[c]	13	--
Naphthalene[c]	48	0.7 to 1,900	6	--	--
Trichloroethene[c]	6	0.8 to 8	0.03	5	--

Notes:

a Only chemicals where detected concentrations exceeded the MCLs or the 2002 Tap Water PRGs (EPA 2002a) are included on this table.

b Yes indicates site concentrations exceeded background concentrations for Alameda Point. This comparison was made for inorganic chemicals only, primarily metals.

c This chemical was not identified as a chemical of concern.

d California-Modified PRG.

-- Not applicable

µg/L Microgram per kilogram

MCL Maximum contaminant level

PRG Preliminary remediation goal, U.S. Environmental Protection Agency, Region IX or California-Modified

TABLE 4-7: EXPOSURE SCENARIOS FOR THE BHHRA

Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Site	Exposure Scenarios for Site 8				Proposed Future Land Use
	Residential	Commercial/ Industrial	Recreational	Construction	
8	X	X		X	Residential

Note:

BHHRA Baseline human health risk assessment

TABLE 4-8: SUMMARY OF SITE 8 BHHRA RESULTS

Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Exposure Scenario	Media	Cancer Risk[a]	Noncancer Hazard Index[a]
Residential	Surface Soil	6×10^{-5}	0.6
	Subsurface Soil	4×10^{-5}	0.5
	Groundwater	2×10^{-4}	3
Commercial/Industrial	Surface Soil	7×10^{-6}	0.04
	Groundwater	NA	0.0002
Recreational	Surface Soil	7×10^{-6}	0.1
Construction Worker	Surface Soil	7×10^{-7}	0.1
	Subsurface Soil	6×10^{-7}	0.09

Notes:

The risks in this table are rounded; therefore, they may appear to be higher or lower than the risk numbers presented in the text of this Record of Decision.

a Based on toxicity values derived from the U.S. Environmental Protection Agency Integrated Risk Information System (EPA 2003). Presented risk values show total risk and include risk contributed by background.

BHHRA Baseline human health risk assessment
NA Not applicable

TABLE 4-9: COMPARATIVE ANALYSIS OF REMEDIAL ALTERNATIVES FOR SITE 8 SOIL BY BALANCING CRITERIA
Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Alternative	Long-Term Effectiveness and Permanence	Reduction in Toxicity, Mobility, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost[a]
–	Parameters considered include: • Expected long-term reduction in risk posed by Site 8 • Level of effort needed to maintain the remedy and monitor the area for changes in site conditions • Compatibility of the remedy with planned future use of Site 8 • Adequacy and reliability, including reliance on land disposal, potential need to replace, and risks posed should components need replacement	Parameters considered include: • Treatment processes used • Amount of hazardous materials destroyed, recycled, or treated • Degree of expected reduction in toxicity, mobility, or volume and the inherent hazard posed by principal threats at Site 8 • Degree to which the benefits of the remedial alternative are irreversible • Types, quantities, persistence, toxicity, and propensity to bioaccumulate treatment residuals that remain following treatment	Parameters considered include: • Protection of the community during the remedial alternative • Protection of workers during the remedial alternative • Environmental effects during remediation • Time required to achieve protection	Parameters considered include: • Technical and administrative feasibility • Availability of required resources	Parameters considered include: • Capital costs • Operation and maintenance costs • Long-term monitoring costs • IC costs for developing and maintaining the ICs • Net present value
Alternative 1 – No Action	None Not effective and permanent because it would not address potential risks	None Would not reduce toxicity, mobility, or volume of contamination through treatment	None No short-term effectiveness because no remedial action would be proposed	None No remedial action would be implemented	0
Alternative 2 – Sampling and ICs	Moderate Would leave contaminated soil at the site but place restrictions on site use	None Would not reduce toxicity, mobility, or volume of contamination through treatment	High Minimal short-term effects during sampling activities	High Readily implementable	$240,000
Alternative 3 – Sampling and Excavation with Off-Site Disposal of Soil	High Has the highest degree of long-term effectiveness because potentially contaminated soil would be removed from Site 8 so there are no restrictions on site use	None Would not reduce toxicity, mobility, or volume of contamination through treatment	Low Excavation has the potential to create negative short-term air and possibly water quality effects; however, such effects would be reduced by engineering controls, as appropriate	High Readily implementable	$160,000

Notes:

a Based on net present value

IC Institutional control

TABLE 4-10: COST COMPARISON OF SITE 8 REMEDIAL ALTERNATIVES
Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Remedial Alternatives	Estimated Cost[a]
SOIL	
Alternative 1 – No Action	0
Alternative 2 – Sampling and Institutional Controls	$240,000
Alternative 3 – Sampling and Excavation with Off-Site Disposal of Soil	$160,000

Note:

a Based on net present value

TABLE 4-11: COST ESTIMATE SUMMARY FOR SITE 8 SOIL ALTERNATIVE 3
Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Cost Category	Capital Costs	O&M Costs
Fencing	3,000	
One-Time Sampling Near OWS 114	20,000	
Excavation of Northeastern Corner of Site 8	14,000	
Excavation Surrounding OWS 114	12,000	
X-Ray Fluorescence Unit Rental/Soil Analysis	2,000	
Decontamination	5,000	
Transportation and Disposal of Debris Off Site	13,000	
Remedial Action Report	37,000	
Professional Labor	28,000	
Subtotal	**134,000**	**0**
Contingency	26,000	0
Total Alternative 3 Costs	**160,000**	

Notes:

O&M Operation and maintenance
OWS Oil-water separator

5.0 SITE 16

This section provides the site name, location, and brief description of Site 16; the site history and investigation activities; community participation; scope and role of OU and response actions; site characteristics; current and potential future site and resource uses; summary of site risks; RAOs; a description of the remedial alternatives; a comparative analysis of the remedial alternatives; the principal threat waste; and the selected remedy for Site 16.

5.1 SITE NAME, LOCATION, AND DESCRIPTION

Site 16, the shipping storage container area, is about 11.1 acres and is located 390 feet east of San Francisco Bay (see Figure 1-2). Asphalt, concrete roads, parking lots, buildings, and some unpaved open areas comprise approximately 50 percent of Site 16. Buildings cover 30 percent of Site 16, and the remaining 20 percent is unpaved open area. Minimal vegetation is present at the site. Site 16 also includes storage sheds, OWSs, a WD, former USTs, former and present ASTs, and associated fuel lines (see Figure 5-1). Due to possible petroleum contamination, Site 16 is also designated as CAA 9B.

5.2 SITE HISTORY AND INVESTIGATION ACTIVITIES

This section summarizes the site history and investigation activities, conducted at Site 16.

5.2.1 Site History

Site 16 contains several features where the Navy conducted activities that may have contributed to soil and groundwater contamination at this site (see Figure 5-1). These site features include storage sheds, OWSs 608A and 608B, WD 608, former USTs (including UST 608-1/GAP 17, which is a RCRA SWMU), former and present ASTs, and associated fuel lines (see Figure 5-1). The history and activities conducted at each of these site features are discussed below.

Before 1916, Site 16 was used for aircraft parking and chemical storage. In 1916, eight large shipping containers known as "CANS" (338A through 338H) were placed in the eastern portion of Site 16 and used to store avionics parts and test equipment, chemicals, and aircraft fabrication equipment. CANS 338A through 338H are constructed of large corrugated steel seaplane containers that were welded together and placed on raised foundations to form 27 separate units. These converted shipping containers are referred to collectively as Structure 338, and occupy approximately 25 percent of the eastern portion of Site 16. The 27 CANS are situated in 8 groups (A through H) and contained avionic parts and related chemicals, including solvents, computer equipment, rollaway toolboxes with small mechanics tools, large avionic and non-avionic equipment, transformers, miscellaneous small equipment, avionic test equipment, and aircraft fabrication materials. Some CANS were used to stage petroleum materials (such as gas and diesel drums) or used as maintenance warehouses. It was reported that some of the CANS have stained floors with possible contamination leaking into the soil beneath the CANS (ERM-West 1994).

AST 338-A1 was a 500-gallon steel propane tank located west of CANS A1 in the northern portion of Site 16. This AST was placed on asphalt and surrounded with posts (barricades) without secondary containment (ERM-West 1994). Before August 2002, this tank and associated equipment were removed. Due to the nature of propane, any releases from this tank would have immediately volatilized.

AST 338-D4 was a 200-gallon steel diesel tank formerly located between CANS C-3 and CANS F-1, centrally positioned in Site 16. The tank was placed on a stand within a 1.5-foot-high steel-walled secondary containment. In 1994, AST 338-D4 was reported as leaking from an outlet valve, which created stains in and around the secondary containment. Site personnel surrounded the containment area with absorbent material to control the leaks. No other localized staining was reported (ERM-West 1994). Before August 2002, the tank and associated features were removed and the area paved (Tetra Tech 2004).

Building 608 was constructed in 1980 and was used by the Navy as a "self-serve" auto repair facility until 1996. It covers approximately 8,200 square feet of the southern portion of Site 16 and is constructed of brick with a concrete floor and wood roof. The building contained a central store area, where auto parts were sold. Each side of the building is equipped with multiple vehicle service bays, every bay containing a hydraulic lift. Drains that connect to either the sanitary sewer or UST 608-1 are adjacent to each service bay (IT Corp. 2001a). A Safety Kleen dip tank used for cleaning brakes is located in the southwest corner of the building. Activities conducted within the building included routine automobile servicing, parts degreasing, and occasional paint "touchups" (IT Corp. 2001a). Chemicals used included miscellaneous petroleum products, including lubrication oil; consumer packaged automobile maintenance products (such as engine and carburetor cleaners, octane boosters, and degreasers); Safety Kleen solvent; paint and acetylene; and two large units of batteries (IT Corp. 2001a). Three sheds (S608-1, S608-2, and S608-3) are associated with Building 608 and were also used as vehicle service bays.

WD 608 is located south of Building 608. Historically, the WD 608 was used for aircraft maintenance, aircraft fueling and defueling, and aircraft washing (IT Corp. 2001a). Since the 1980s, the area was used for automobile washdown activities, which involved the use of commercial soaps and drive-train degreasers (such as those sold inside Building 608). Pooled water was noted adjacent to several surface drains that connect to two non-operational OWSs (IT Corp. 2001a). Runoff from washdown activities was deliberately channeled into OWSs 608A and 608B (and ultimately to a sewage lift station), but also may have infiltrated the storm sewer system and surrounding soil and groundwater (IT Corp. 2001a). No chemical storage, except waste oil generated by automobile hobby shop operations, reportedly has occurred in WD 608. No spills have been documented, but stains consistent with vehicle parking were noted (IT Corp. 2001a).

Waste oil generated in Building 608 and the surrounding sheds was stored in a 1,000-gallon AST mounted on a concrete pad within a secondary containment (6-inch concrete berm) south of Building 608. AST 608 is also located within WD 608; however, there is no association between

the tank and this area. Stains, presumably from waste oil, were noted within the concrete berm and the concrete pad around the tank (IT Corp. 2001a).

Three sheds were used as vehicle service bays and consist of a metal overhang above concrete paving. Review of historical aerial photographs indicated that the area where the sheds are located was paved with concrete in 1981 and the awnings appeared between 1985 and 1990. Shed S608-1 covers about 2,000 square feet of Site 16, directly west of Building 608. It contains a storage box used for staging hazardous waste. The remainder of the shed consists of vehicle service bays. No hydraulic lifts or drains are located in the vehicle service bays; however, three surface drains, which connect with OWS 608A and ultimately to a sewage lift station, are located between Building 608 and the shed. Shed 608-2 is located directly east of Building 608 and covers about 2,000 square feet. Shed 608-3 is located to the south of Building 608 and covers about 1,500 square feet. The two sheds consist entirely of vehicle service bays. No hydraulic lifts or drains are located in the bays, and no spills were documented for these areas (IT Corp. 2001a).

Structure 608A consists of an enclosed (with fencing) asphalt-paved hazardous material staging area located in the southwest corner of Site 16. The EBS Phase 1 site inspection found two CONEX boxes, a flammable materials locker, and a PCB-containing transformer on a pad within this area. Materials stored here were most likely related to activities within the adjacent sheds of the automobile hobby shop yard. No spills were documented for this structure (IT Corp. 2001a).

UST 608-1 was a 600-gallon fiberglass waste oil tank located next to the northwest corner of Building 608. This UST received waste from floor drains inside the Building 608 hobby shop. The tank was included in the RCRA Program as UST(R)-18/NAS GAP 17 (DTSC 1992). During operation, tank wastes were removed by vacuum truck under the supervision of a GAP manager. Information presented during an EBS stated that the tank had not been in use since 1987 (IT Corp. 2001a). UST 608-1 and its outdoor piping was removed and the piping was capped at the building wall under the RCRA Program in 1995 (Tetra Tech 2003a).

A paint booth is located in the southwestern portion of Site 16. The structure was constructed between 1981 and 1985. Interviews with site personnel revealed that the paint booth had never been used. During the EBS Phase 1 site inspection, visual confirmation verified that the paint booth had not been used (IT Corp. 2001a).

Building 402 was constructed in 1950 and covered about 6,400 square feet of the southern portion of Site 16. This building contained a temporary maintenance shop and sandblast shelter (IT Corp. 2001a). Chemicals used at Building 502 may have included aluminum oxide, blasting grit, cleaning compounds, corrosives, degreasers, ethylene acetate, hydraulic fluids, paints, petroleum products, and solvents. No large-scale staining was noted in historical aerial photographs (IT Corp. 2001a). Building 402 was demolished in 1961.

Scrap Yard D-7 consisted of a fenced area with four wooden sheds that were located in the northwestern portion of Site 16. This scrap yard was used for aircraft demolition and miscellaneous parts storage. A Phase 1 site assessment recorded scattered debris over the entire

area and oil stains covering 5 to 10 percent of the yard. From 1947 until 1970, the area was used for aircraft parking (IT Corp. 2001a).

Structure 302E is constructed of metal with a concrete base and is located in the western portion of Site 16, previously within two fenced areas. The structure was used as a visual marker for pilots, designed for identification or target practice while flying overhead (ERM-West 1994).

Open space covers roughly 70 percent of Site 16. About 50 percent of the open space is paved with asphalt or concrete, while the remaining area is bare ground. Surface water runoff is directed into the storm drains and sanitary sewers. The open space has been used for a variety of activities, including vehicle parking, aircraft parking, aircraft maintenance, material and equipment staging, storage of discarded items, and storage of hazardous materials. Oils containing PCBs were used for weed control throughout the area until 1963 (ERM-West 1994). Previous remedial activities at the open space include the removal of about 10 cubic yards of PCB-contaminated soil (IT Corp. 2001a).

From 1879 to 1903, Pacific Coast Oil Company (later Standard Oil Company) operated an oil refinery near this location. Wastes and an asphalt-like residue were dumped at Site 16, which created sufficient vapor pressure to disturb Navy-constructed surfacing in the 1940s (ERM-West 1994).

Six sections of storm sewer lines are located at Site 16 (see Figure 5-1). All storm sewer lines at Site 16 were determined to be in sound condition, and it is not known whether these lines are submerged in groundwater (Tetra Tech 2000c). One storm sewer line runs southward from the center of Site 16, and then splits into two separate lines in the southern portion of the site. The two storm sewer lines continue out of Site 16 and flow into the San Francisco Bay at Outfalls Q and Q1. An additional storm sewer line is located in the northern portion of Site 16, and runs west and out of the site. This storm sewer line empties into the San Francisco Bay at Outfall P and it is likely submerged in groundwater. Two sections of line connect to this line. Six catch basins are located within Site 16.

5.2.2 Investigation Activities

This section summarizes the results of the basewide environmental investigations as they relate to Site 16 under the CERCLA, RCRA, EBS, and Alameda Point TPH programs. Section 2.2.2 provides a general description of the different types of basewide environmental investigations conducted across Alameda Point.

5.2.2.1 CERCLA Investigation Activities

Each of the CERCLA investigations conducted at Site 16 between 1991 and 2006 are described below. Table 5-1 summarizes the CERCLA investigation activities at Site 16.

Installation Restoration Program Phases 1 and 2A Investigation, 1990

In 1990, a Phase 1 and 2A investigation were performed at Site 16 (PRC and JMM 1993). The purpose of this investigation was to evaluate whether potentially hazardous chemicals, including VOCs, SVOCs, pesticides, PCBs, cyanide, herbicides, and metals, had impacted the soil and groundwater. This investigation included collecting 55 surface soil samples, drilling and collecting soil samples from nine borings, and installing and collecting groundwater samples from three monitoring wells. Sufficient soil data for metals, pesticides, and cyanide were available for Site 16 to proceed with the RI and FS. The presence of VOCs and metals in groundwater was recommended for further evaluation (PRC and JMM 1993).

Follow-On Investigation to Installation Restoration Program Phases 2B and 3 Sites, 1994

In 1994, a follow-on investigation to the Phase 1 and 2A investigations was conducted to further characterize PCBs in soil and metals, VOCs, SVOCs, pesticides, and cyanide in groundwater (PRC and JMM 1995). Monitoring wells were installed to obtain additional soil data, assess groundwater quality, and ascertain the direction of groundwater flow at Site 16. Conclusions from these data indicated that the chemicals detected in soil and groundwater were of similar nature and extent to those found during previous investigations and were adequately characterized for an RI/FS (PRC and JMM 1995).

Follow-On Investigation, 1998

In November 1997 and February 1998, a follow-on investigation was conducted to collect additional groundwater samples for (1) use in a basewide analysis of ambient water quality and (2) the evaluation of beneficial uses of water at Alameda Point (Tetra Tech and Uribe & Associates 1998). Samples were analyzed for metals, VOCs, total organic carbon, and general water quality parameter. Analytical results indicated that no plumes were present at Site 16.

Soil Removal Action, 1997

In 1997, a removal action was conducted at Site 16 to remove surface soils contaminated with high concentrations of lead and PCBs (Tetra Tech 1998). About 3,000 cubic yards of contaminated soil was removed. Analytical results for confirmation samples collected from the excavation indicated that the interim action levels for lead (300 mg/kg) and PCBs (1 mg/kg) had been achieved (Tetra Tech 1998).

Storm Sewer Removal Action, 1997-1998

This removal action was conducted in two phases to address elevated concentrations of inorganic and organic chemicals in sediments and debris within the storm sewer system (IT Corp 1997). Sediments and debris containing elevated concentrations of heavy metals, VOCs, SVOCs, pesticides, and fuel-related hydrocarbons were removed from within the catch basins, storm sewer system lines, and associated manholes.

The storm sewer lines at Site 16 are part of Subsystems P and Q. Subsystem P, which serves the northern portion of the CANS area, was not cleaned during the 1997 removal action because it was either replaced or cleaned and inspected in 1991 (IT Corp. 1997). Part of Subsystem Q was cleaned; the remainder was not cleaned because it was replaced in 1991. Most of the storm sewer lines cleaned were sediment free, with only small quantities of residual sediment remaining in some lines and larger amounts of cemented deposits in others (IT Corp. 1997).

Supplemental Remedial Investigation Data Gaps Sampling, 2001

In 2001, a supplemental data gaps sampling investigation was performed in support of RI/FS activities at Site 16 (Tetra Tech 2002). The objectives of this investigation were to (1) delineate the VOC groundwater plumes near Building 608 and in the open space west of the CANS area, (2) assess chlordane contamination near the former location of UST 608-01, (3) assess the storm sewer exposure pathways, and (4) collect soil gas samples to further assess the risk to human health and the environment. This investigation included drilling 64 soil borings, installing seven monitoring wells, and advancing two soil gas sampling locations. Measurable concentrations of VOCs were detected above the contaminant plume in groundwater (Tetra Tech 2002).

Groundwater Removal Action, 2001, 2003, and 2004

A removal action for VOCs in groundwater began in 2001 and included a full-scale application of ISCO in 2003 and 2004 (Shaw 2005a, 2005b). ISCO was the recommended removal action because it was expected to lower risks by (1) reducing potential exposures of human and ecological receptors to COCs in groundwater and (2) reducing the potential for migration of COCs via groundwater flow.

Two areas of contaminated groundwater were designated for removal: one in the northwest portion of Site 16 near the CANS (8,000 square feet), and the other in the southern portion of Site 16 near Building 608 (Tetra Tech 2002). The removal action in the northern portion of Site 16 successfully reduced most, but not all, COCs to concentrations below the MCLs (Shaw 2005a). The removal action on the southern portion of Site 16 removed some of the COCs, but further delineation of the groundwater plume was recommended (Shaw 2005b).

Basewide Groundwater Monitoring, 2002 though 2006

The basewide groundwater monitoring program started in June 2002 and is ongoing. The specific objectives of this investigation were to (1) define contaminant plumes and (2) determine the main COCs in groundwater at Site 16 (Shaw 2003a). Initially, groundwater samples were collected from five monitoring wells, while currently samples are collected from eight monitoring wells at Site 16. These wells were identified for quarterly or semi-annual monitoring. Groundwater samples were collected in the FWBZ at Site 16 and analyzed for metals, VOCs, pesticides, TPH, anions, ferrous iron, sulfide, alkalinity, and dissolved gases.

Analytical results indicated concentrations of VOCs and TPH were present in groundwater at Site 16. VOCs were detected at concentrations above MCLs in four monitoring wells surrounding Site 16. In all cases, the concentrations have been decreasing since 2002. As of summer 2005, however, two monitoring wells had detected concentrations above MCLs; these wells are located to the west and southwest of Site 16 (ITSI 2006).

TPH concentrations detected at Site 16 ranged from trace to maximum concentrations in the FWBZ monitoring wells in winter 2004. Since this time, the TPH concentrations have declined at these well locations. Currently, no screening criteria are established for TPH. As of summer 2005, all TPH concentrations analyzed were below laboratory detection limits.

Basewide Polycyclic Aromatic Hydrocarbon Investigation, 2003

In 2003, a basewide PAH investigation was performed. The objective of this investigation was to collect sufficient PAH data to calculate EPCs for risk assessments at CERCLA sites (Bechtel 2003). At Site 16, 46 soil borings were advanced and 183 samples were collected and analyzed for PAHs (Bechtel 2004). B(a)P-equivalent concentrations were detected in soil samples from all 183 sampling locations; however, none of the samples collected exhibited a B(a)P-equivalent concentration exceeding the site average threshold level of 0.62 mg/kg for B(a)P-equivalent chemicals (Tetra Tech 2004).

Remedial Investigation Report, 2004

An RI Report for OU-1 Sites 6, 7, 8, and 16 was prepared and became final in November 2004 (Tetra Tech 2004). This report provided a complete discussion of the history and setting of Sites 6, 7, 8 and 16; summarized previous investigations conducted at each site and the nature and extent of contamination; and included both a BHHRA and a modified ecological risk assessment (ERA). The RI Report recommended further evaluation of soil at Sites 6, 7, 8 and 16 and groundwater at Sites 6 and 16 in an FS to address risks identified in the BHHRA.

Feasibility Study, 2005

A Final OU-1 Sites 6, 7, 8, and 16 FS Report was issued in July 2005 (SulTech 2005; EPA 2005a). This FS Report summarized the results of the OU-1 Sites 6, 7, 8, and 16 RI Report, developed RAOs and remedial alternatives for each site, and evaluated the alternatives against the NCP criteria.

Proposed Plan, 2006

In April 2006, the Navy distributed a Proposed Plan recommending (1) remedial action for soil at IR Sites 6, 7, 8, and 16; (2) remedial action for groundwater at IR Sites 6 and 16; and (3) no action under CERCLA for groundwater at IR Sites 7 and 8 (SulTech 2006). This Proposed Plan summarized the history of sites, including the environmental investigations conducted, and notified the community of the public meeting and public comment period.

5.2.2.2 RCRA Investigation Activities

Section 2.2.2.2 describes the Navy's basewide approach to the RCRA investigations conducted across Alameda Point.

The RCRA investigation activities conducted at Site 16 between 1992 and 2005 are described below. Table 5-2 summarizes the RCRA investigation activities at Site 16. Table 5-3 summarizes the status of each SWMU located within Site 16.

The following seven SWMUs were identified within Site 16 (DTSC 1992):

- ASTs 338-A1, 608, and 338-D4
- OWSs 608A and 608B
- UST(R)-18/NAS GAP 17
- WD 608

OWSs 608A and 608B and UST(R)-18/NAS GAP 17 are addressed in this ROD, whereas AST 338-D4 is being addressed under the Alameda Point TPH program. The Navy recommended no further corrective action for ASTs 338-A1, 608 and WD 608, and DTSC has concurred with this recommendation (DTSC 2005).

AST 338-A1 had been used to store propane. Any releases from this tank would have immediately volatilized because propane is a flammable hydrocarbon gas at standard temperatures and atmospheric pressure. As a result, there is no reason to suspect subsurface contamination from this tank. The Navy has recommended no further corrective action for this AST (SulTech 2004), and DTSC has concurred with this recommendation (DTSC 2005).

During a July 2004 visit, AST 608 tank was noted to be empty with a dark-colored residue at the bottom. The tank was in good condition, with a berm. AST 608 was investigated as part of the EBS, and effects from this tank to the area surrounding it were described as minimal. The Navy has recommended no further corrective action for this AST (SulTech 2004), and DTSC has concurred with this recommendation (DTSC 2005).

Soil and groundwater samples have been collected near OWSs 608A and 608B, and analyzed for VOCs and TPH. VOCs were not detected in soil samples from either OWS. TPH was detected in soil samples from OWS 608A, but not OWS 608B. VOCs and TPH were detected in groundwater samples from OWS 608A, but not in samples from OWS 608B. Although no further corrective action was recommended for both of these OWSs (Tetra Tech 2004), the Navy indicated in the FS Report (SulTech 2005) and the Proposed Plan (SulTech 2006) that additional soil and groundwater samples will be collected at both OWSs 608A and 608B.

Soil samples were collected beneath the middle and western edge of WD 608, and analytical results indicated soil was not contaminated at this area. As a result, the Navy recommended no further corrective action for this area (SulTech 2004), and DTSC has concurred with this recommendation (DTSC 2005).

5.2.2.3 Environmental Baseline Survey Activities

As mandated by the Base Closure and Realignment Act, the Navy conducted a series of basewide investigations at Alameda Point as part of the EBS as described in Section 2.2.2.2. Site 16 consists of Parcels 149, 168, and 150A. Although Site 16 does not include Parcel 169, samples associated with this parcel were collected within or near Site 16. Elevated concentrations of VOCs, SVOCs (primarily PAHs) TPH, and metals were identified in samples collected from EBS Parcels 149 and 168. No further action was recommended for Parcels 149, 150A, 168, and 169 (IT Corp. 2001a).

Phases 2A and 2B, 1994 to 1998

Phase 2 activities, which consisted of Phases 2A and 2B, involved collection of environmental samples that targeted potentially contaminated areas and was conducted between October 1994 and December 1998 (IT Corp. 2001a). Elevated concentrations of VOCs, SVOCs, (primarily PAHs), TPH, and metals were identified in samples collected from EBS Parcels 149 and 168. No further action was recommended for Parcels 149, 150A, 168, and 169 (IT Corp. 2001a).

Storm Water Corridor Study – 1994

In conjunction with the EBS Phase 2A investigation, an EBS basewide sewer corridor sampling investigation was conducted, which included sanitary, industrial, and storm sewers (IT Corp. 2001a). Soil samples were collected from three locations on Parcels 149 and 150A and analyzed for metals, VOCs, SVOCs, pesticides, TPH, and general chemistry parameters. Results of the storm water corridor study indicated detected chemical concentrations were below 1996 PRGs, background metals concentrations, and petroleum risk-based screening criteria. As a result, no further investigation of storm sewers was recommended at Site 16 (IT Corp. 2001a).

5.2.2.4 TPH Investigation Activities

TPH investigations at Site 16 included removal of an UST and investigation of the area surrounding the former UST, and a data gaps investigation. Table 5-4 summarizes the TPH investigation activities conducted at Site 16.

Underground Storage Tank 608-1 Removal and Investigation, 1995 and 1997

In 1995, UST 608-1 was removed and the surrounding area were designated as CAA 9B. Following removal of the tank, an additional investigation was conducted under the Alameda Point TPH program to determine the horizontal and vertical extent of soil and groundwater

contamination. Eight soil and groundwater samples were collected and analyzed for VOCs, PAHs, and TPH (Moju 1997). Floating product was present in the area; as a result, further investigation was recommended.

Data Gaps Investigation, 2000

In 2000, groundwater samples were collected from three locations and soil samples were collected from two locations to fill data gaps identified during the preparation of a corrective action plan. Because CERCLA chemicals were commingled with TPH, additional actions related to UST 608-1 and CAA 9B are performed under the CERCLA program (Tetra Tech 2001b).

5.3 COMMUNITY PARTICIPATION

OU-1 Sites 6, 7, 8, and 16 have undergone the same community participation activities. Refer to Section 2.3 for a discussion of the community participation.

5.4 SCOPE AND ROLE OF OPERABLE UNIT AND RESPONSE ACTION

This ROD addresses OU-1 Sites 6, 7, 8, and 16, which were designated as OU-1 because they were mostly used for light industrial purposes. For Site 16, responses addressed under this ROD include additional investigation of soil and groundwater beneath and adjacent to OWSs 608A and 608B and remediation of groundwater contaminated with CERCLA chemicals. Petroleum-contaminated areas of Site 16 (CAA 9B) are not addressed by this ROD and are currently being investigated and remediated under the Alameda Point TPH program, with regulatory oversight provided by the Water Board.

Based on evaluations conducted by the Navy using requirements stipulated in the final hazardous waste facility permit for Alameda Point, the Navy recommended no further corrective action for ASTs 338-A1, 608, and 338-D4 and WD 608 at Site 16 (SulTech 2004). In a letter dated December 29, 2005 (DTSC 2005), DTSC concurred with the no further corrective action recommendation for ASTs 338-A1, 608, and 338-D4 and WD 608.

The selected soil remedies within this ROD are intended to address the additional actions necessary to fulfill CERCLA requirements and obtain "corrective action complete" status for OWSs 608A and 608B and UST(R)-18/NAS GAP 17. As a result, the RCRA requirements will be satisfied.

5.5 SITE CHARACTERISTICS

This section summarizes information on the geology, hydrogeology, and the nature and extent of contamination in soil and groundwater at Site 16. Sections 2.5.1 and 2.5.2, respectively, provide an overview of the basic geologic and hydrogeologic features of Alameda Point. A complete

discussion of sampling locations, evaluation 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 OU-1 Sites 6, 7, 8, and 16 RI Report (Tetra Tech 2004). An evaluation of RCRA activities is presented in the SWMU evaluation report (SulTech 2004).

5.5.1 Geology

The surface of the Artificial Fill at Site 16 is covered by asphalt and concrete in many areas. The Artificial Fill, consisting of silty fine sand with pockets of clay, gravel, and wood fragments, is present to approximately 15 feet bgs. In one boring, the BSU was noted at a depth of approximately 12 feet bgs, but it was not noted in other borings (Tetra Tech 2004). Beneath the Artificial Fill, or the BSU where present, is the Merritt Sand Formation, which extends to a depth of approximately 64 feet bgs, where the top of the San Antonio formation was encountered.

5.5.2 Hydrogeology

The FWBZ is the only water-bearing zone at Site 16 that occurs within the Artificial Fill, Merritt Sand, and Upper San Antonio Formation. The BSU beneath Site 16, and the southeastern portion of Alameda Point, is thin or absent.

At Site 16, groundwater is encountered at an average depth of 5 feet bgs within the sandy fill material. The hydraulic conductivity of the FWBZ at Site 16 was not measured in place; however, laboratory permeability tests were conducted on seven geotechnical samples. These results indicated the fill materials have hydraulic conductivities ranging from 0.003 to 5.6 feet per day. Horizontal hydraulic gradients was measured calculated based on elevations from three different measurement events varied between 0.0008 feet per foot and 0.0016 feet per foot. The estimated groundwater flow velocities for Site 16 ranged from 0.2 to 0.3 feet per year (SulTech 2005).

5.5.3 Nature and Extent of Contamination in Soil and Groundwater

Activities associated with known or potential releases of chemicals at Site 16 were recognized and environmental investigations conducted to assess the nature and extent of contamination in soil and groundwater at Site 16 (see Section 5.2.2). Site 16 is also known as the shipping storage container area, where chemicals, avionic parts, and aircraft fabrication equipment were stored. Site 16 also was used as an automobile repair facility, scrap yard, and aircraft parking lot. Currently, Site 16 is mostly covered by concrete roads, parking lots, unpaved open areas, several buildings, storage sheds, SWMUs, and ASTs with associated fuel lines. Specific areas that were investigated include Building 608, ASTs 338-A1, 338-D4, and 608, UST(R)-18/NAS GAP 17, UST 608-1, OWSs 608A and 608B, and WD 608. The following discussion of nature and extent compares detected concentrations of chemicals to the 2002 residential PRG, tap water PRG, and MCL values. Each chemical with one or more exceedances of the PRG or MCL is discussed in later sections of this ROD but is not necessarily selected as a COC at Site 16.

5.5.3.1 Site 16 Soil

The chemicals detected in soil at Site 16 included metals, VOCs, SVOCs, PAHs, pesticides, and PCBs, and TPH. Chemicals detected at Site 16 are generally consistent with historical activities.

Arsenic, iron, and lead were detected at concentrations above the 2002 residential PRGs (see Table 5-5). Arsenic concentrations were attributed to background concentrations for Alameda Point (Tetra Tech 2004). Although iron concentrations are statistically greater than background concentrations, iron is an essential human nutrient and is toxic at only very high doses. For this reason, iron was eliminated as a COPC and therefore was not evaluated in the risk assessments (Tetra Tech 2004). However, lead is considered a COC because it was detected at concentrations exceeding both the EPA residential PRG and background concentration for Alameda Point.

VOCs were detected in soil at Site 16; however, they were not present at concentrations exceeding EPA residential PRGs. SVOCs, excluding PAHs, were sporadically detected at Site 16. All non-PAH SVOCs were detected at concentrations below their respective PRGs. One PAH SVOC (B[a]P) was detected at a concentration above the EPA 2002 residential PRG (EPA 2002a) (see Table 5-5). Therefore, PAHs are not COCs at Site 16 and PAH concentrations are below the site average threshold level of 0.62 mg/kg for B(a)P-equivalent chemicals. The horizontal and vertical spatial pattern of detections was not indicative of a release at Site 16. The source of PAHs is attributable to materials dredged from San Francisco Bay used to construct Alameda Point.

One pesticide (chlordane) and one PCB (Aroclor-1260) were detected at concentrations above residential PRGs (see Table 5-5). Because PCBs and lead were a concern for Site 16, a soil removal action was conducted in 1997 by the Navy. The main objective was to remove soil contaminated with lead and PCBs greater than the residential-based action levels of 300 mg/kg and 1 mg/kg, respectively. A total of 3,000 cubic yards of soil was removed from three separate areas within Site 16. Soil samples collected following the removal action confirmed this process successfully met its objectives because lead and PCB concentrations were below the residential-based action levels of 300 mg/kg and 1 mg/kg for lead and PCBs, respectively.

Although the RI Report concluded that soil at Site 16 does not require remediation, EPA and DTSC subsequently requested and the Navy agreed to perform further sampling during the remedial design phase to evaluate the nature and extent of potential soil and groundwater contamination beneath and adjacent to OWSs 608A and 608B, and the CANS area (Tetra Tech 2004; DTSC 2005). At the time of preparation of this ROD, the Navy is working collaboratively with the agencies on the work plan associated with this sampling event.

5.5.3.2 Site 16 Groundwater

The chemicals detected in groundwater at Site 16 included metals, VOCs, SVOCs, PAHs, pesticides, PCBs, and TPH. Chemicals detected at Site 16 are generally consistent with

historical activities. PAHs and PCBs in groundwater were evaluated using historical data and were not detected at concentrations above screening criteria. Insufficient information is available about OWSs 608A and 608B, which are being further investigated by the Navy.

Of the chemicals detected in groundwater, ten metals, three pesticides, eight VOCs, and three SVOCs were detected at concentrations exceeding MCLs or EPA tap water PRGs (see Table 5-6). Cyanide was also detected at concentrations exceeding MCLs (see Table 5-6).

Pesticides (alpha-chlordane and heptachlor epoxide) and lead were detected in groundwater near the former location of UST 608-1/NAS GAP 17. The alpha-chlordane concentration exceeded the risk-based screening level of 0.19 μg/L in only one of three samples with detected concentrations from Site 16. Heptachlor epoxide was detected in two samples at concentrations ranging from 0.01 to 0.013 μg/L, exceeding the risk-based screening concentration of 0.0074 μg/L. Lead exceeded the MCL in only one sample evaluated during the RI. This sample was determined to be a consequence of the 2004 ISCO removal action conducted at Site 16, and the lead result was therefore considered anomalous. Since the anomalous detection, only two samples contained lead at concentrations exceeding the MCL. These two samples were collected from the same well after the ISCO removal action. Based on samples collected between 2005 and 2006 under the basewide groundwater monitoring program, lead was not detected at concentrations exceeding the MCL (ITSI 2006). Therefore, lead is not a COC for groundwater at Site 16.

Cyanide was eliminated as a COPC for groundwater because detections were below the screening level and therefore was not evaluated in the human health risk assessment (Tetra Tech 2004). However, cyanide was retained in the ecological risk assessment (Tetra Tech 2004).

During 2004, a full-scale dissolved-phase groundwater removal action was conducted at Site 16 to address chlorinated solvents and benzene. The removal action, consisting of ISCO injection, was performed at two locations (former UST 608-1 and the scrap yard). Analytical results for recent groundwater samples indicated concentrations of the target compounds could be reduced to at or below the residential-based MCLs (Shaw 2005a). Additional investigation was recommended to further delineate the contaminant source(s) and the extent of the groundwater plume at Site 16 (Shaw 2005b).

5.6 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 uses, and (3) surface water uses at Site 16. This information was incorporated into the development of exposure scenarios for the BHHRA and the development and evaluation of remedial alternatives for Site 16.

5.6.1 Future Land Uses

Site 16 is an IR site at Alameda Point, which is under the jurisdiction of the Navy. About 70 percent of Site 16 is covered by asphalt, concrete roads, parking lots, buildings, and some unpaved open space areas. A portion of Site 16 is presently occupied by CSI Mini Storage, and another portion was used as an auto shop. The most likely future reuse for Site 16 is a combination of commercial and parks/open space, as discussed below.

According to the NAS Alameda Community Reuse Plan (EDAW, Inc. 1996), Site 16 is located in the Inner Harbor area, which is in the southeastern corner of Alameda Point. The Inner Harbor is a mixed-use area with major emphasis on research and development and light industrial uses. A regional park is shown in the reuse plan in part of the Inner Harbor area, including the area where Site 16 is located. Light industry, offices, and supporting retail, commercial, and residential uses are allowed within the district. Supporting uses should be focused in or around a mixed-use neighborhood center along the extension of Pacific Avenue, associated with patterns of use in the adjoining Marina district.

According to the General Plan Amendment (City of Alameda 2003), potential redevelopment of Site 16 is split between mixed use and parks and public open space. The Preliminary Development Concept indicates that Site 16 is split between commercial mixed use and the parks/open space. Eventually, Site 16 will be transferred to a non-federal entity (Alameda Reuse and Redevelopment Authority and Roma Design Group 2006).

5.6.2 Groundwater Uses

Groundwater beneath the southeastern portion of Alameda Point, including Site 16, is not currently used for drinking water, irrigation, or industrial supply within the former NAS Alameda area. Groundwater within the FWBZ is a Class II aquifer based on federal TDS and well yield criteria (Tetra Tech 2000b). The FWBZ in the southeastern region is connected hydraulically to another Class II aquifer (Merritt Sand), which is a current source of irrigation water for off-base residential wells (Tetra Tech 2000b). Sixty upgradient wells were identified within 1 mile of the southeast portion of Alameda Point (Tetra Tech 2000b). The EPA Well Head Protection Model was used to determine if an off-base well could capture a groundwater contaminant plume from the southeastern portion of Alameda Point. The model indicated that plume capture from Site 23, located immediately north of Site 16, was possible at a pumping rate of 3 gallons per minute (Tetra Tech 2000b).

In addition, pursuant to SWRCB Res. 88-63, groundwater beneath Site 16 meets the definition of a potential drinking water source.

The Navy identified federal and state MCLs as chemical-specific ARARs for groundwater in the FWBZ beneath Site 16 because the groundwater is a potential drinking water source under both federal and state criteria and because it is hydraulically connected to groundwater currently being used.

5.6.3 Surface Water Uses

OU-1 Sites 6, 7, 8, and 16 do not have naturally occurring surface streams or ponds. Storm water at Site 16 is presently handled via storm sewers.

5.7 SUMMARY OF SITE 16 RISKS

This section summarizes the potential risks to human health and the environment at Site 16. Section 2.7 provides a general discussion of the methods used to conduct the BHHRA and the modified ERA.

5.7.1 Baseline Human Health Risk Assessment Approach

The anticipated future use of Site 16 is commercial/industrial; however, the BHHRA also evaluated the recreational, construction worker, and residential scenarios. The remainder of this section discusses the BHHRA approach and the results for Site 16. The overall BHHRA approach is discussed in Section 2.7.1.

A conceptual site model was presented in the OU-1 Sites 6, 7, 8, and 16 RI Report and used to support these risk assessments by identifying the potential receptors and exposure pathways associated with each of the sources of chemicals at Site 16 (see Figure 5-2). Chemicals at Site 16 are associated with the historical activities that occurred at the site, such as aircraft parking and chemical storage. The conceptual site model and the detailed approach and results of the Site 16 risk assessments are presented in Section 7.3 of the OU-1 Sites 6, 7, 8, and 16 RI Report (Tetra Tech 2004).

5.7.1.1 Identification of Chemicals of Potential Concern

Data for soil and soil gas samples were collected within and around the site boundaries for Site 16 and groundwater samples were collected within the boundaries of a pesticide and solvent plume. The soil data were aggregated in depth intervals of 0 to 2 feet bgs and 0 to 8 feet bgs to evaluate potential exposures associated with site use. Soil gas data were used in the risk evaluation of subsurface vapor migration to indoor air at Site 16.

Lead was identified as a COPC in soil at Site 16. The background comparison showed that one COPC, arsenic, was statistically similar to background concentrations for both soil and groundwater. Three COPCs (arsenic, cadmium, and manganese) for groundwater were found to be statistically similar to background concentrations. All metals were retained as COPCs regardless of their presence in the background. All Site 16 COPCs are presented in the OU-1 Sites 6, 7, 8, and 16 RI Report (Tetra Tech 2004).

5.7.1.2 Exposure Assessment

The anticipated future use of Site 16 is commercial/industrial and recreational; however, the BHHRA also evaluated the construction worker and residential exposure scenarios (see Table 5-7). The residential scenario is considered to be the most conservative and least likely scenario at the site. The exposure assumptions for each of these scenarios are summarized in Section 2.7.1.2.

5.7.1.3 Soil Risk Characterization

Risk characterization results for Site 16 soil are presented below. The general risk characterization assumptions, description of the risk management range, and cancer risks and noncancer HIs are provided in Section 2.7.1.

For commercial/industrial scenario, the total RME cancer risk (including background) for soil is 7×10^{-6}, which is within the risk management range (EPA 1991). The RME HI (including background) is 0.1, which is less than 1 (Tetra Tech 2004).

For the residential scenario, soil data were aggregated in depth intervals of 0 to 2 feet bgs (surface soil) and 0 to 8 feet bgs (subsurface soil). For surface soil, the total RME cancer risk (including background) is 7×10^{-5} at Site 16, which is within the risk management range (EPA 1991). The total RME HI for a child (including background) from surface soil is 1. For subsurface soil, the total RME cancer risk (including background) is 6×10^{-5}, which is within the risk management range (EPA 1991). The total RME HI for a child (including background) from subsurface soil is 1. Cancer risk drivers for surface and subsurface soil are arsenic, Aroclor-1254, and Aroclor-1260 (Tetra Tech 2004).

Cancer risks from surface and subsurface at Site 16 are attributed primarily to arsenic (6×10^{-5} and 5×10^{-5}, respectively), which is considered background. Cancer risks from Aroclor-1254 and Aroclor-1260 are 1×10^{-6} and 7×10^{-6}, respectively, at Site 16 (Tetra Tech 2004). The BHHRA included PCB data collected prior to the 1997 soil removal action and therefore overestimated the risk associated with Aroclor-1254 and Aroclor-1260.

Under the residential scenario, RME cancer risk also was calculated for background metals in soil at Site 16. RME cancer risk from background metals is 4×10^{-5}. The incremental risk from background metals for surface and subsurface soil is 3×10^{-5} and 1×10^{-5}, respectively, at Site 16. PAH SVOCs were not identified as risk drivers at Site 16 and are therefore not considered COCs.

Results of the BHHRA did not identify any COPCs in Site 16 soil that exceeded the risk management range and would require remediation in accordance with the NCP. However, the regulatory agencies requested (SulTech 2004) and the Navy agreed to evaluate potential site risks associated with the OWSs. Because the PCB action levels were achieved during the 1997 soil removal action, the Navy has determined no further action for PCBs is warranted at Site 16.

5.7.1.4 *Groundwater Risk Characterization*

Groundwater pathways for the recreational and construction worker receptors were not considered complete at Site 16; therefore, groundwater was not evaluated for these scenarios. Only inhalation of vapors from groundwater in indoor air was a complete exposure pathway for the commercial/industrial scenario. For the commercial/industrial scenario, the total RME cancer risk (including background) is 9.6×10^{-6}, which is within the risk management range (EPA 1991). The total RME HI (including background) (0.04) is less than 1 (see Table 5-8).

Under the residential scenario for Site 16 groundwater, the total RME cancer risk (including background) is 7×10^{-4}, which exceeds the risk management range (EPA 1991). Groundwater risks are attributed primarily to 1,4-dichlorobenzene (DCB), alpha-chlordane, arsenic, heptachlor epoxide, PCE, TCE, and vinyl chloride. Alpha-chlordane was detected in only three samples, and the calculated EPC was less than the California MCL of 0.1 µg/L. Alpha-chlordane was not retained as a COC because the risk assessment determined that the risk from alpha-chlordane was within the risk management range (approximately 1×10^{-5}). Heptachlor epoxide was only detected sporadically, and the calculated EPC was equal to the California MCL. Heptachlor epoxide was evaluated in the risk assessment, and the risk was determined to be 1×10^{-6}.

The highest residential (child) RME HI (including background) is 14, which exceeds 1 (see Table 5-8). Groundwater noncancer risks are primarily attributable to 1,3-DCB, aluminum, arsenic, cadmium, manganese, and TCE. Aluminum, arsenic, cadmium, and manganese are attributable to background and therefore were not retained as COCs (Tetra Tech 2004).

Under the residential scenario, RME cancer risk and an HI were also calculated for metals in the background data set for Site 16 groundwater. RME cancer risk from background groundwater is 2.2×10^{-4}, and the child HI for background groundwater is 13 (Tetra Tech 2004).

5.7.2 Modified Ecological Risk Assessment Approach

Ecological habitat capable of supporting significant wildlife is not present at Site 16; however, exposure pathways for terrestrial receptors were considered potentially complete to provide a conservative estimate of risk (Tetra Tech 2004). An exposure pathway for aquatic receptors was considered complete for groundwater plumes that could potentially migrate toward the Bay (including the Oakland Inner Harbor and the Seaplane Lagoon) or for broken storm sewer lines that discharge to the Bay.

Ecological receptors evaluated at Site 16 included small mammals, passerines, and raptors. Results of the modified ERA indicated that no potential risk is posed to passerines or aquatic receptors at Site 16 (Tetra Tech 2004). However, concentrations of cadmium and copper in Site 16 soil pose a potential risk to small mammals, and cadmium poses a potential risk to raptors. Based on the lack of habitat for these populations at Site 16, however, the risk of exposure to these chemicals was considered to be low. A thorough description of the modified ERA

conducted at Site 16 (with corresponding uncertainties) is presented in the OU-1 Sites 6, 7, 8, and 16 RI Report (Tetra Tech 2004).

5.7.3 Chemicals of Concern

Chemicals at Site 16 were identified as COCs based primarily on the results of the risk assessment process, but the potential exposure concentrations for several chemicals were assessed further because of the transient nature their concentrations in groundwater. No COCs were identified for soil under any of the Site 16 risk scenarios (Tetra Tech 2004). Insufficient information is known about potential contamination beneath and adjacent to OWSs 608A and 608B. Consequently, additional sampling beneath and adjacent to these OWSs will be conducted to determine the extent of any contamination and identify any soil COCs associated with these OWSs.

COCs identified for groundwater for the residential scenario are 1,4-DCB; 1,3-DCB; TCE; PCE; and vinyl chloride (Tetra Tech 2004). These chemicals pose risk from vapor intrusion to indoor air and through domestic use of groundwater. Lead in groundwater, heptachlor epoxide, and chlordane were identified as potential risk drivers in the BHHRA. However, it was determined that the EPCs for these contaminants were biased by highly variable monitoring data (for lead) or the EPCs were less than or equal to the MCLs (for heptachlor epoxide and chlordane), and monitoring data showed that the contaminants were only detected sporadically.

The highest residential (child) RME HI (including background) is 14, which exceeds 1 (see Table 5-8). Groundwater noncancer risks are attributed primarily to 1,3-DCB; aluminum; arsenic; cadmium; manganese; and TCE. Aluminum, arsenic, cadmium, and manganese are attributed to background and therefore were not retained as COCs (Tetra Tech 2004).

The modified ERA did not identify any COCs for ecological receptors at Site 16 (Tetra Tech 2004). The lack of habitat, including nesting and foraging range, makes for minimal likelihood of exposure and hazards to the ecological receptors.

5.8 REMEDIAL ACTION OBJECTIVES FOR SITE 16

This section summarizes the RAOs developed for soil and groundwater at Site 16 based on the identified COCs, potential receptors and exposure pathways, ARARs, and remediation goals.

5.8.1 Site 16 Soil

The OU-1 Sites 6, 7, 8, and 16 RI Report concluded that soil at Site 16 does not pose a significant risk to human health or to the environment (risks are within the risk management range); however, the RI Report did not include sufficient characterization of the soil beneath and adjacent to OWSs 608A and 608B (Tetra Tech 2004). Additional sampling beneath and adjacent to OWSs 608A and 608B will be conducted to determine the extent of any contamination and

identify any soil COCs associated with these SWMUs and the CANS area. As a result, the following RAO was developed for any potential COCs that may be identified at Site 16:

- Minimize the potential risk of exposure (through ingestion or dermal contact) of a commercial worker to unacceptable levels of COCs in Site 16 soil and either prevent exposure (through ingestion or dermal contact) of future residents to unacceptable levels of COCs in soil or prohibit residential use of the property.

The remediation goal for soil in the CANS area of the site is as follows:

- 1.0 mg/kg for total PCBs based on TSCA PCB remediation waste requirements for PCB-contaminated soil.[3]

Remediation goals for any COCs that might be identified during sampling at OWSs 608A and 608B will be based on EPA's residential PRGs (EPA 2004), or background concentrations if higher than residential PRGs. The anticipated land uses for Site 16 in the near future are commercial or industrial. The Navy selected residential PRGs because the costs associated with remediating to the residential PRGs are comparable with the cost of remediating to the commercial/industrial remediation goals. The sampling effort and any subsequent remediation activities are expected to result in no further corrective action status for these SWMUs at Site 16.

5.8.2 Site 16 Groundwater

The RAOs for groundwater at Site 16 are (1) to protect the beneficial use of the aquifer from Site 16 COCs and (2) to minimize the potential risk of exposure through inhalation by a commercial worker to unacceptable levels of COCs in groundwater.

The remediation goals for the Site 16 COCs in groundwater will be the following federal or state MCLs, or risk-based level, where no federal or state MCL is available:

- Cis-1,2-DCE: 6 µg/L (state)
- 1,3-DCB: 5.5 µg/L (risk-based)
- 1,4-DCB: 5 µg/L (state)
- PCE: 5 µg/L (federal)
- TCE: 5 µg/L (federal)
- Vinyl chloride: 0.5 µg/L (state)

[3] The Navy and EPA have selected a RG of 1.0 mg/kg for total PCBs. DTSC's position is that the EPA PCB Aroclor-1260 PRG of 0.220 mg/kg for residential use is the appropriate RG for Site 16. However, DTSC concurs with the RG in this case because the selected remedy will result in a sitewide average of less than 0.220 mg/kg for PCBs.

5.9 DESCRIPTION OF REMEDIAL ALTERNATIVES FOR SITE 16

Remedial alternatives for soil and groundwater at Site 16 were developed in accordance with the requirements identified in CERCLA, as amended by Superfund Amendments and Reauthorization Act of 1986, 42 USC § 9601, et seq. and the NCP. Three alternatives were developed for soil and four alternatives were developed for groundwater, as discussed in the following sections. These alternatives, including the evaluation of the technologies and screening process that led to the development of these alternatives, were presented in the OU-1 Sites 6, 7, 8, and 16 FS Report (SulTech 2005).

5.9.1 Soil

The following soil alternatives were identified for soil at Site 16:

- Remedial Alternative 1 – No Action
- Remedial Alternative 2 – Sampling and ICs
- Remedial Alternative 3 – Sampling and Excavation with Off-Site Disposal of Soil

Each of these alternatives is discussed below.

5.9.1.1 Remedial Alternative 1 – No Action

Under Alternative 1, no remedial actions would be performed. This alternative provides a baseline for comparing all other alternatives. No cost is associated with this alternative.

5.9.1.2 Remedial Alternative 2 – Sampling and ICs

Alternative 2 would involve collection and analysis of additional samples to evaluate (1) the nature and extent of potential contamination beneath and adjacent to OWSs 608A and 608B and (2) if contamination is present beneath the CANS area. The numbers and types of samples to be collected will be determined by the Navy and regulatory agencies during the remedial design; a number of soil samples would be collected above the groundwater table and at least one groundwater sample would be collected to indicate the potential need to characterize soil contamination below the groundwater table. If chemicals are present in soil at concentrations exceeding their remediation goals, ICs would be applied to prohibit excavation of soil without prior regulatory approval; such prohibition would prevent any significant inhalation or ingestion of or dermal contact with contaminated soil. The ICs would remain in place until the RAO is achieved.

5.9.1.3 *Remedial Alternative 3 – Sampling and Excavation with Off-Site Disposal of Soil*

Alternative 3 will involve collection and analysis of additional samples to evaluate (1) the nature and extent of potential contamination beneath and adjacent to OWSs 608A and 608B and (2) if contamination is present beneath the CANS area. Additional actions necessary to obtain "corrective action complete" status for the RCRA SWMUs would be identified and addressed in the remedial design. Alternative 3 differs from Alternative 2 in that, if chemicals are present in soil at concentrations exceeding their remediation goals, the contaminated soil would be excavated and disposed of at an off-site landfill facility. Any groundwater contamination in such a small area that was not identified during the RI or as part of the Alameda Point TPH program would be associated with soil pore water, which would be removed with the contaminated soil. ICs are not required for Alternative 3 because contaminated soil is removed. The Navy has agreed to collect additional samples beneath the CANS area to confirm that the area is not contaminated.

5.9.2 Groundwater

The following remedial alternatives were identified for groundwater at Site 16:

- Remedial Alternative 1 – No Action
- Remedial Alternative 2 – Plume Boundary Refinement, MNA and ICs
- Remedial Alternative 3 – Active Treatment to Reduce Risk to Commercial/Industrial Workers with ISCO and Accelerated Bioremediation MNA, and ICs
- Remedial Alternative 4 – Treatment to Remediation Goals with ISCO and Accelerated Bioremediation, MNA, and Short-Term ICs

Each of these remedial alternatives is discussed below.

5.9.2.1 *Remedial Alternative 1 – No Action*

Under Alternative 1, no actions would be performed. This alternative provides a baseline for comparing all other alternatives. No cost is associated with this alternative.

5.9.2.2 *Remedial Alternative 2 – Plume Boundary Refinement, MNA, and ICs*

Alternative 2 involves additional plume delineation and an estimated 64 years of MNA for groundwater. Risk to human health would be prevented by ICs (1) prohibiting the alteration, disturbance, or removal of existing extraction wells at Site 16; (2) prohibiting the extraction of groundwater and installation of new groundwater wells until the remediation goals have been

achieved; and (3) requiring future landowners to gain written approval from the FFA signatories before any residential, hospital, or daycare use of the site.

These restrictions would be described in the preliminary and final remedial design reports, which would be developed and submitted to the FFA signatories for review pursuant to the FFA. The remedial design reports would identify procedures to determine when remediation goals have been achieved and the parties involved in this determination. The restrictions described in the remedial design reports would be released when it has been determined that remediation goals have been achieved.

5.9.2.3 Remedial Alternatives 3 – Active Treatment to Reduce Risk to Commercial/Industrial Workers with ISCO and Accelerated Bioremediation, MNA, and ICs

Alternative 3 was originally presented as Alternatives 3A and 3B in the OU-1 Sites 6, 7, 8, and 16 FS Report (SulTech 2005). However, these alternatives were combined in the Proposed Plan. Additional plume delineation would be performed during the remedial design. ISCO would be used to reduce high concentrations of COCs, followed by accelerated bioremediation of groundwater plume to reduce COC concentrations in groundwater to levels that are protective for commercial/industrial property reuse. MNA would then be implemented until the remediation goals are achieved. The remedial design will define the performance goals for ISCO, accelerated bioremediation, and MNA. Additionally, this alternative would require the same ICs described in Section 5.9.2.2.

5.9.2.4 Remedial Alternative 4 – Treatment to Remediation Goals with ISCO and Accelerated Bioremediation, MNA, and Short-Term ICs

Alternative 4 was originally presented as Alternatives 4A and 4B in the OU-1 Sites 6, 7, 8, and 16 FS Report (SulTech 2005). However, these alternatives were combined in the Proposed Plan. Additional plume delineation would be performed in the remedial design. ISCO would be used to reduce high concentrations of COCs, followed by accelerated bioremediation of the groundwater plume until the remediation goals are achieved. MNA may also be used where groundwater concentrations are approaching the remediation goals. The remedial design will define the actual performance goals for ISCO, accelerated bioremediation, and MNA. Additionally, this alternative would require the same ICs described in Section 5.9.2.2, however these ICs are expected to be of shorter duration.

5.10 COMPARATIVE ANALYSIS OF REMEDIAL ALTERNATIVES FOR SITE 16

This section summarizes the comparative analysis that was conducted to evaluate the relative performance of the remedial alternatives for soil and groundwater at Site 16 in relation to the nine criteria outlined in CERCLA § 121(b). Table 5-9 summarizes the results of the comparative analysis, and Table 5-10 summarizes the costs for each of the alternatives.

5.10.1 Soil

This section summarizes the comparative analysis of the remedial alternatives for soil at Site 16.

5.10.1.1 Overall Protection of Human Health and the Environment

The extent of contamination, if any, is unknown in soil and groundwater beneath and adjacent to OWSs 608A and 608B. Alternative 1 (No Action) would not eliminate or reduce risk or define the extent of contamination beneath and adjacent to OWSs 608A and 608B at Site 16. Alternative 2, (Sampling and ICs) would reduce risks at Site 16 to acceptable levels by delineating potentially contaminated soil beneath and adjacent to OWSs 608A and 608B and by implementing ICs to eliminate contact with contaminated soil by preventing domestic use of groundwater from Site 16. Alternative 3 (Sampling and Excavation with Off-Site Disposal of Soil) would reduce risks at Site 16 to acceptable levels such that there would be no restrictions on site use by removing soil beneath and adjacent to OWSs 608A and 608B with COC concentrations exceeding remediation goals.

5.10.1.2 Compliance with ARARs

Alternative 1 would not trigger ARARs at Site 16. Alternatives 2 and 3 will meet ARARs for soil and groundwater at Site 16 based on the respective reuse scenarios for each alternative.

5.10.1.3 Long-Term Effectiveness and Permanence

Alternative 3 has the highest degree of long-term effectiveness and permanence because potentially contaminated soil at Site 16 is removed from the site such that there are no restrictions on site use. Alternatives 1 and 2 would leave contaminated soil at Site 16.

5.10.1.4 Reduction of Toxicity, Mobility, or Volume through Treatment

None of the alternatives considered for soil at Site 16 involve treatment. Consequently, no reduction in toxicity, mobility, or volume will occur through treatment.

5.10.1.5 Short-Term Effectiveness

Alternative 1 would have no short-term effects on the environment. Alternative 2 would have minimal short-term effects on the environment during sampling activities. Alternative 3 includes excavation, which has the potential to create negative short-term air and water quality effects; such effects would be reduced through use of dust and erosion control methods. None of these alternatives would be expected to pose unacceptable short-term risks to site workers or the community.

5.10.1.6 Implementability

All of the alternatives would be readily implementable.

5.10.1.7 Cost

Alternative 1 is based on an assumption of zero cost. Alternatives 2 and 3 would cost $270,000 and $1,270,000, respectively. The costs for each of the alternatives are provided in Table 5-10.

5.10.1.8 State Acceptance

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

5.10.1.9 Community Acceptance

The OU-1 Sites 6, 7, 8, and 16 Proposed Plan was presented to the community and discussed during a public meeting on May 16, 2006 (Navy 2006). Attachment C, the Responsiveness Summary, addresses the public's comments and concerns about the selected remedial alternative for soil at Site 16.

5.10.1.10 Conclusions

Alternative 3 Soil Sampling and Excavation with Off-Site Disposal of Soil was selected as the preferred remedial alternative for Site 16 soil based on the following:

- Protects human health and the environment and fully complies with ARARs
- Provides excellent long-term protection by removing COCs and their associated risk
- Prevents further migration of chemicals

5.10.2 Groundwater

This section summarizes the comparative analysis of the remedial alternatives for groundwater at Site 16.

5.10.2.1 Overall Protection of Human Health and the Environment

Alternative 1 (No Action) would not protect human health or the environment because it does not prevent exposure to domestic consumption of groundwater and it does not prevent inhalation of indoor vapors that may partition from the groundwater and migrate to buildings.

Alternative 2 (Plume Boundary Refinement, MNA, and ICs), Alternative 3 (Active Treatment to Reduce Risk to Commercial/Industrial Workers with ISCO and Accelerated Bioremediation MNA, and ICs), and Alternative 4 (Treatment to Remediation Goals with ISCO and Accelerated Bioremediation, MNA, and ICs) would protect human health by preventing exposure to contaminated groundwater and vapors partitioning from groundwater. Until remedial goals are achieved, risk to human health would be prevented by (1) prohibiting the installation of extraction wells at Site 16; (2) prohibiting the extraction of groundwater and installation of new groundwater wells until the remediation goals have been achieved; and (3) requiring future landowners to gain written approval from the FFA signatories prior to any residential, hospital, or daycare use of the site.

The long-term effectiveness and permanence of Alternative 4 would be greater than Alternative 3 because of the time required to achieve the remediation goals. Domestic use remediation goals would be achieved following active treatment at Site 16. Groundwater monitoring to evaluate the achievement of remediation goals is assumed to last 64 years for Alternative 3. Under Alternative 4, ICs would limit exposure to groundwater and potential vapors at Site 16 until concentrations attenuate to below the remediation goals.

5.10.2.2 Compliance with ARARs

Alternative 1 would not meet ARARs for groundwater. Alternatives 2 through 4 are expected to meet the chemical-specific, location-specific, and action-specific ARARs for Site 16 groundwater.

5.10.2.3 Long-Term Effectiveness and Permanence

Alternative 1 would not provide long-term effectiveness and permanence for unanticipated groundwater uses at Site 16. Although risks posed by unanticipated groundwater use may decrease over time through natural attenuation, Alternative 1 would not provide any controls to prevent exposure to groundwater or indoor vapor intrusion. Alternative 1 also does not provide a mechanism to prevent indoor vapor intrusion of chlorinated compounds partitioning from groundwater at Site 16.

Alternative 2 would provide an adequate level of long-term effectiveness and permanence under both anticipated and unanticipated future land use scenarios by preventing exposures from domestic use of groundwater.

Alternatives 3 and 4 would provide higher levels of long-term effectiveness because contamination would be actively treated. Alternative 4 would provide the quickest degradation rate for contamination. Alternative 1 does not provide a mechanism to prevent extraction and domestic use of groundwater, which could result in exposure of human receptors that ingest groundwater.

5.10.2.4 Reduction of Toxicity, Mobility, or Volume

Alternatives 1 and 2 would not reduce the toxicity, mobility, or volume of COCs in groundwater at Site 16 through active treatment. However, these alternatives would eventually achieve the RAOs because of natural degradation processes. Alternatives 3 and 4 would reduce the mobility, toxicity, and volume of COCs in groundwater through active treatment.

5.10.2.5 Short-Term Effectiveness

The evaluation of this criterion considers the amount of time required to achieve RAOs and the associated risk posed to human health and the environment. Alternatives 1 and 2 would not introduce a risk to the community or the environment because no active treatment would be conducted. Alternatives 3 and 4 may pose certain risks to the community, site workers, or the environment, because of the injection of oxidation reagents during implementation of ISCO. However, these risks can be reduced through best management practices such as proper personal protective equipment and the installation of a fence or physical barriers at the treatment area. No short-term risks would be expected with implementation of hydrogen release compounds (Alternatives 3 and 4). Alternative 4 would achieve the greatest short-term effectiveness since it would induce the quickest contamination degradation rate while minimizing impacts on the workers and environment.

5.10.2.6 Implementability

Alternative 1 would be technically feasible and is easily implemented because no action would be conducted and additional resources would not be required. Alternatives 2, 3, and 4 may involve some implementation issues because they would require the concurrence from the regulatory agencies for the deed restrictions and the contents of the remedial design Alternatives 3 and 4 would be technically feasible; however, they would require (1) numerous injections under ISCO and hydrogen-releasing compounds to reduce risk to commercial/industrial workers and reach domestic use remediation goals and (2) concurrence from the regulatory agencies on the details of installing and operating these alternatives. Although Alternatives 3 and 4 would require establishment of different levels of ICs, their required duration would be shorter than that of Alternative 2. ICs for Alternative 4 will be shorter since they will only remain for the duration of active treatment.

5.10.2.7 Cost

Alternative 1 is based on an assumption of zero cost. Alternative 2 has an estimated cost of $1.8 million, and Alternative 3 has an estimated cost of $2.5 million. The estimated cost of Alternative 4 is $12.6 million. The costs for each of the alternatives are provided in Table 5-10.

5.10.2.8 State Acceptance

The State of California concurs with the Navy's selected remedial alternative (Alternative 4).

5.10.2.9 Community Acceptance

The OU-1 Sites 6, 7, 8, and 16 Proposed Plan was presented to the community and discussed in a public meeting on May 16, 2006 (Navy 2006). Attachment C, the Responsiveness Summary, of this ROD addresses the public's comments and concerns about the selected remedial alternative for groundwater at Site 16.

5.10.2.10 Conclusions

Alternative 4, Treatment to Remediation Goals with ISCO and Accelerated Bioremediation, MNA, and ICs, was selected as the preferred remedial alternative for Site 16 groundwater based on the following:

- Protects human health and the environment and fully complies with ARARs
- Provides excellent long-term protection by removing COCs and their associated risk in a shorter timeframe than Alternatives 2 or 3
- Permanently removes and prevents further migration of chemicals

5.11 PRINCIPAL THREAT WASTE

Principal threat wastes are source materials considered to be highly toxic, highly mobile, or those that would present a significant risk to human health or the environment should exposure occur. No soils at Site 16 were identified as being a principal threat waste. Contaminated groundwater is not generally considered to be a source material unless there are "pools" of nonaqueous-phase liquids present (EPA 1991). VOCs in groundwater at Site 16 are not considered a principal threat waste.

5.12 SELECTED REMEDY FOR SITE 16

Based on the results of the RI Report (Tetra Tech 2004), FS Report (SulTech 2005), and other documents provided in the administrative record for Site 16 (see Attachment A), as well as an evaluation of all comments on the OU-1 Sites 6, 7, 8, and 16 Proposed Plan (SulTech 2006) submitted by interested parties during the public comment period, the Navy has selected Alternative 3 as the remedy for soil and Alternative 4 as the remedy for groundwater at Site 16. Alternative 4 combines Alternatives 4A and 4B that were described in the OU-1 Sites 6, 7, 8, and 16 FS Report. The anticipated land uses for Site 16 in the near future are commercial or industrial. Each of the selected remedies is further discussed below.

5.12.1 Soil

Alternative 3 includes the following components:

- Sampling
- Excavation
- Disposal of soil at an off-site facility (if chemicals are present in soil at concentrations exceeding remediation goals)

The following subsections discuss the rationale for selecting the remedy, describe the remedy, its estimated costs, and expected outcomes.

5.12.1.1 Summary of the Rationale for the Selected Soil Remedy

The Navy has determined that soil and groundwater sampling is required beneath and adjacent to OWSs 608A and 608B and in the CANS area at Site 16 to identify and address any potential risk to human health based on exposures through ingestion or dermal contact of a commercial worker or a future resident to COCs in Site 16 soil. The current planned future use for Site 16 is commercial/industrial. The risk analysis demonstrates that the existing risk is within the risk management range for unrestricted use and therefore would not require ICs. The Navy has agreed to conduct further investigation of the OWSs. If COCs are identified during this investigation, the Navy presumes that overexcavation of soils beneath and adjacent to the OWSs to a level consistent with unrestricted use would be as cost-effective as removing soils consistent with commercial/industrial use and applying a land use restriction. Accordingly, remedial action is appropriate for Site 16 soil. Alternative 3 is the selected alternative for soil at Site 16 because it provides long-term protection by removing COCs in soil and their associated risk at a cost that is comparable to Alternative 2. Alternative 3 protects human health and the environment and fully complies with ARARs.

5.12.1.2 Description of the Selected Soil Remedy

Each of the components (sampling, excavation, and off-site disposal of soil) of Alternative 3 is described below.

Sampling

Alternative 3 involves collection of soil and groundwater samples to delineate the nature and extent of contamination beneath and adjacent to OWSs 608A and 608B and at the CANS area. Soil and groundwater samples will be collected from locations and depths to be determined during the remedial design.

Excavation

Soil with COCs at concentrations exceeding EPA 2004 residential PRGs, or background concentrations if greater than residential PRGs, will be excavated. The excavation would be accomplished with conventional heavy construction equipment, including backhoes, cranes, bulldozers, loaders, scrapers, and haulers. The estimated volume of soil to be removed at the area associated with OWSs 608A and 608B is about 42 cubic yards. This volume is based on a preliminary excavation boundary of 15 feet by 15 feet and a depth of 5 feet bgs. The boundary is based on the estimated size of OWSs 608A and 608B, allowing for some overexcavation of soil. This volume may change depending on whether the excavation boundaries are revised based on results of additional sampling in this area or contamination is encountered during field activities.

Off-Site Disposal of Soil

Disposal refers to the impoundment of excavated materials at a facility that is approved to accept them. Soils classified as hazardous waste under state and federal laws would be transported to an appropriate facility for treatment, if necessary, and disposal. Soils classified as nonhazardous would be transported to an appropriate facility for disposal.

5.12.1.3 Estimated Cost of Soil Remedy

Alternative 3 is estimated to cost $1,270,000. This cost is based on the best available information regarding the anticipated scope of the remedy; it includes capital and operation and maintenance costs, and is based on present value costs. Table 5-11 summarizes the estimated costs for Alternative 3. This cost is an order-of-magnitude engineering cost estimate that is expected to be within +50 to -30 percent of the actual project cost for remedial design and remedial action phase of site cleanup. A detailed cost estimate is presented in the OU-1 Sites 6, 7, 8, and 16 FS Report (SulTech 2005). Costs may change as a result of new information and data collected during implementation of the selected remedy. Significant changes may be documented in a memorandum to the administrative record, explanation of significant differences, or as an amendment to this ROD (EPA 1999b).

5.12.1.4 Expected Outcomes of the Selected Soil Remedy

The selected remedy for Site 16 soil includes characterization of soil beneath and adjacent to OWSs 608A and 608B. The Site 16 SWMUs are discussed in Section 4.2.2.2 and summarized in Table 4-3. The expected outcome of the selected remedy for the SWMUs is to minimize the potential risk of exposure of a commercial worker to unacceptable levels of COCs in the soil.

The remedy selected for Site 16 involves three separate components: (1) soil and groundwater sampling, (2) excavation, and (3) off-site disposal of soil. Figure 5-3 illustrates the decision logic for implementing the selected remedy.

The performance objective of the soil sampling is to delineate the nature and extent of soil contamination beneath and adjacent to OWSs 608A and 608B. The objective of the excavation is to remove contaminated soil that contains COCs that pose unacceptable risk. The objective of off-site disposal is to place contaminated soil in an appropriate facility for treatment, if necessary, and disposal.

Following implementation of the remedy, the Navy in collaboration with the regulatory agencies will determine if the performance objectives (including the RAOs) have been achieved.

5.12.2 Groundwater

Alternative 4 includes the following components:

- Installation of monitoring wells and additional sampling
- ISCO
- Accelerated bioremediation
- MNA
- ICs

The following subsections discuss the rationale for selecting the remedy and describe the remedy and its estimated costs and expected outcome.

5.12.2.1 Summary of the Rationale for the Selected Groundwater Remedy

The Navy has determined that groundwater at Site 16 poses a potential risk to human health based on potential commercial/industrial risk from inhalation of vapors in indoor air that have migrated from groundwater. Groundwater beneath Site 16 is unlikely to be a potential source of drinking water; however, groundwater beneath Site 16 is currently designated in the Water Board's Basin Plan as suitable for drinking water supply (Water Board 1995). Based on this designation, MCLs are the remediation goals for Site 16 groundwater. These remediation goals will minimize the potential risk to a commercial/industrial worker posed through inhalation of vapors in indoor air that may migrate from groundwater contaminated with unacceptable levels of COCs.

Alternative 4 is the selected alternative for groundwater at Site 16 because it reduces the mobility, toxicity, and volume of VOCs in groundwater by implementing an expedient, aggressive, and proven treatment strategy; and it has a high implementability, while fully protecting human health and the environment and complying with all environmental regulations and laws. ISCO and accelerated bioremediation will be used to reduce concentrations of chlorinated VOCs in the groundwater plume and to break down remaining chemicals. MNA will

be used where groundwater concentrations are approaching the remediation goals. ICs will be used to restrict property use until groundwater concentrations meet the remediation goals.

5.12.2.2 Description of the Selected Groundwater Remedy

Each of the components (Plume Boundary Refinement, ISCO, Accelerated Bioremediation, MNA, and Short-Term ICs) of Alternative 4 is described below.

Installation of Monitoring Wells and Additional Sampling

During the remedial design phase, monitoring wells will be constructed and additional groundwater sampling will be performed to delineate the horizontal and vertical extent of the groundwater plume, monitor flow conditions, track plume movement, and verify treatment effectiveness. Additional sampling will provide remedial design parameters needed for successful implementation of ISCO and to assess treatment effectiveness. Design parameters, including the plume area, radius of influence, number of injection wells, ISCO injection dose rates, and injection delivery methods, will be finalized based on initial sampling data collected during the remedial design phase. After each ISCO treatment, sampling will be performed to confirm the effectiveness of the treatment and determine the subsequent treatment design parameters. Post-ISCO sampling will also be used to evaluate if subsequent accelerated bioremediation treatment is required and to provide the remedial design parameters needed to successfully implement the accelerated bioremediation phase. Design parameters such as the remaining plume area, radius of influence, number of injection wells, accelerated bioremediation injection dose rates, and injection delivery methods will be derived by the final post-ISCO sampling event. Post-accelerated bioremediation confirmation sampling will be performed to document the successful completion of active remediation and verify RAOs and remediation goals have been achieved. Confirmation sampling results for VOCs in groundwater, along with the plume boundary area, migration, and change in concentrations, will be documented following termination of ISCO and accelerated bioremediation.

***In-Situ* Chemical Oxidation Treatment**

Full-scale ISCO treatment will provide a substantial reduction in COC concentrations throughout the VOC plume. ISCO involves injection of chemical reagents into groundwater to convert organic chemicals to water and carbon dioxide. Using this process, these chemical reagents are injected into the contaminated FWBZ. The reagents react with the groundwater COCs to produce carbon dioxide and water. ISCO treatment would provide substantial reduction in chemical concentrations throughout the VOC plume within 2 years. The remedial design phase will develop specific chemical reagents and dosage rates to be used during remediation.

Accelerated Bioremediation

If the post-ISCO confirmation sampling results indicate that COCs remain in groundwater, accelerated bioremediation will be used to further lower groundwater contaminant

concentrations. Bioremediation is a process that uses microorganisms or their enzymes to return the environment contaminated by chemicals to its original condition. Depending on the post-test ISCO results, residual chemicals will be addressed through either hydrogen-releasing or oxygen-releasing compound treatments. Either compound can stimulate rapid degradation of chemicals by supplying the necessary ions to support the oxidation and reduction reactions necessary to breakdown complex chemicals over time. Delivery of hydrogen- or oxygen-releasing compounds to the subsurface is accomplished by push-point injection or by injection into existing dedicated wells. Hydrogen-releasing and oxygen-releasing compounds will be introduced into the aquifer to accelerate anaerobic and aerobic bioremediation, respectively.

Accelerated anaerobic bioremediation is a process that uses hydrogen-releasing compounds to accelerate the natural anaerobic bioremediation process for chemicals susceptible to anaerobic biodegradation. Current conditions in the aquifer appear to be mildly reducing, and evidence exists of ongoing natural anaerobic VOC biodegradation (that is, the presence of DCE and vinyl chloride).

Accelerated aerobic bioremediation is a process that attempts to accelerate the natural biodegradation process for some chemicals by introducing oxygen into the subsurface to provide an aerobic environment for naturally occurring microorganisms that aerobically degrade pollutants into less toxic byproducts. Oxygen-releasing compounds produce a slow and sustained release of molecular oxygen when in contact with soil or groundwater.

Monitored Natural Attenuation

MNA refers to natural subsurface processes such as dilution, volatilization, biodegradation, adsorption, and chemical reactions with subsurface materials that are allowed to reduce chemical concentrations to acceptable levels. Long-term MNA must be periodically assessed to confirm that degradation is proceeding at rates consistent with achieving the remediation goals. Samples will be analyzed for VOCs, MNA parameters (such as chloride, sulfate, sulfide, ferrous iron, acidity/alkalinity, and nitrogen/nitrate/nitrite), and dissolved gasses.

Institutional Controls

ICs are legal and administrative mechanisms used to implement land-use and access restrictions that limit the exposure of future landowner(s) or user(s) of the property to hazardous substances until the levels of the COCs in groundwater do not present an unacceptable risk to residential receptors. Legal mechanisms include proprietary controls such as restrictive covenants, negative easements, equitable servitudes, lease restrictions, and deed notices. Administrative mechanisms include notices, adopted local land-use plans and ordinances, construction permitting, or other existing land-use management systems that may be used to ensure compliance with use restrictions. Monitoring and inspections are conducted to ensure that ICs are being followed.

The Navy has determined that it will reply on proprietary controls in the form of lease restrictions contained in the "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). These controls will continue until the property is conveyed either to a non-federal entity with environmental restrictive covenants as provided in the Navy/DTSC MOA (Navy and DTSC 2000) and attached covenant models or to a federal entity pursuant to a MOA with the federal transferee or a similar agreement. More specifically, the lease and use agreement will serve as interim ICs between the time the ROD is signed and the date upon which the Navy transfers the property. Through the lease and use agreement, the Navy will maintain conditions 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 activities by the lessee that could result in increased levels of risk to human health and the environment:

- 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)
- Operations that interfere with environmental restoration activities by the Navy, the 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)
- Any excavation, digging, drilling or other disturbance of the subsurface without written approval of the Navy (Section 13.11 of the LIFOC)

When the Alameda Point property is transferred to a non-federal entity, the IC objectives will be achieved through the land-use restrictions for this site that will be incorporated into the legal mechanisms summarized below.

1. If the property is transferred, restrictive covenants will be included in one or more Quitclaim Deed(s) from the Navy to the property recipient.
2. Restrictive covenants will be included in a "Covenant to Restrict Use of Property"[4] entered into by the Navy and DTSC as provided in the Navy/DTSC MOA (Navy and DTSC 2000) and consistent with the substantive provisions of Cal. Code Regs. tit. 22, § 67391.1.

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

[4] See "Memorandum of Agreement between the United States Department of the Navy and the California Department of Toxic Substances Control, Use of Model 'Covenant to Restrict Use of Property' at Installations Being Closed and Transferred by the United States Department of the Navy," dated March 10, 2000.

ICs will be applied to the property (see Figure 5-4) and included in findings of suitability to transfer, findings of suitability for early transfer, "Covenant to Restrict Use of Property" between the Navy and DTSC, and any Quitclaim Deed(s) conveying real property containing Site 16. The IC boundary shown on Figure 5-4 may be adjusted during the remedial design phase as the plume boundary is further refined.

The IC objectives to be achieved through land use restrictions summarized below for groundwater will be used to maintain the integrity of the groundwater remedial action until remediation is complete and the remedial goals have been achieved.

1. New construction in the Site 16 area subject to ICs shall not be for any of the following purposes set forth in Health and Safety Code § 25232(b)(1), until the risk associated with the COCs in groundwater is within risk management range for residential receptors unless otherwise approved by the Navy and FFA signatories:
   a. a residence, including any mobile home or factory-built housing constructed or installed for use as residential human habitation;
   b. a hospital for humans;
   c. a school for persons under 21 years of age;
   d. a daycare facility for children; or
   e. any permanently occupied human habitation other than those used for commercial or industrial purposes.
2. New groundwater wells of any type will not be installed without prior review and written approval from the FFA signatories.
3. The alteration, disturbance, or removal of groundwater monitoring wells, groundwater extraction wells, treatment facilities, and associated equipment without prior review and written approval from the FFA signatories will be prohibited.
4. The removal of or damage to security features (such as locks on monitoring wells, survey monuments, signs, or monitoring equipment, and associated pipelines and appurtenances) without prior review and written approval from the Navy will be prohibited.

ICs will remain in place until the following remediation goals have been achieved (anticipated to be approximately 3 years from the date of commencement of the selected remedial action):

- Cis-1,2-DCE: 6 μg/L
- 1,3-DCB: 5.5 μg/L
- 1,4-DCB: 5 μg/L

- PCE: 5 μg/L
- TCE: 5 μg/L
- Vinyl chloride: 0.5 μg/L

The Navy and FFA signatories and their authorized agents, employees, contractors and subcontractors shall have the right to enter upon Site 16 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.

The Navy shall address IC implementation and maintenance actions, including periodic inspections in the preliminary and final remedial design 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 DoD's January 16, 2004, memorandum titled "CERCLA ROD and Post-ROD Policy" [DoD 2004]). The preliminary and final remedial design 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 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 Navy, EPA, DTSC, Water Board, other government agencies, and the new property owner for implementation, monitoring, reporting, and enforcement of ICs;
- Providing a list of ICs with the expected duration; and
- Maps identifying where ICs are to be implemented.

The Navy will be responsible for implementing, inspecting, reporting, maintaining and enforcing the IC objectives described in the ROD in accordance with the approved remedial design 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 integrity of the remedy. Should any of the IC objectives 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).

5.12.2.3 Estimated Cost of Groundwater Remedy

Alternative 4 is estimated to cost approximately $12,600,000. This is based on the best available information regarding 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 is presented in Table 5-12. This is an order-of-magnitude engineering cost estimate that is expected to be within +50 to -30 percent of the actual project cost for remedial design/remedial action phase of site cleanup. A detailed cost estimate for Alternatives 4A and 4B are presented in the OU-1 Sites 6, 7, 8, and 16 FS Report (SulTech 2005). Costs may change as a result of new information and data collected during implementation of the selected remedy. 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).

5.12.2.4 Expected Outcomes of the Selected Groundwater Remedy

The selected remedy for Site 16 considers the groundwater-to-air migration pathway and provides for cleanup of the shallow groundwater aquifer to be protective of beneficial uses of groundwater beneath the site. The expected outcome of the selected remedy at Site 16 is to restore the quality of the shallow aquifer by reducing the mass of contaminants of concern in groundwater to levels that meet remedial goals.

The remedy selected for Site 16 involves a treatment train composed of two groundwater treatment systems (ISCO and accelerated bioremediation) that will be implemented sequentially. MNA may also be implemented if required. Each treatment is supported by groundwater monitoring and supplemented by ICs. Figure 5-5 illustrates the decision logic for implementing the selected remedy. The treatment system will be operated and optimized as necessary to meet performance objectives that are based on the remedial action objectives 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 to discontinue operation of the system. The Navy will periodically report the results of the system evaluation to the regulatory agencies during implementation of the selected remedial alternative. The performance objectives for the selected remedy include the following:

- **Mass reduction of each COC** – Reductions in the mass of each COC within the aquifer will be estimated based on the concentration of the COC in the performance monitoring data. These data will be compared with the predicted mass of the COC in

the aquifer when the remediation goals are achieved. In addition, fate and transport modeling may be used to evaluate the threat to human health.

- **Asymptotic mass removal** – Evaluate the continued efficiency of operating any active remedial component of the selected remedy and determine if removal rates are approaching an asymptote. Asymptotic conditions occur when the slope of the cumulative mass removed curve approaches zero over time. In addition, rebound of COC concentrations will be evaluated during shutdowns.

- **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 (measured as cost per unit mass removed) 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 whether each of the performance objectives is 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 system. The information collected during remedial design might include:

- Hydrogeological conditions of the contaminated aquifer, including stratigraphy, hydraulic and physical properties of the aquifer, groundwater recharge, hydraulic gradients, and depth to groundwater

- Lateral and vertical extent of COCs

- Estimates of mass for each COC

- Temporal trends in concentrations of COCs

- Potential for aquifer to support bioremediation and natural attenuation, including microbial populations, nutrient status, and decay potential of the COCs

- Delivery of agents used in ISCO and accelerated bioremediation

- Location of monitoring wells

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

During remedial design, the existing groundwater monitoring network will be evaluated to ensure it is adequate to monitor plume migration and the effectiveness of the selected remedy. Necessary changes will be recommended at that time. The selected remedy proposes to use ISCO and accelerated bioremediation as active components that will be operated sequentially as separate phases. ISCO will be used as the first phase followed by accelerated bioremediation, if necessary, when the ISCO phase concludes. The transition from ISCO to accelerated

bioremediation will be based on decisions that will follow after each injection of chemical reagent during ISCO. After each injection of chemical reagent and an appropriate amount of time to allow the groundwater to reach a steady state, concentrations of COCs in performance monitoring data will be used to evaluate the operation of the ISCO system. The evaluation will assess whether performance objectives have been achieved, such as whether there is significant rebound in COC concentrations, if asymptotic rates of removal are occurring, and if it is cost-effective to continue using ISCO.

As the cumulative removal of COC mass over time approaches an asymptotic state, the cost effectiveness of using ISCO will diminish. The Navy intends to use ISCO only 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. If the post-ISCO sampling results indicate that remedial goals have not been achieved, then accelerated bioremediation will be used to further lower groundwater contaminant concentrations. MNA will be used where groundwater concentrations are approaching the remediation goals.

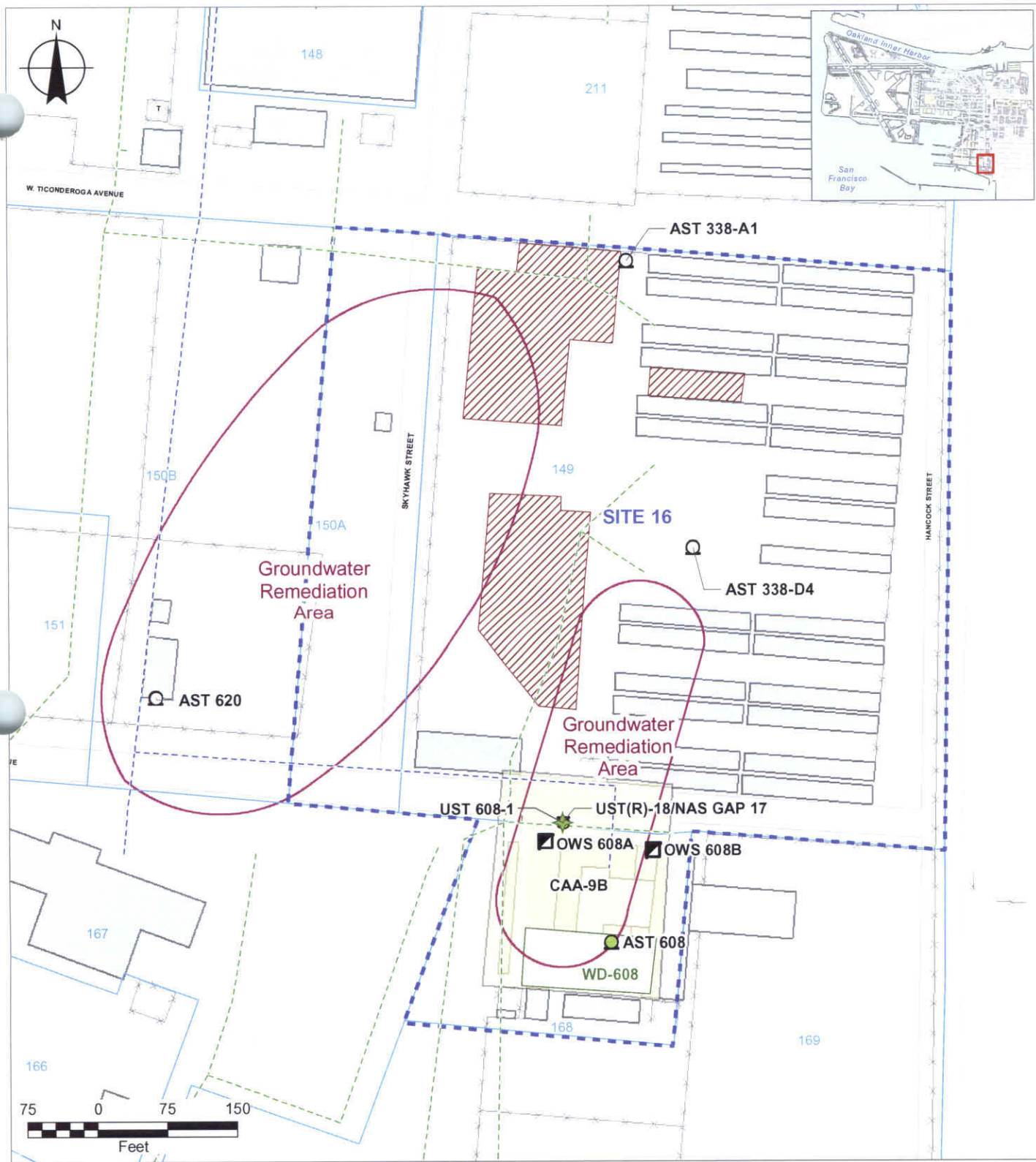
Following implementation of the active phases (ISCO and accelerated bioremediation) of the selected remedy and MNA, the Navy in collaboration with the regulatory agencies will determine if the performance objectives (including the RAOs) have been achieved. If it is determined that the RAOs have not been 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 ISCO and accelerated bioremediation treatment systems
- A projected timeframe for achieving the remedial goals by continuing MNA or reinstating ISCO and/or accelerated bioremediation
- Estimates of cost to continue MNA or reinstate ISCO and/or accelerated bioremediation
- Analysis of another alternative that is more cost-effective than MNA, ISCO, or accelerated bioremediation
- Whether 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 16. 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 remedial action objective. This decision will be made in accordance with EPA's "Guidance for Evaluating the Technical Impracticability of Groundwater Restoration" (EPA 1993).

FIGURES



- NAS Generator Accumulation Point (GAP)
- Oil Water Separator (OWS)
- Present AST Point
- Removed AST Point
- Underground Storage Tank (UST)
- CERCLA Site 16 Boundary
- Groundwater Remediation Area
- Environmental Baseline Survey Parcel
- Previous Excavation
- Fence
- Fuel Pipeline
- Sanitary Sewer
- Storm Drain Pipeline
- Corrective Action Area (CAA)
- Washdown Area
- Building
- Former Building
- Paved Road

Notes:
AST - Aboveground Storage Tank
CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act

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FIGURE 5-1

SITE 16 FEATURES MAP

Record of Decision for Operable Unit 1
Sites 6, 7, 8, and 16

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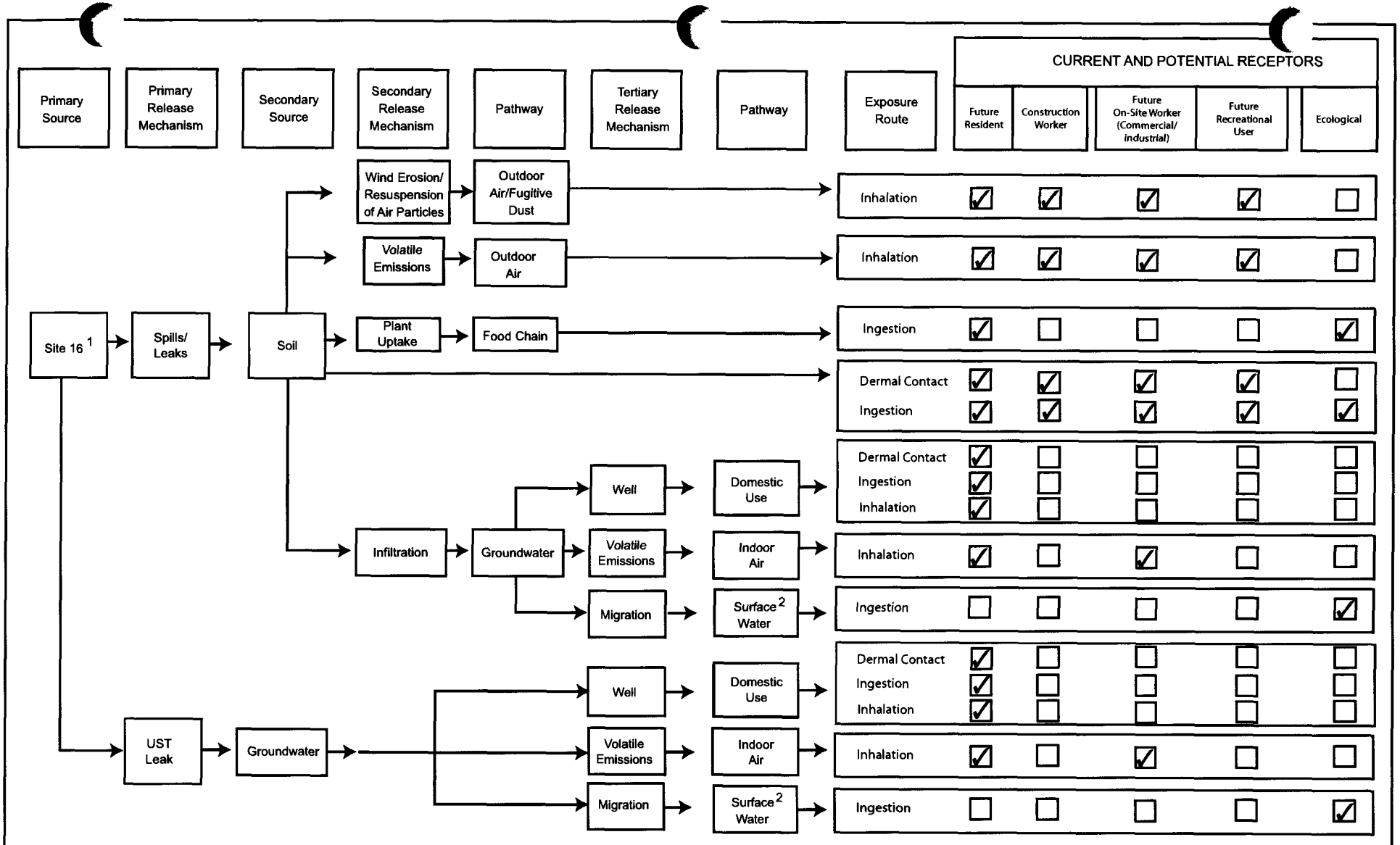

[1] Open Space around CANS 338A and UST 608-1/NAS GAP-17
[2] San Francisco Bay, Seaplane Lagoon

☑ Potentially complete pathway, exposure quantified

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FIGURE 5-2
SITE 16
CONCEPTUAL SITE MODEL
Record of Decision for Operable Unit 1
Sites 6, 7, 8, and 16

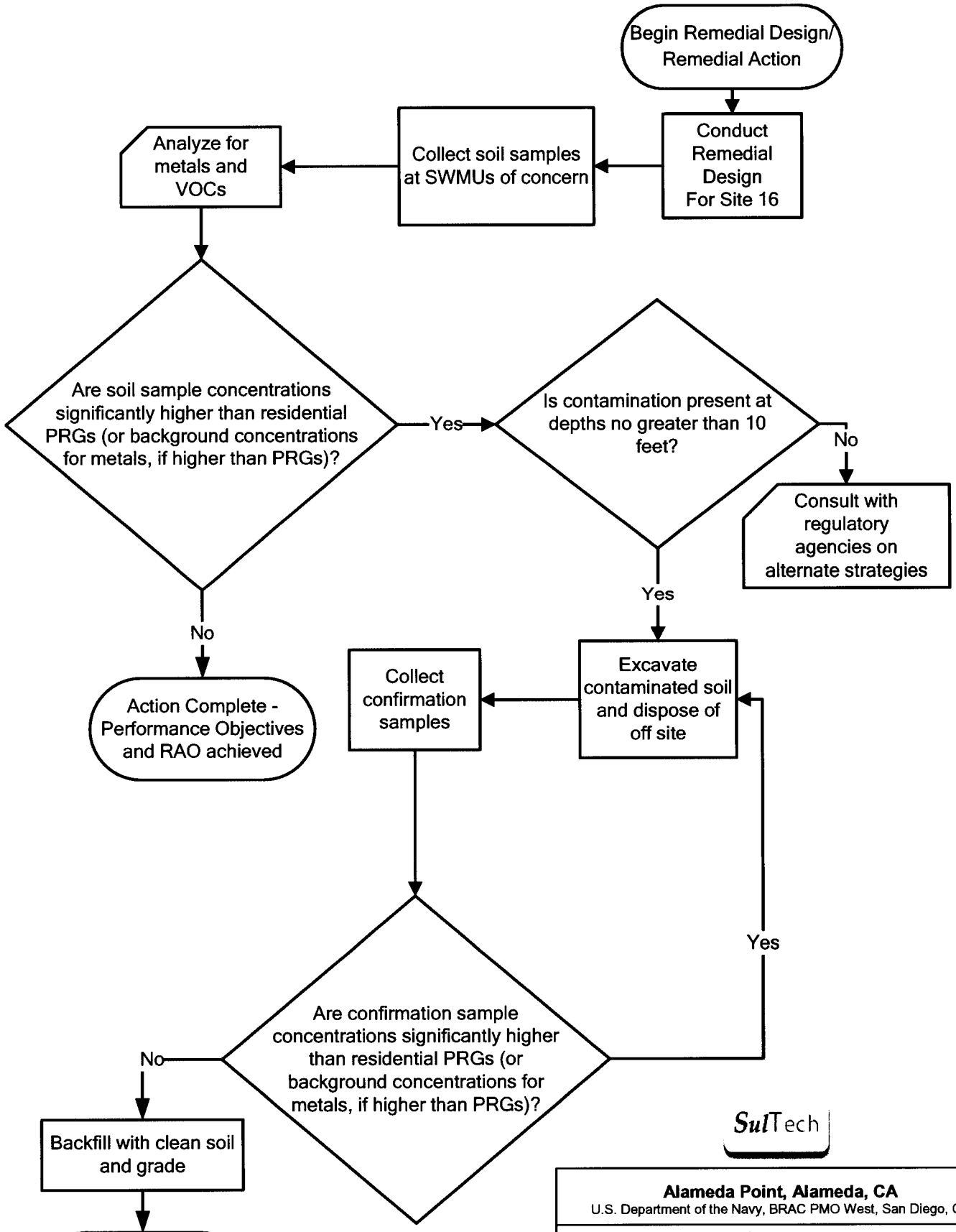

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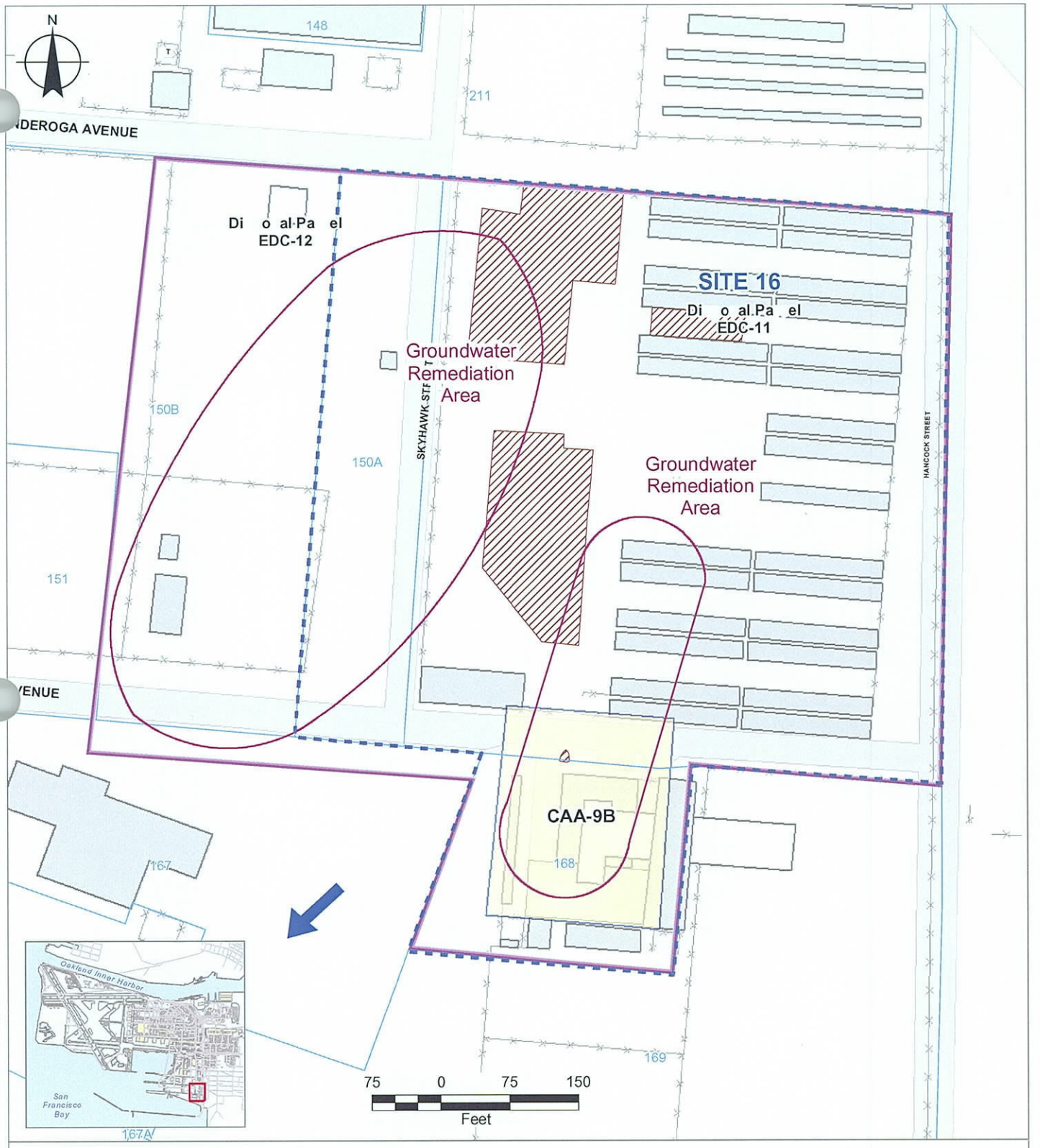
FIGURE 5-3

ACHIEVEMENT OF SITE 16 SWMU SOIL REMEDIATION GOAL

Record of Decision for Operable Unit 1
Sites 6, 7, 8, and 16



CERCLA Site 16 Boundary
Institutional Control Restriction Boundary
Groundwater Remediation Area
Environmental Baseline Survey Parcel
Previous Excavation
Corrective Action Area (CAA)
Washdown Area
Fence
Building
Former Building
Paved Road
Groundwater Flow Direction

CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act

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FIGURE 5-4

BOUNDARIES OF INSTITUTIONAL CONTROLS FOR SITE 16

Record of Decision for Operable Unit 1
Sites 6, 7, 8, and 16

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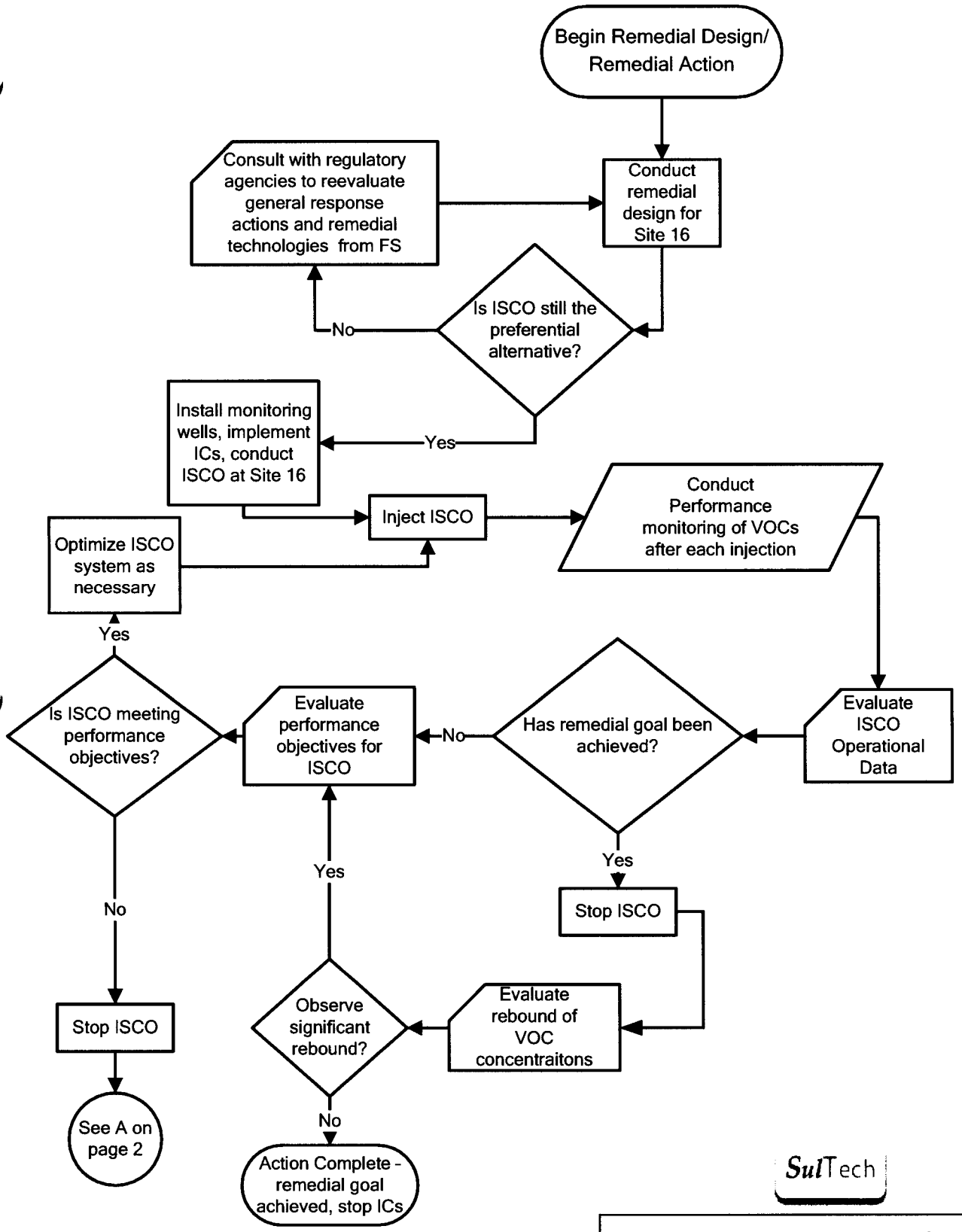

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FIGURE 5-5 (page 1 of 3)

ACHIEVEMENT OF SITE 16 GROUNDWATER REMEDIATION GOAL

Record of Decision for Operable Unit 1
Sites 6, 7, 8, and 16

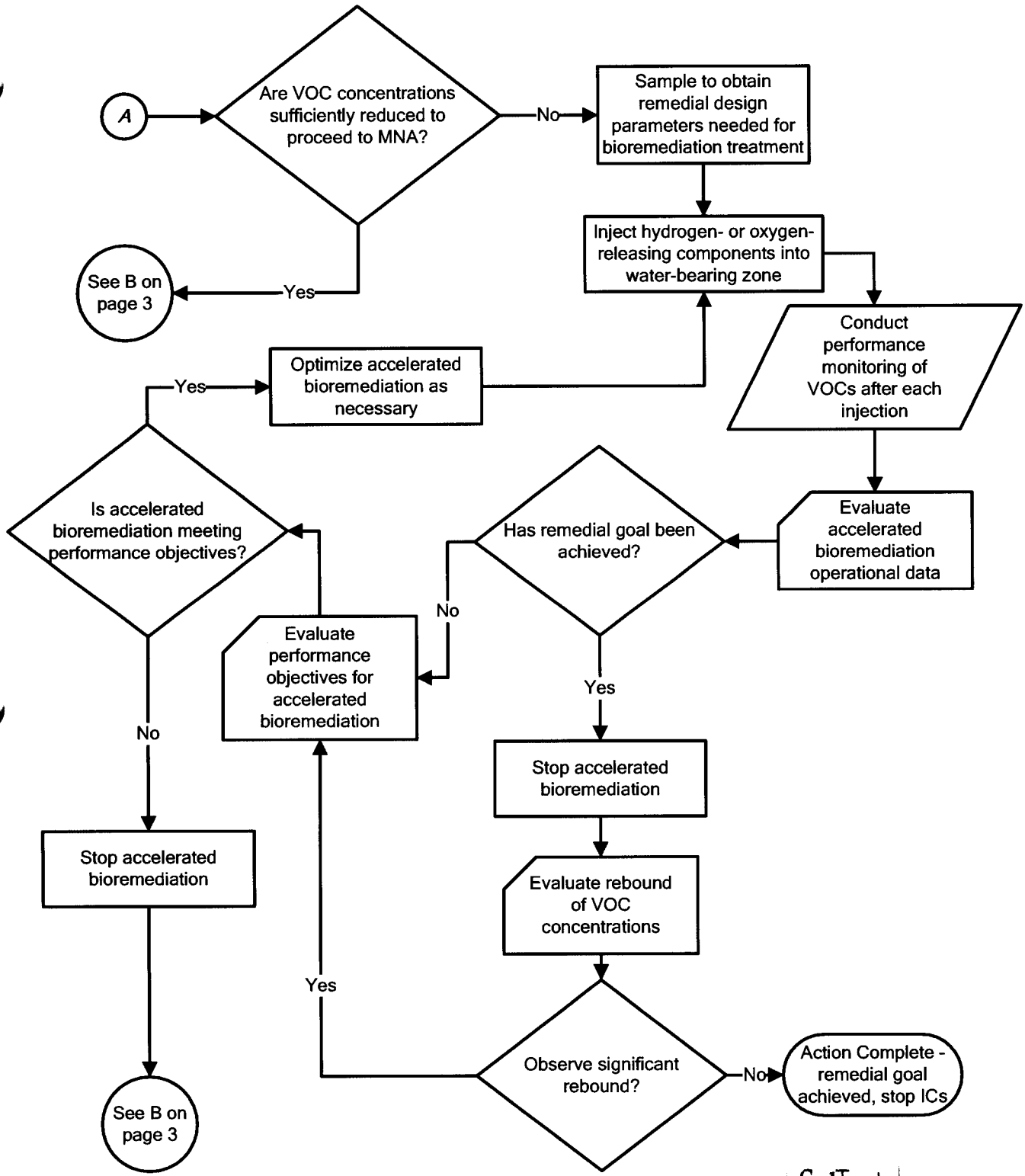

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FIGURE 5-5 (page 2 of 3)

ACHIEVEMENT OF SITE 16 GROUNDWATER REMEDIATION GOAL

Record of Decision for Operable Unit 1
Sites 6, 7, 8, and 16

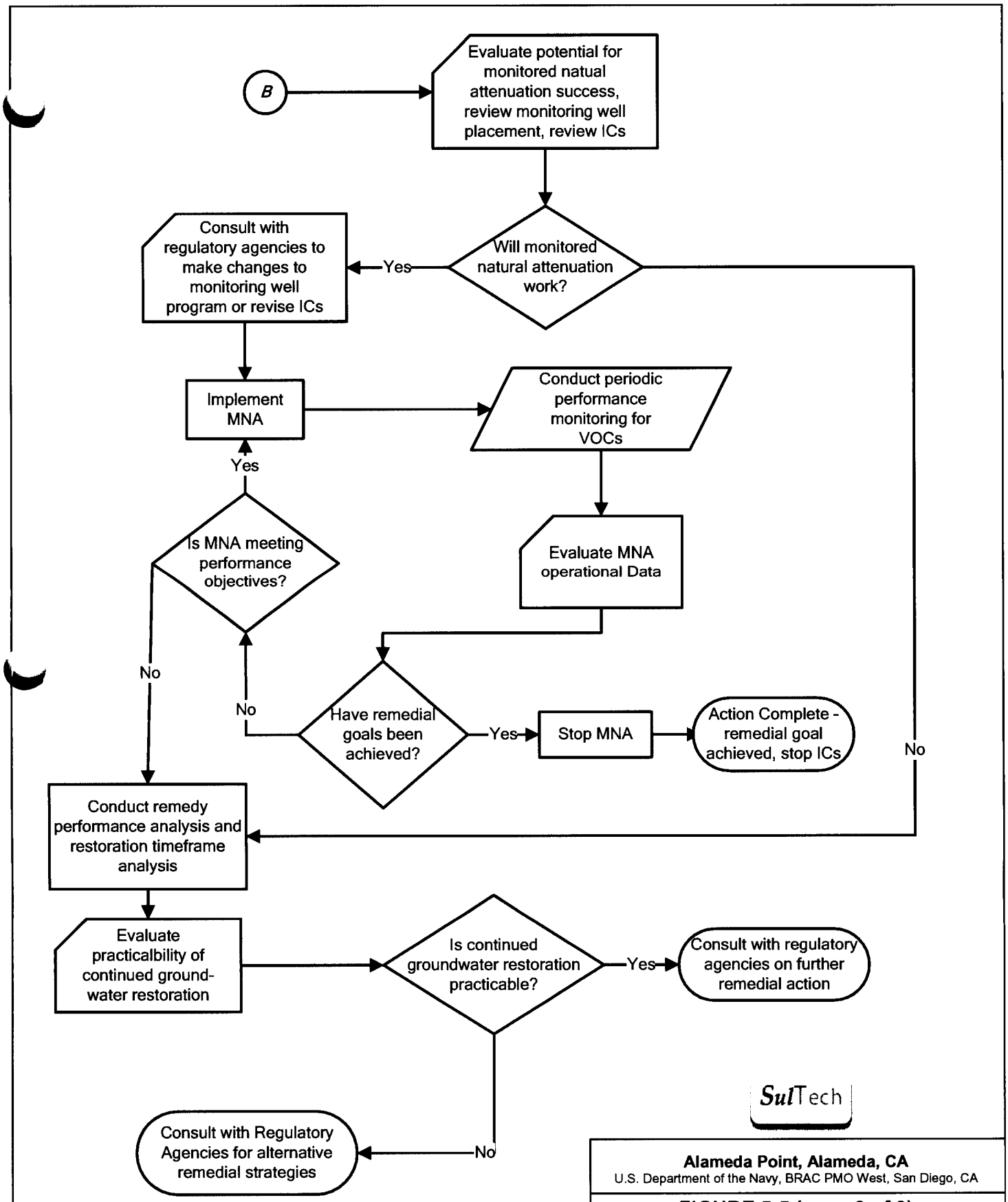

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FIGURE 5-5 (page 3 of 3)

ACHIEVEMENT OF SITE 16 GROUNDWATER REMEDIATION GOAL

Record of Decision for Operable Unit 1
Sites 6, 7, 8, and 16

TABLES

TABLE 5-1: SUMMARY OF CERCLA INVESTIGATION ACTIVITIES AT SITE 16
Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Date	Investigation/Activity	Objective	Summary of Findings
1990	IR Program Phases 1 and 2A Investigation	Evaluate whether potentially hazardous chemicals, including metals, VOCs, SVOCs, pesticides, PCBs, cyanide, and herbicides had contaminated soil and groundwater at Site 16.	PCBs in soil and metals, VOCs, SVOCs, pesticides, and cyanide in groundwater were identified as requiring further evaluation.
1994	Follow-On Investigation to IR Program Phases 2B and 3 Investigation	Further characterize PCBs in soil and metals, VOCs, SVOCs, pesticides, and cyanide in groundwater at Site 16.	Results were similar to previous investigations. The extent of potential chemicals of interest in soil and groundwater was adequately characterized for a remedial investigation and feasibility study.
1998	Follow-On Investigation	Additional groundwater samples collected as part of a basewide analysis of ambient groundwater quality.	No plumes of metal contamination were present in Site 16 groundwater.
1997	Soil Removal Action	Remove soils contaminated with lead and PCBs.	About 3,000 cubic yards of soil from three separate areas was removed. All soils with lead and PCB concentrations above the interim action levels for lead (300 mg/kg) and PCBs (1 mg/kg) were removed.
1997-1998	Storm Sewer Removal Action	Remove inorganic and organic chemicals and debris within the storm sewer system.	Subsystem Pm which serves the northern part of the CANS area, was not cleaned in 1997 because it was replaced or cleaned and inspected in 1991. Part of Subsystem Q was cleaned; the remainder was not cleaned because it was replaced in 1991.
2001	Supplemental RI Data Gaps Sampling	Fill data gaps identified in previous data, including (1) delineate the groundwater plume near Building 608 and the open space west of the CANS area; (2) investigate chlordane contamination near former UST 608-1; (3) investigate storm sewer pathways; and (4) collect soil gas samples for analysis of risk to human health.	Measurable concentrations of VOCs were detected above the contaminant plume in groundwater.
2001, 2003, and 2004	Groundwater Removal Action	Reduce COC concentrations below MCLs in two separate areas at Site 16.	Most VOCs reduced below MCLs in the northern area; some VOCs reduced below MCLs in the southern area.

TABLE 5-1: SUMMARY OF CERCLA INVESTIGATION ACTIVITIES AT SITE 16 (CONTINUED)
Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Date	Investigation/Activity	Objective	Summary of Findings
2002 to Present	Basewide Groundwater Monitoring	Conducted to (1) monitor the status of contaminant plumes in groundwater, (2) determine the potential for natural degradation, (3) determine the groundwater flow direction and gradients, and (4) identify locations where additional wells were needed and locations where existing wells could be abandoned.	Select wells were identified for quarterly or semiannual monitoring.
2003	Basewide PAH Investigation	Develop sufficient PAH data to calculate exposure point concentrations for human health and ecological risk assessments.	Study objectives were achieved.

Notes:

COC Chemical of concern
IR Installation Restoration
MCL Maximum contaminant level
mg/kg Milligram per kilogram
PAH Polycyclic aromatic hydrocarbon
PCB Polychlorinated biphenyl
RI Remedial investigation
SVOC Semivolatile organic compound
UST Underground storage tank
VOC Volatile organic compound

TABLE 5-2: SUMMARY OF RCRA INVESTIGATION ACTIVITIES AT SITE 16
Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Date	Investigation/Activity	Objective	Summary of Findings
1990	RCRA Facility Assessment	Identify SWMUs and AOCs, collect preliminary information on all actual or potential chemical releases from these SWMUs and AOCs, and evaluate the need and scope of a RCRA facility investigation.	The RCRA facility assessment identified one RCRA site within Site 16.
1992	RCRA Facility Investigation	A RCRA facility investigation for Alameda Point was implemented through coordination of existing environmental programs; namely, CERCLA, TPH and EBS.	Seven SWMUs were identified at Site 16.
2005	SWMU Evaluation	Identify the need for further actions at SWMUs, and identify SWMUs that should be managed under the Navy's CERCLA or Alameda Point TPH programs.	Based on evaluations conducted by the Navy using requirements stipulated in the final hazardous waste facility permit for Alameda Point, the Navy has recommended no further corrective action for ASTs 338-A1, 608, and 338-D4 and WD 608 (SulTech 2004). In a letter dated December 29, 2005 (DTSC 2005), DTSC concurred with the no further corrective action recommendation for ASTs 338-A1 and 608 and WD 608. AST 338-D4 has been deferred to the Alameda Point TPH program. The selected soil remedy within this ROD is intended to address the additional actions necessary to obtain "corrective action complete" status for OWSs 608A and 608B and UST(R)-18/NAS GAP 17 at Site 16.

Notes:

AOC	Area of concern	EBS	Environmental baseline survey	ROD	Record of decision
AST	Aboveground storage tank	GAP	Generator accumulation point	SWMU	Solid waste management unit
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	NAS	Naval Air Station	TPH	Total petroleum hydrocarbons
		OWS	Oil-water separator	UST	Underground storage tank
DTSC	Department of Toxic Substances Control	RCRA	Resource Conservation and Recovery Act	WD	Washdown area

Sources:

DTSC. 2005. Letter Providing DTSC Comments on the Draft OU-1 Sites 6, 7, 8 and 16 Proposed Plan. From DTSC. To Thomas Macchiarella BRAC Environmental Coordinator, BRAC Program Management Office West. December 29.

SulTech. 2004. "Draft Appendix I Solid Waste Management Unit Evaluation Report for Operable Unit 1 (Sites 6, 7, 8, and 16), Hazardous Waste Permit EPA ID Number CA 2170023236, Naval Air Station Alameda, Alameda Point, Alameda, California." September 30.

TABLE 5-3: SUMMARY OF NAVY AND DTSC DETERMINATIONS FOR SWMUS LOCATED WITHIN SITE 16

Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

SWMU Identification	Navy Determination (SulTech 2004)	DTSC Determination: Based on DTSC Letter Dated December 29, 2005 (DTSC 2005)	DTSC Determination: June 19, 2006 Site Walk Determination	Final Determination in the ROD
AST 338-A1	No Further Corrective Action	No Further Corrective Action	N/A	No RCRA corrective action
AST 608	No Further Corrective Action	No Further Corrective Action	N/A	No RCRA corrective action
AST 338-D4	No Further Corrective Action	Not Discussed	No Further Corrective Action	Deferred to the Alameda Point TPH program. No action under CERCLA.
OWS 608A	No Further Corrective Action	Further Corrective Action		The selected soil remedy within this ROD is intended to address the additional actions necessary to fulfill CERCLA requirements and obtain "corrective action complete" status for this SWMU.
OWS 608B	No Further Corrective Action	Further Corrective Action		Same as above
UST(R)-18/ NAS GAP 17	Further Corrective Action	Further Corrective Action		Same as above
WD 608	No Further Corrective Action	No Further Corrective Action	N/A	No RCRA corrective action

Notes:

AST Aboveground storage tank
CERCLA Comprehensive Environmental Response, Compensation, and Liability Act
DTSC Department of Toxic Substances Control
GAP Generator accumulation point
NAS Naval Air Station
OWS Oil-water separator
RCRA Resource Conservation and Recovery Act
ROD Record of decision
SWMU Solid waste management unit
TPH Total petroleum hydrocarbons
UST Underground storage tank
WD Washdown area

Sources:

DTSC. 2005. Letter Providing DTSC Comments on the Draft OU-1 Sites 6, 7, 8 and 16 Proposed Plan. From DTSC. To Thomas Macchiarella BRAC Environmental Coordinator, BRAC Program Management Office West. December 29.

SulTech. 2004. "Draft Appendix I Solid Waste Management Unit Evaluation Report for Operable Unit 1 (Sites 6, 7, 8, and 16), Hazardous Waste Permit EPA ID Number CA 2170023236, Naval Air Station Alameda, Alameda Point, Alameda, California." September 30.

TABLE 5-4: SUMMARY OF EBS AND TPH INVESTIGATION ACTIVITIES AT SITE 16
Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Date	Investigation/Activity	Objective	Summary of Findings
1994	Storm Water Corridor Study	Perform sampling along storm sewers to evaluate potential for ongoing contaminant migration.	At Site 16, sample results were below the 1996 PRGs. No further investigation of the storm sewer system at Site 16 was recommended.
1994 to 1998	Phases 2A and 2B	Further examine the environmental condition of Alameda Point property by collecting and analyzing samples of soil and groundwater.	Elevated concentrations of metals, VOCs, SVOCs, and TPH were detected in soil and groundwater samples collected from Site 16. Based on these results, it was recommended that a remedial investigation be conducted to define the nature and extent of soil and groundwater contamination.
1995 and 1997	UST Removal and Investigation	Remove UST 608-1 and collect confirmation samples for analysis to determine the horizontal and vertical extent of contamination.	UST 608-1 was removed, and floating product was present in the area. Further investigation was recommended.
2000	Data Gaps Investigation	Collect additional information to complete a corrective action plan.	Analytical results indicated petroleum contamination was commingled with CERCLA chemicals. As a result, further investigation was recommended under the CERCLA program.

Notes:

CERCLA Comprehensive Environmental Response, Compensation, and Liability Act
PRG Preliminary remediation goal
SVOC Semivolatile organic compound
TPH Total petroleum hydrocarbons
UST Underground storage tank
VOC Volatile organic compound

TABLE 5-5: CHEMICALS REPORTED IN SOIL FOR SITE 16

Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Chemical[a,b]	Frequency of Detection (%)	Range of Detected Concentrations	Unit	Residential PRG	Unit	Above Background[c]
Arsenic[d]	27	0.74 to 45.0	mg/kg	0.39	mg/kg	No
Iron[d]	100	5,120 to 34,300	mg/kg	23,000	mg/kg	Yes
Lead[d]	84	1.4 to 240	mg/kg	150[e]	mg/kg	Yes
Aroclor-1260[d]	36	9 to 930	µg/kg	220	µg/kg	--
Chlordane[d]	3	820 to 2,100	µg/kg	1,600	µg/kg	--
Benzo(a)pyrene[d]	57	0.3 to 260	µg/kg	62	µg/kg	--

Notes:

a Only chemicals where detected concentrations exceeded the 2002 PRGs are included in this table (EPA 2002a).

b This table includes results from all investigations listed in Section 5.2.2 except for TPH investigations. PAH data provided in this table are from the basewide PAH investigation only.

c Yes indicates site concentrations exceeded background concentrations for Alameda Point. This comparison was made for inorganic chemicals only, primarily metals.

d This chemical was not identified as a chemical of concern.

e California-Modified PRG.

-- Not applicable

µg/kg Microgram per kilogram

mg/kg Milligram per kilogram

PAH Polycyclic aromatic hydrocarbon

PRG Preliminary remediation goal, U.S. Environmental Protection Agency, Region IX or California-Modified

TPH Total petroleum hydrocarbons

TABLE 5-6: CHEMICALS REPORTED IN GROUNDWATER FOR SITE 16
Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Analyte[a,b]	Frequency of Detection (%)	Range of Detected Concentrations (µg/L)	Tap Water PRG (µg/L)	MCL (µg/L)	Above Background[c]
Aluminum[d]	22	3 to 78,000	36,000	--	No
Antimony[d]	22	0.13 to 10.9	15	6	Yes
Arsenic[d]	47	1.5 to 28	0.045	10	No
Cadmium[d]	28	0.089 to 45	18	5	No
Chromium[d]	22	0.4 to 270	--	50	No
Iron[d]	39	35 to 116,000	11,000	--	No
Lead[d]	31	0.039 to 450	--	15	Yes
Manganese[d]	97	11.4 to 11,100	880	--	No
Nickel	39	0.57 to 550	730	100	Yes
Thallium[d]	3	3.6 to 3.6	2.4	2	No
1,1-Dichloroethane[d]	15	0.3 to 31	2[e]	5	--
1,2-Dichlorobenzene[d,f]	34	0.3 to 16,000	370	600	--
1,2-Dichloroethene (Total)[d]	63	0.3 to 190	61 (cis)	--	--
1,3-Dichlorobenzene[f]	14	2 to 1,000	6	--	--
1,4-Dichlorobenzene[f]	22	1 to 3,100	0.5	5	--
Alpha-Chlordane[d]	11	0.02 to 0.2	0.19[g]	--	
Benzene[d]	13	0.3 to 10	0.3	1	--
Chlorobenzene[d]	23	0.3 to 2,700	110	70	--
Chloroform[d]	1	2 to 2	0.5[e]	80	--
cis-1,2-Dichloroethene[d]	62	0.2 to 180	61	6	--
Cyanide	14	19 to 190	730	150	--
Gamma-Chlordane[d]	7	0.01 to 0.3	0.2[g]	--	--
Heptachlor Epoxide[d]	6	0.01 to 0.013	0.0074	0.01	--
Tetrachloroethene	10	0.2 to 59	0.7	5	--
Trichloroethene	39	0.2 to 34	0.03	5	--
Vinyl chloride	20	0.3 to 11	0.02[h]	0.5	--

TABLE 5-6: CHEMICALS REPORTED IN GROUNDWATER FOR SITE 16 (CONTINUED)

Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Notes:

a	Only chemicals where detected concentrations exceeded the MCLs or the 2002 Tap Water PRGs (EPA 2002a) are included on this table.
b	This table includes results from all investigations listed in Section 5.2.2 except for TPH investigations.
c	Yes indicates site concentrations exceeded background concentrations for Alameda Point. This comparison was made for inorganic chemicals only, primarily metals.
d	This chemical was not identified as a chemical of concern.
e	CAL-Modified PRG.
f	This chemical was identified at a concentration exceeding the MCL or 2002 tap water PRG as both a volatile organic compound and semivolatile organic compound; this chemical is presented as a volatile organic compound in this table because the data set was larger.
g	Chlordane only.
h	Child or adult.

--	Not applicable
µg/L	Microgram per liter
MCL	Maximum contaminant level
PRG	Preliminary remediation goal, U.S. Environmental Protection Agency, Region IX or CAL-Modified

TABLE 5-7: EXPOSURE SCENARIOS FOR THE BHHRA
Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Site	Exposure Scenarios for Site 16				Proposed Future Land Use
	Residential	Commercial/ Industrial	Recreational	Construction	
16	X	X	X	X	Commercial/Industrial

Note:

BHHRA Baseline human health risk assessment

TABLE 5-8: SUMMARY OF SITE 16 BHHRA RESULTS

Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Exposure Scenario	Media	Cancer Risk[a]	Noncancer Hazard Index[a]
Residential	Surface Soil	7×10^{-5}	1
	Subsurface Soil	6×10^{-5}	1
	Groundwater	7×10^{-4}	14
Recreational	Surface Soil	7×10^{-6}	0.1
Commercial/Industrial	Surface Soil	8×10^{-6}	0.1
	Groundwater	1×10^{-5}	0.04
Construction Worker	Surface Soil	9×10^{-7}	0.2
	Subsurface Soil	8×10^{-7}	0.1

Notes:

The risks in this table are rounded; therefore, they may appear to be higher or lower than the risk numbers presented in the text of this Record of Decision.

a Based on toxicity values derived from the Integrated Risk Information System (U.S. Environmental Protection Agency 2003). Presented risk values show total risk and include risk contributed by background.

BHHRA Baseline human health risk assessment

TABLE 5-9: COMPARATIVE ANALYSIS OF SITE 16 REMEDIAL ALTERNATIVES BY BALANCING CRITERIA
Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Alternative	Long-Term Effectiveness and Permanence	Reduction in Toxicity, Mobility, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost[a]
–	Parameters considered include: • Expected long-term reduction in risk posed by Site 16 • Level of effort needed to maintain the remedy and monitor the area for changes in site conditions • Compatibility of the remedy with planned future use of Site 16 • Adequacy and reliability, including reliance on land disposal, potential need to replace, and risks posed should components need replacement	Parameters considered include: • Treatment processes used • Amount of hazardous materials destroyed, recycled, or treated • Degree of expected reduction in toxicity, mobility, or volume and the inherent hazard posed by principal threats at Site 16 • Degree to which the benefits of the remedial alternative are irreversible • Types, quantities, persistence, toxicity, and propensity to bioaccumulate treatment residuals that remain following treatment	Parameters considered include: • Protection of the community during the remedial alternative • Protection of workers during the remedial alternative • Environmental effects during remediation • Time required to achieve protection	Parameters considered include: • Technical and administrative feasibility • Availability of required resources	Parameters considered include: • Capital costs • Operation and maintenance costs • Long-term monitoring costs • IC costs for developing and maintaining the ICs • Net present value
SOIL					
Alternative 1 – No Action	None Not effective and permanent because it would not address potential risks	None Would not reduce toxicity, mobility, or volume of contamination through treatment	None No short-term effectiveness because no remedial action would be proposed	None No remedial action would be implemented	0
Alternative 2 – Sampling and ICs	Moderate Would leave contaminated soil at the site but place restrictions on site use	None Would not reduce toxicity, mobility, or volume of contamination through treatment	High Minimal short-term effects during sampling activities	High Readily implementable	$270,000
Alternative 3 – Sampling and Excavation with Off-Site Disposal of Soil	High Has the highest degree of long-term effectiveness because potentially contaminated soil would be removed from Site 16 so there are no restrictions on site use	None Would not reduce toxicity, mobility, or volume of contamination through treatment	Low Excavation has the potential to create negative short-term air and possibly water quality effects; however, such effects would be reduced by engineering controls, as appropriate	High Readily implementable	$1,300,000

TABLE 5-9: COMPARATIVE ANALYSIS OF SITE 16 REMEDIAL ALTERNATIVES BY BALANCING CRITERIA (CONTINUED)
Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Alternative	Long-Term Effectiveness and Permanence	Reduction in Toxicity, Mobility, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost[a]
GROUNDWATER					
Alternative 1 – No Action	None Not effective and permanent because it would not address potential risks	None Would not reduce toxicity, mobility, or volume of contamination through treatment	None No short-term effectiveness because no remedial action would be proposed	None No remedial action would be implemented	0
Alternative 2 – MNA and ICs	Moderate Prevents exposure until groundwater concentrations degrade to levels within the risk management range for residential use. Longer timeframe than Alternatives 3 and 4.	Low Would not reduce toxicity, mobility, or volume of contamination through treatment	High No short-term risk because no active remediation activities would be proposed	High Readily implementable; may have some difficulty reaching agreement on ICs	$1,800,000
Alternative 3 – Active Treatment to Reduce Risk to Commercial/Industrial Workers with ISCO and Accelerated Bioremediation, MNA, and ICs	Moderate Prevents exposure until groundwater concentrations degrade to levels protective of commercial/industrial property reuse and quickens degradation rate compared to Alternative 2.	High Would reduce toxicity, mobility, or volume of contamination through treatment	Moderate If ISCO is implemented, moderate short-term risks exist during injection of treatment agents. No short-term risks are associated with introducing hydrogen-releasing compounds.	High Technically feasible. Requires large number of injection points and multiple rounds of injection. Hydrogen – releasing compounds require a larger number of injection points, but fewer rounds of injection than ISCO. May have some difficulty reaching agreement on ICs.	$2,500,000
Alternative 4 – Treatment to Remediation Goals with ISCO and Accelerated Bioremediation, MNA, and Short-Term ICs	High Prevents exposure until groundwater concentrations degrade to levels within the risk management range for residential use and provides the quickest degradation rate.	High Would reduce toxicity, mobility, or volume of contamination through treatment	Moderate Moderate short-term risks exist during the injection of ISCO or treatment agents. No short-term risks are associated with introducing hydrogen-releasing compounds.	High Technically feasible. Requires large number of injection points and multiple rounds of injection. May have some difficulty reaching agreement on ICs.	$12,600,000

Notes:

a Based on net present value

IC Institutional control
ISCO *In-situ* chemical oxidation
MNA Monitored natural attenuation

TABLE 5-10: COST COMPARISON OF SITE 16 REMEDIAL ALTERNATIVES
Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Remedial Alternatives	Estimated Cost[a]
SOIL	
Alternative 1 – No Action	0
Alternative 2 – Sampling and ICs	$270,000
Alternative 3 – Sampling and Excavation with Off-Site Disposal of Soil	$1,270,000
GROUNDWATER	
Alternative 1 – No Action	0
Alternative 2 – MNA and ICs	$1,800,000
Alternative 3 – Active Treatment to Reduce Risk to Commercial/Industrial Workers with ISCO and Accelerated Bioremediation, MNA, and ICs	$2,500,000
Alternative 4 – Treatment to Remediation Goals with ISCO and Accelerated Bioremediation, MNA, and Short-Term ICs	$12,600,000

Notes:

a Based on net present value

IC Institutional control
ISCO *In-situ* chemical oxidation
MNA Monitored natural attenuation

TABLE 5-11: COST ESTIMATE SUMMARY FOR SITE 16 SOIL ALTERNATIVE 3
Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Cost Category	Capital Costs	Operation and Maintenance Costs
Fencing	11,000	0
One-Time Sampling	58,000	0
Excavation	160,000	0
Decontamination	40,000	0
Transportation and Disposal of Debris Off Site	462,000	0
Remedial Action Report	48,000	0
Professional Labor	297,000	0
Subtotal	**1,076,000**	**0**
Contingency	194,000	0
Total Alternative 3 Costs	**1,270,000**	

TABLE 5-12: COST ESTIMATE SUMMARY FOR SITE 16 GROUNDWATER ALTERNATIVE 4
Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Cost Category	Capital Costs	O&M Costs	Periodic Costs
Sampling to Further Delineate the VOC Plume	$ 110,000	--	--
Pretreatment Costs	$ 15,000	--	--
ISCO in Scrapyard Area	$ 5,635,000	--	--
ISCO in UST Area	$ 1,894,000	--	--
Install Deep Groundwater Monitoring Wells	$ 24,000	--	--
Install Shallow Groundwater Monitoring Wells	$ 15,000	--	--
Groundwater Monitoring	$ 184,000	--	--
Land Use Controls	$ 89,000	--	--
Vapor Removal System	$ 58,000	--	--
Subtotal Capital Costs	**$ 8,024,000**	**0**	**0**
Contingency 25%	$ 2,006,000	0	0
Professional Labor	$ 1,157,000	0	0
Total Capital Costs	**$ 11,187,000**	**0**	**0**
Annual O&M Costs		$1,106,000	
Periodic Costs			$272,000
Total Alternative 4 Costs		**$12,565,000**	

Notes:

--	Not applicable
ISCO	*In-situ* chemical oxidation
O&M	Operation and maintenance
UST	Underground storage tank
VOC	Volatile organic compound

6.0 STATUTORY DETERMINATIONS

The Navy's primary responsibility in regard to CERCLA is to undertake remedial actions that achieve the statutory requirements for adequate protection of human health and the environment. CERCLA §121 establishes several of these requirements, specifying that completed remedial actions must comply with ARARs established under federal and state laws unless a statutory waiver is justified. The selected remedy also must be cost-effective and use permanent solutions and alternative treatment technologies to the maximum extent practicable. Finally, the statute includes a preference for remedies that, as their principal element, permanently and significantly reduce the volume, toxicity, or mobility of hazardous waste through treatment. The following sections discuss how the selected remedy meets these statutory requirements and preferences. Complete discussions are found in the OU-1 Sites 6, 7, 8, and 16 FS Report (SulTech 2005).

6.1 PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT

The selected remedies for Sites 6, 7, 8, and 16 are designed to protect human health and the environment. The NCP at 40 CFR § 300.430(d) calls for a site-specific baseline risk assessment, as appropriate, to characterize the current and potential threats to human health and the environment. The primary purpose of the baseline risk assessment is to provide an understanding of the actual and potential risks to human health and the environment and any uncertainties associated with the risk assessment (EPA 1991). The results of the risk assessment are used to establish the basis for a remedial action (EPA 1991). Generally, when the baseline risk assessment indicates that a cumulative site risk exceeds an excess lifetime cancer risk of 10^{-4}, action is warranted (EPA 1991). For sites where the cumulative site risk to an individual is less than 10^{-4} for both current and future land use, action generally is not warranted (EPA 1991).

Once a decision is made that the risks posed by the CERCLA releases warrant a response action, the NCP at 40 CFR § 300.430(e)(2)(i)(A)(2) states that "(t)he 10^{-6} risk level shall be used for 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." For groundwater, the Navy has identified federal and state MCLs as chemical-specific ARARs at Sites 6 and 16 because the groundwater at these sites is considered a potential drinking water source. Although MCLs may be set within the risk management range, MCLs are considered protective of drinking water sources. For soil, the Navy has identified the TSCA risk-based ARAR to support a concentration level of 1 mg/kg total PCBs, a level considered protective of high-occupancy uses (such as residential) as a chemical-specific ARAR for soil at Sites 8 and 16. The MCLs for groundwater and the TSCA ARAR for soil are sufficiently protective of human health and the environment for these OU-1 sites, so the Navy has used them to set remediation goals.

When there are no ARARs that determine remediation goals, 40 CFR § 300.430(e)(2)(i)(A)(3) sets forth the factors below to consider when establishing remediation goals in the context of the risk management range.

Preliminary remediation goals for carcinogens are set at a 10^{-6} excess cancer risk as a point of departure, but may be revised to a different risk level within the acceptable risk range based on the consideration of appropriate factors including but not limited to exposure factors, uncertainty, and technical limitations.

There is a high level of confidence that the risk assessment results, including identification of COCs, the exposure factors, and uncertainty analysis, provide an adequate, even conservative representation of site conditions and can be used to support risk management decisions so that risks within the risk management range are protective of human health. In addition, the Navy will implement ICs to protect against short-term risks from groundwater until groundwater remediation goals are met.

No short-term risks are associated with implementing the selected remedy for soil that cannot be readily controlled through ICs that will protect human health and will remain in place until the remediation goals are met. In addition, no adverse cross-media effects are expected from the remedy.

6.2 COMPLIANCE WITH APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

CERCLA § 121(d)(1) states that remedial actions on CERCLA sites must attain (or the decision document must justify the waiver of) any federal, or more stringent state, environmental standards, requirements, criteria, or limitations that are determined to be legally applicable or relevant and appropriate. The remedial actions selected in this ROD will attain and will comply with the substantive provisions of all identified ARARs. CERCLA § 121(e) exempts remedial actions conducted entirely on site from obtaining federal, state, or local permits; therefore, the Navy will not obtain any permit for the excavation of soil or the construction and operation of the ISCO and accelerated bioremediation treatment systems. The Navy will obtain all permits required for any portion of the remedial action conducted off site. The chemical-, location-, and action-specific ARARs for the selected remedies for soil and groundwater at OU-1 Sites 6, 7, 8, and 16 are presented in Tables 6-1, 6-2, and 6-3, respectively, and discussed below. The more significant ARARs are briefly discussed below.

6.2.1 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 alternatives are presented in Table 6-1 and described below by medium.

6.2.1.1 Soil

Excavation of soil will generate waste that the Navy will dispose of off site. 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), 66261.24(a)(1), and 66261.100

The Navy has also identified 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

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—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.

In addition, soil at Site 8 contains PCBs and soil at Site 16 may contain PCBs. The Navy has identified substantive provisions of 40 CFR § 761.61(c)(2) of TSCA's PCB remediation waste requirements as federal ARARs for these sites.

6.2.1.2 Groundwater

One of the significant issues in identifying ARARs for groundwater is whether the groundwater can be classified as a source of drinking water. The Navy evaluated the potential for groundwater at Alameda Point to serve as a drinking water source under the federal classification criteria (Tetra Tech 2000b). Groundwater in the SWBZ under these OU-1 sites meets the definition of Class III groundwater. The Navy has determined that drinking water standards, such as federal and state primary MCLs and non-zero MCLs, are not chemical-specific ARARs for the SWBZ because groundwater is not a current or potential drinking water source. Groundwater in the FWBZ under these OU-1 sites meets the definition of Class II groundwater and has a municipal or domestic supply designation in the Basin Plan (Tetra Tech 2000b). Therefore, the Navy has identified MCLs as ARARs for groundwater in the FWBZ at Sites 6 and 16.

Basin Plan

The Navy has identified Chapters 2 and 3 of the Basin Plan as state ARARs. The Navy accepts the substantive provisions of Cal. Water Code §§ 13241, 13243, 13263(a), 13269, and 13360 of the Porter-Cologne Act as enabling legislation as implemented through the beneficial uses, water

quality objectives, waste discharge requirements, and promulgated policies of the Basin Plan, SWRCB Res. 88-63, and state primary MCLs as state ARARs as discussed below. The Navy has evaluated the groundwater according to the state designations contained in Chapter 2 of the Basin Plan (Water Board 1995). Chapter 2 designates groundwater at NAS Alameda with the following existing or potential beneficial uses:

- Municipal or domestic supply
- Industrial process water supply
- Industrial service water supply
- Agricultural supply

There is no designation in the Basin Plan for groundwater at Alameda Point being an existing or potential freshwater replenishment to surface water (Water Board 1995). The Basin Plan indicates that freshwater replenishment designations will be completed at a later date, and until then, a site-by-site determination will be made. Chapter 3 of the Basin Plan provides narrative and numerical water quality objectives to protect and maintain these beneficial uses of the water (Water Board 1995).

SWRCB Res. 88-63

The Navy has also identified SWRCB Res. 88-63 as a state ARAR. Res. 88-63 provides that all groundwater within the State of California is considered suitable or potentially suitable for domestic or municipal freshwater supply except where any one of the following water quality and production criteria cannot be met:

- TDS exceed 3,000 mg/L (or electrical conductivity is greater than 5,000 micromhos per centimeter) and the Water Board does not reasonably expect the groundwater to supply a public supply system.
- Groundwater is contaminated, either by natural processes or by human activity unrelated to a specific pollution incident, and cannot reasonably be treated for domestic use either by best management practices or best economically available treatment practices.
- Groundwater does not provide sufficient water to supply a single well capable of producing an average sustained yield of 200 gallons per day.

Safe Drinking Water Act and State MCLs

The Navy identified the following chemical-specific ARARs for groundwater in the FWBZ at Site 6 because it is Class II groundwater under the federal classification criteria and the Basin Plan designates the groundwater with a potential municipal or domestic supply beneficial use:

- Safe Drinking Water Act federal MCLs for PCE and TCE at 40 CFR § 141.61(a)(a federal ARAR)
- State of California MCLs for cis-1,2-DCE and vinyl chloride at Cal. Code Regs. tit. 22, § 64444 (a state ARAR)

The Navy has determined that it will use the California MCL where the state MCL is more stringent than the federal MCL, or where there is no federal MCL.

Groundwater in the FWBZ at Site 7 meets the definition of a Class II aquifer under the federal classification criteria and is designated with a potential municipal or domestic supply beneficial use. Chemicals in Site 7 groundwater were most likely mobilized by the presence of petroleum-related products. The Navy is conducting remediation activities under its Alameda Point TPH program to respond to the release of petroleum-related products. Because these are petroleum-related releases, the Navy will not take a CERCLA remedial action to address the releases because they are being evaluated under the Alameda Point TPH program.

Groundwater in the FWBZ at Site 8 meets the definition of a Class II aquifer under the federal classification criteria and is designated with a potential municipal or domestic supply beneficial use. The Navy has determined that no CERCLA remedial action for Site 8 groundwater is necessary because analytical results from 2002 through 2006 for the basewide groundwater monitoring program (Shaw 2003b and 2003c; ITSI 2006) show that benzene was sporadically detected at concentrations both above and below the MCL and that TCE was consistently detected at concentrations below the MCL. Benzene contamination will be evaluated under the Alameda Point TPH program.

Groundwater in the FWBZ at Site 16 meets the definition of a Class II aquifer under the federal classification criteria and is designated with a potential municipal or domestic supply beneficial use. In addition, Site 16 groundwater is connected to another Class II aquifer that is a current source of irrigation water for off-base residential wells (Tetra Tech 2000b). The Navy has identified the following chemical-specific ARARs for groundwater in the FWBZ at Site 16:

- Safe Drinking Water Act federal MCLs for PCE and TCE at 40 CFR § 141.61(a)(a federal ARAR)
- State of California MCLs for cis-1,2-DCE; 1,4-DCB, and vinyl chloride at Cal. Code Regs. tit. 22, § 64444 (a state ARAR)

The Navy has determined that it will use the California MCL where the state MCL is more stringent than the federal MCL, or where there is no federal MCL. No federal or state MCL is available for 1,3-DCB, so the Navy developed a risk-based remediation goal.

RCRA Groundwater Protection Standards

The Navy also identified substantive provisions of the RCRA groundwater protection standards contained in Cal. Code Regs. tit. 22 § 66264.94 as federal chemical-specific ARARs. These regulations are applicable to RCRA-regulated units, and the CERCLA remedial actions for groundwater at Sites 6 and 16 are not for releases from RCRA-regulated units; however, the Navy has determined that these regulations are relevant and appropriate. Cal. Code Regs. tit. 22 § 66264.94(a)(1) and (3) states that for each COC and for each medium monitored, the owner or operator shall propose a concentration limit not to exceed the background concentration or a concentration limit greater than background established for a corrective action program.

Cal. Code Regs. tit. 22 § 66264.94(c) states that a concentration limit that is greater than the background value can only be used if it is technologically or economically infeasible to achieve the background value and the concentration limit greater than background will not pose a substantial present or potential hazard to human health or the environment. Cal. Code Regs. tit. 22 § 66264.94(e) states that in no event shall a concentration limit greater than background exceed other applicable statutes or regulations (such as an MCL), or the lowest concentration demonstrated to be technologically and economically achievable. The Navy has identified federal and state MCLs as the concentration limits it will achieve through operation of the groundwater treatment remedy.

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

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 to background levels of constituents unless such restoration proves to be technologically or economically infeasible and an alternative cleanup level of constituents 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 corresponding provisions of 40 CFR § 264.94 and, although they are federally enforceable via the RCRA program authorization, they are also independently based on state law to the extent that they are more stringent than the federal regulations.

The Navy has determined that SWRCB Res. 68-16 is not a chemical-specific ARAR for determining response action goals. However, SWRCB Res. 68-16 is an action-specific state ARAR for regulating discharged treated groundwater back into the aquifer. The Navy has determined that further migration of already-contaminated groundwater is not a discharge governed by the language in SWRCB 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 92-49 and Cal. Code Regs. tit. 23 § 2550.4 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 NCP set forth in 40 CFR § 300.400(g)(4) provides that only state standards more stringent than federal standards may be state ARARs (see also CERCLA § 121(d)(2)(A)(ii) [42 USC § 9621(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 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 68-16.

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

The state does not agree with the Navy's determination that SWRCB Res. 92-49 and 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 68-16, and compliance with the Cal. Code Regs. tit. 22 provisions should result in compliance with the 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 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 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.

6.2.2 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 substantive provisions of the following requirements are federal ARARs and are the most stringent of the potential federal and state location-specific ARARs. These location-specific ARARs are discussed in detail in Table 6-2:

- 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 Section 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.

- Coastal Zone Management Act at 16 U.S.C. § 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).

- Migratory Bird Treaty Act of 1972 at 16 U.S.C. § 703 protecting almost all species of native migratory birds in the US from unregulated takings, which can include poisoning at hazardous waste sites.

The National Historic Preservation Act is an ARAR because the Navy has concluded that Building 41 at Site 6 and Building 114 at Site 8 are eligible for inclusion on the National Register of Historic Places as part of the NAS Alameda historic district (Woodbridge 1992). The selected soil and groundwater remedies will not adversely affect these buildings.

The Migratory Bird Treaty Act of 1972 is an ARAR because migratory birds are present at NAS Alameda.

The only threatened or endangered species that has been identified at NAS Alameda is the California least tern. The substantive provisions of the Endangered Species Act of 1973 are not ARARs because neither the California least tern, a federally endangered species, nor its habitat are present on OU-1 Sites 6, 7, 8, and 16 (Navy and Tetra Tech 1997). Furthermore, none of the remedial actions selected in this ROD for any of the sites will affect the California least tern or its habitat.

The Navy has also identified the substantive provisions of the following requirements as state location-specific ARARs:

- McAteer-Petris Act (California Government Code §§ 66600 through 66661 as authorizing legislation for the San Francisco Bay Plan) and the San Francisco Bay Plan at Cal. Code Regs. tit. 14, §§ 10110 through 11990 regulating activities that affect the San Francisco Bay.

- California Endangered Species Act at Cal. Fish and Game Code § 2080 prohibiting the import, export, taking, possession, or sale of any endangered or threatened species or part or product thereof.

The Coastal Zone Management Act was evaluated and certain substantive provisions were determined to be relevant and appropriate requirements because the remedy selected in this ROD contemplates activity within the coastal zone (OU-1 Sites 6 and 16 are adjacent to the Bay). 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 Bay Plan, and 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.

The California Endangered Species Act at Cal. Fish and Game Code § 2080 is not an ARAR because the only state threatened or endangered species that has been identified at NAS Alameda, the California least tern, and its habitat are not present at any of these OU-1 sites. Furthermore, none of the remedial actions selected in this ROD will affect the California least tern or its habitat.

6.2.3 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 components of the selected soil and groundwater remedies are summarized below and discussed in detail in Table 6-3.

6.2.3.1 Soil Remedy

The substantive provisions of the following requirements are federal ARARs and are the most stringent of the potential federal and state action-specific ARARs for the soil remedy:

- RCRA requirements at Cal. Code Regs. tit. 22, §§ 66262.10(a), 66262.11, 66264.13(a) and (b) to characterize and analyze generated waste
- RCRA requirements at 40 CFR § 264.554(d)(1)(i-ii), (d)(2), (e), (f), (h), (i), (j), and (k) that allow for temporarily stockpiling soil prior to disposal without meeting land disposal restriction requirements
- RCRA requirements at Cal. Code Regs. tit. 22, § 66264.258(a) and (b) for closing the temporary stockpiles
- Bay Area Air Quality Management District regulation 6-302 prohibiting emissions from any source for a period of more than 3 minutes in an hour equal to or greater than 20 percent opacity
- Bay Area Air Quality Management District regulation 8-40 requiring soil contaminated with VOCs in active stockpiles be kept visibly moist or covered
- Clean Water Act § 402(p) and its implementing regulations at 40 CFR § 122.44(k)(2) and (4) require best management practices to control or abate stormwater discharges

The Navy will stockpile excavated soil in RCRA temporary staging piles for off-site disposal. The RCRA temporary staging pile requirements allow generators of RCRA hazardous waste to accumulate solid remediation waste in a staging pile for up to 2 years without meeting land disposal restrictions. The Navy will characterize excavated soil and any other waste generated during construction and operations of the soil and groundwater remedies according to RCRA characterization requirements. The Navy will comply with the substantive provisions of the chemical-specific ARARs identified above in Section 6.2.1.1 to determine if the excavated soil is a regulated waste. If excavated soil is a regulated waste, the Navy will comply with all legally applicable requirements for off-site disposal.

On November 16, 1990, EPA final regulations implementing Clean Water Act § 402(p) setting forth the requirements for the Phase I Stormwater National Pollution Discharge Elimination System (NPDES) permit requirements were promulgated (55 Fed. Reg. 47990). EPA's Phase I Stormwater NPDES regulations require that owners and operators of construction activities obtain permit coverage and be in compliance with discharge standards. The Phase II Stormwater Rule was promulgated on December 8, 1999. On March 10, 2003, the new Phase II regulations came into effect. The Phase II requirements effectively lowered the size limit on construction activities covered by the requirements from those activities disturbing 5 acres or more (Phase I) to 1 acre or more (Phase II).

Under the Clean Water Act and its implementing regulations, NPDES permits or coverage under promulgated stormwater general permits are required for construction that disturbs at least 1 acre. The State of California has promulgated a stormwater general permit at Order Number 99-08-DWQ. Under CERCLA § 121(e)(1), no federal, state, or local permit is required for any remedial action conducted entirely on site when it is selected and carried out in compliance with CERCLA § 121. Therefore, the Navy is not required to obtain an individual stormwater permit or submit a notice of intent to discharge under the state's general permit. However, the Navy will use the substantive requirements of the state's general permit as TBC criteria for complying with the requirement to apply best management practices for stormwater discharges promulgated under the Clean Water Act § 402(p), 40 CFR § 122.44(k)(2) and (4), and related state laws.

The Navy will comply with these Clean Water Act ARARs for each site where soil sampling results indicate that excavation is necessary and that excavation at the site will disturb 1 or more acres.

6.2.3.2 Groundwater Remedy

The substantive provisions of the following requirements are federal ARARs and are the most stringent of the potential federal and state action-specific ARARs for the groundwater remedy:

- Safe Drinking Water Act underground injection control requirements at 40 CFR § 144.12, excluding 144.12(b) and 144.12(c)(1)

The injection well (or wells) for this alternative would be considered a Class V well under these regulations. This section prohibits injections that allow movements of fluids containing contaminants into underground sources of drinking water in violation of primary drinking water standards or that could adversely affect human health. The injection of treatment chemicals is not expected to result in violations of MCLs or to adversely affect human health. The treatment chemicals will treat VOCs and reduce the threat to water quality and human health.

The Navy may generate waste during monitoring and construction of monitoring wells that may not be temporarily stockpiled on-site with the excavated soil prior to disposal. Such waste will be placed in containers and characterized for proper off-site disposal. If any of this waste is RCRA hazardous, the Navy will dispose of it at an appropriate facility and will store it properly prior to off-site disposal. The following requirements are federal action-specific ARARs if hazardous waste is generated:

- RCRA container requirements at Cal. Code Regs., tit. 22 §§ 66264.171, 66264.172, 66264.173, 66262.174, 66264.175(a) and (b), 66264.178), and

The Navy has also identified substantive provisions of the following RCRA corrective action groundwater monitoring requirements as relevant and appropriate federal action-specific ARARs for the groundwater monitoring component of the remedies. Details on the requirements of the following ARARs are included in Table 6-3:

- Cal. Code Regs. tit. 22 § 66264.100(d) to establish and maintain a corrective action program
- Cal. Code Regs. tit. 22, § 66264.93 to determine chemicals of concern
- Cal. Code Regs. tit. 22, §66264.95(a) and (b) to determine the point of compliance
- 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

The Navy accepts the substantive provisions of the following regulation as a state action-specific ARAR for groundwater monitoring:

- Cal. Code Regs. tit. 27, § 20430(g)(2) requiring 8 evenly spaced sampling events to demonstrate compliance with groundwater remedial goals

Once the groundwater remedial goals have been met for a period of 1 year, the Navy will continue a groundwater detection monitoring program to demonstrate continued compliance with the groundwater remedial goal. If necessary, the Navy will conduct an evaluation monitoring program. The substantive provisions of the following RCRA detection and evaluation

groundwater monitoring requirements are relevant and appropriate federal action-specific ARARs. Details on the requirements of the following ARARs are included in Table 6-3:

- 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 state statutes and regulations have been accepted by Navy as relevant and appropriate state ARARs for implementing ICs and entering into a "Covenant to Restrict Use of Property" with DTSC:

- *California Civil Code* Land Use Controls § 1471

- *California 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)

- Cal. Code Regs. tit. 22, § 67391.1

The substantive provisions of California 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 California 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 the purposes of protecting present and future public health and safety.

California Health and Safety Code §§ 25222.1 and California 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 California 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 California 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 California 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 California Civil Code § 1471. The substantive provisions of California 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 California Civil Code § 1471. The covenants shall be recorded with the deed and run with the land.

Actual land-use restriction requirements are set forth in Cal. Health and Safety Code § 25232(b)(1)(A) through (E). These include prohibitions on construction of residences, hospitals for humans, schools for persons under 21 years of age, daycare centers, or any permanently occupied human habitation on hazardous waste property. California Health and Safety Code § 25233(c) sets forth relevant and appropriate substantive criteria for granting variances from the prohibited uses set forth in California Health and Safety Code § 25232(b) (i.e. a residence used for permanently occupied human habitation, a hospital for humans, a school for persons under 21 years of age, a daycare center for children, and any permanently occupied human habitation) based on specified environmental and health criteria. California 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 California Health and Safety Code §§ 25202.5, 25222.1, 25232(b)(1)(A) – (E), 25233(c), 25234, and 25355.5(a)(1)(C) and California Civil Code § 1471 shall also be implemented through the deed between the Navy and the transferee.

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.

EPA agrees that the substantive portions of the state statutes and regulations referenced in this section are ARARs. EPA considers the following portions of Cal. Code Regs. tit. 22, § 67391.1 to be relevant and appropriate for this ROD: Cal. Code Regs. tit. 22, §§ 67391.1(a)(1), (a)(2), (d), (e)(1), and (e)(2). DTSC's position is that all of the state statutes and regulations referenced in this section are ARARs.

6.3 COST-EFFECTIVENESS

This section describes the cost effectiveness of the selected remedies for Sites 6, 7, 8, and 16. To provide clarity for the reader, each site is discussed separately within this section.

Site 6

The remediation goals for Site 6 provide for unrestricted site use even though the planned future use is commercial/industrial. For Site 6 soil, the costs associated with unrestricted use are expected to be comparable with commercial/industrial use, when considering the associated long-term costs. The Navy has concluded that the selected remedies, Alternative 3 for soil and Alternative 4 for groundwater, provide overall effectiveness proportional to their cost; as a result, they are considered cost-effective. The present value for soil Alternative 3 is approximately $240,000, and the present value for groundwater Alternative 4 is approximately $3,600,000. All of the technologies included in the selected remedies are readily implementable and have been widely used and demonstrated to be effective.

Site 7

The remediation goals for Site 7 provide for unrestricted site use. The Navy has concluded that Alternative 2, the selected remedy for soil, would provide overall effectiveness proportional to its cost; as a result, it is considered cost-effective. The present value for Alternative 2 is approximately $1,300,000. All of the technologies included in the selected remedy are readily implementable and have been widely used and demonstrated to be effective.

Site 8

The remediation goals for Site 8 provide for unrestricted site use. The Navy has concluded that Alternative 3, the selected remedy for soil, would provide overall effectiveness proportional to its cost; as a result, it is considered cost-effective. The present value for Alternative 3 is approximately $160,000. All of the technologies included in the selected remedy are readily implementable and have been widely used and demonstrated to be effective.

Site 16

The remediation goals for Site 16 provide for unrestricted site use even though the planned future use is commercial/industrial. The Navy has concluded that the selected remedies, Alternative 3 for soil and Alternative 4 for groundwater, provide overall effectiveness proportional to their cost; as a result, they are considered cost-effective. The present value for soil Alternative 3 is approximately $1,300,000, and the present value for groundwater Alternative 4 is approximately $12,600,000. All of the technologies included in the selected remedies are readily implementable and have been widely used and demonstrated to be effective.

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

This section describes the use of permanent solutions and alternative treatment technologies (or resource recovery technologies) to the maximum extent practicable of the selected remedies for Sites 6, 7, 8, and 16. In order to provide clarity for the reader, each site is discussed separately within this section.

Site 6

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 6. 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 for soil and groundwater would provide the best balance of tradeoffs amongst the short-term effectiveness, long-term effectiveness and permanence, implementability, and cost. The selected remedies are expected to be permanent and effective over the long-term land use.

Site 7

The Navy has determined that the selected remedy represents the maximum extent practicable to which permanent solutions and alternative treatment technologies can be used in a cost-effective manner for Site 7. Only Alternative 2 is protective of human health and the environment and complies with ARARs; therefore, this remedy provides the best balance of tradeoffs amongst the short-term effectiveness, long-term effectiveness and permanence, implementability, and cost. The selected remedy is expected to be permanent and effective over the long-term land use.

Site 8

The Navy has determined that the selected remedy represents the maximum extent practicable to which permanent solutions and alternative treatment technologies can be used in a cost-effective manner for Site 8. While Alternatives 2 and 3 are protective of human health and the environment and comply with ARARs, the Navy has concluded that Alternative 3 provides the best balance of tradeoffs amongst the short-term effectiveness, long-term effectiveness and permanence, implementability, and cost. The selected remedy is expected to be permanent and effective over the long-term land use.

Site 16

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 16. 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 for soil and groundwater would provide the best balance of tradeoffs amongst the short-term

effectiveness, long-term effectiveness and permanence, implementability, and cost. The selected remedies are expected to be permanent and effective over the long-term land use.

6.5 PREFERENCE FOR TREATMENT AS A PRINCIPAL ELEMENT

This section describes the preference for treatment as a principal element of the selected remedies for Sites 6, 7, 8, and 16. In order to provide clarity for the reader, each site is discussed separately within this section.

Site 6

The selected soil remedy does not satisfy the statutory preference for treatment as a principal element of the remedy. The soil remedy will not reduce the toxicity, mobility, or volume of hazardous substances, pollutants, or contaminants through treatment.

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

Site 7

The selected soil remedy does not satisfy the statutory preference for treatment as a principal element of the remedy. The soil remedy will not reduce the toxicity, mobility, or volume of hazardous substances, pollutants, or contaminants through treatment.

Site 8

The selected soil remedy does not satisfy the statutory preference for treatment as a principal element of the remedy. The soil remedy will not reduce the toxicity, mobility, or volume of hazardous substances, pollutants, or contaminants through treatment.

Site 16

The selected soil remedy does not satisfy the statutory preference for treatment as a principal element of the remedy. The soil remedy will not reduce the toxicity, mobility, or volume of hazardous substances, pollutants, or contaminants through treatment.

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

6.6 5-YEAR REVIEW REQUIREMENTS

This section describes the 5-year review requirements of the selected remedies for Sites 6, 7, 8, and 16. In order to provide clarity for the reader, each site is discussed separately within this section.

Site 6

A 5-year review pursuant to CERCLA § 121 and the NCP is required if the selected remedy results in hazardous waste or chemicals remaining at the site above levels allowing for unrestricted use of the site. A 5-year review of the soil remedy will not be required because chemicals will be excavated and removed from Site 6. A 5-year review of the groundwater remedy will be conducted, if the RAOs are not achieved before the end of the 5-year reporting period. The groundwater remedy will not result in chemicals remaining on site above levels that allow for unrestricted use.

Site 7

A 5-year review pursuant to CERCLA § 121 and the NCP is required if the selected remedy results in hazardous waste or chemicals remaining at the site above levels allowing for unrestricted use of the site. A 5-year review of the remedy will not be required because chemicals will be excavated and removed from Site 7. Chemicals will not remain on site above levels that allow for unrestricted use. No CERCLA chemicals are present in concentrations that present unacceptable risk from exposure to groundwater at Site 7; TPH in Site 7 groundwater are being addressed under the Alameda Point TPH program.

Site 8

A 5-year review pursuant to CERCLA § 121 and the NCP is required if the selected remedy results in hazardous waste or chemicals remaining at the site above levels allowing for unrestricted use of the site. A 5-year review of the remedy will not be required because chemicals will be excavated and removed from Site 8. Chemicals will not remain on site above levels that allow for unrestricted use. No CERCLA chemicals are present in concentrations that present unacceptable risk from exposure to groundwater at Site 8; TPH in Site 8 groundwater are being addressed under the Alameda Point TPH program.

Site 16

A 5-year review pursuant to CERCLA § 121 and the NCP is required if the selected remedy results in hazardous waste or chemicals remaining at the site above levels allowing for unrestricted use of the site. A 5-year review of the soil remedy will not be required because chemicals will be excavated and removed from Site 16. A 5-year review of the groundwater remedy will be conducted, if the RAOs are not achieved before the end of the 5-year reporting period. The groundwater remedy will not result in chemicals remaining on site above levels that allow for unrestricted use.

TABLES

TABLE 6-1: CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS
Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Requirement	Prerequisite	Citation[a]	ARAR Determination	Comments
		SOIL		
FEDERAL ARARs				
Resource Conservation and Recovery Act (42 USC ch. 82 §§ 6901 – 6991[i])[b]				
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), 66261.24(a)(1), and 66261.100	Applicable	The Navy will determine if excavated soil or any other waste generated in construction and operation of the soil and groundwater remedies is RCRA hazardous waste.
Toxic Substances Control Act (15 USC ch. 53, §§ 2601-2692)[b]				
Three options are available for storage and disposal of PCB remediation waste: (1) self-implementing on-site cleanup and disposal; (2) performance-based disposal using existing approved disposal technologies; and (3) risk-based disposal.	Soils, debris, sludge, or dredged materials contaminated with PCBs at concentrations greater than 50 parts per million.	40 CFR § 761.61(c)(2)	Relevant and appropriate	Soil at Site 8 contains PCBs and soil at Site 16 may contain PCBs. The Navy has identified § 761.61(c), the risk-based disposal option, as the Toxic Substances Control Act cleanup option for Sites 8 and 16.
STATE ARARs				
State and Regional Water Quality Control Boards[b]				
Definitions of designated waste, nonhazardous solid waste, and inert waste.	Waste	Cal. Code Regs. tit. 27 §§ 20210, 20220, and 20230	Applicable	The Navy will determine if excavated soil or any other waste generated during construction and operation of the soil and groundwater remedies is state-regulated waste.

TABLE 6-1: CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Requirement	Prerequisite	Citation[a]	ARAR Determination	Comments
		GROUNDWATER		
FEDERAL ARARs				
Safe Drinking Water Act (42 USC, ch. 6A, § 300[f]–300[j]-26)[b]				
National primary drinking water standards are health-based standards for public water systems (MCLs).	Public water system	40 CFR § 141.61(a)	Relevant and appropriate	The Navy has identified the federal MCLs for PCE and TCE as ARARs for groundwater in the FWBZ at Sites 6 and 16. No CERCLA action is necessary for Sites 7 and 8 groundwater because groundwater at these sites will be addressed under the Alameda Point TPH program.
Resource Conservation and Recovery Act (42 USC ch. 82 §§ 6901 – 6991[i])[b]				
Groundwater protection standards: owners/operators of RCRA treatment, storage, or disposal facilities must comply with conditions in this section that are designed to ensure that hazardous chemicals entering groundwater from a regulated unit do not exceed the 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 of concern at the point of compliance.	A regulated unit that receives or has received hazardous waste before July 26, 1982, or regulated units that ceased receiving hazardous waste prior to July 26, 1982, where chemicals in or derived from the waste may pose a threat to human health or the environment.	Cal. Code Regs. tit. 22, § 66264.94, except 66264.94(a)(2) and 66264.94(b)	Relevant and appropriate	The CERCLA groundwater remedial actions at Sites 6 and 16 are not responding to releases from RCRA-regulated unit; therefore, these standards are not applicable. The Navy has determined that a concentration limit greater than background, but not greater than MCLs, is the relevant and appropriate standard.

TABLE 6-1: CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Requirement	Prerequisite	Citation[a]	ARAR Determination	Comments
GROUNDWATER (Continued)				
STATE ARARs				
State and Regional Water Quality Control Boards[b]				
Authorizes the SWRCB and the Water Board to establish in water quality control plans beneficial uses and numerical and narrative standards to protect both surface water and groundwater quality. Authorizes Water Board 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 Water Quality Control 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, water quality objectives, waste discharge requirements, and promulgated policies of the Basin Plan as ARARs.
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, Chapters 2 and 3 (Cal. Water Code §13240)	Applicable	Substantive requirements pertaining to beneficial uses and statewide water quality control policies are state ARARs for groundwater at Sites 6, 7, 8 and 16.

TABLE 6-1: CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Requirement	Prerequisite	Citation[a]	ARAR Determination	Comments
GROUNDWATER (Continued)				
STATE ARARs (Continued)				
State and Regional Water Quality Control Boards[b] (Continued)				
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 is greater than 3,000 parts per million, the well yield is less than 200 gallons per day from a single well, the water is a geothermal resource or in a water conveyance facility, or the water cannot reasonable be treated for domestic use using either best management practices or best economically achievable treatment practices.	Waters of the state	SWRCB Res. 88-63	Applicable	The Navy will protect groundwater in the FWBZ at Sites 6 and 16 as potential drinking water sources and so has identified federal and state MCLs as chemical-specific ARARs for Sites 6 and 16. The Navy may revise this determination should additional information about the unsuitability of the groundwater for use as a drinking water source be obtained. The Navy will address any contamination in the groundwater at Sites 7 and 8 under the Alameda TPH-program. The Navy will not address the contamination under CERCLA.

TABLE 6-1: CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Requirement	Prerequisite	Citation[a]	ARAR Determination	Comments
GROUNDWATER (Continued)				
STATE ARARs (Continued)				
Cal/EPA Department of Toxic Substances Control[b]				
State MCL list	Source of drinking water	Cal. Code Regs. tit. 22 § 64444	Relevant and appropriate	The Navy has identified MCLs as chemical-specific ARARs for Sites 6 and 16. The Navy has determined that state MCLs for cis-1,2-DCE and vinyl chloride are more stringent than the federal MCLs for cis-1,2-DCE and vinyl chloride. Therefore, the Navy has identified the state MCLs for these chemicals. In addition, no federal MCL is available for 1,4-DCB, so the Navy has also identified the state MCL for 1,4-DCB. No CERCLA remedial action is necessary for Sites 7 and 8 groundwater since groundwater at these sites will be addressed under the Alameda Point TPH Program.

TABLE 6-1: CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)

Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Notes:

a Only the substantive provisions of the requirements cited in this table are potential ARARs.

b Statutes and policies, and their citations, are provided as headings to identify general categories of potential 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 potential ARARs; specific potential ARARs are addressed in the table below each general heading; only substantive requirements of the specific citations are considered potential ARARs.

§	Section
§§	Sections
ARAR	Applicable or relevant and appropriate requirement
Cal. Code Regs.	California Code of Regulations
Cal/EPA	California Environmental Protection Agency
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
ch.	Chapter
DCB	Dichlorobenzene
DCE	Dichloroethene
div.	Division
FWBZ	First water-bearing zone
LDR	Land disposal restriction
MCL	Maximum contaminant level
NPDES	National pollution discharge elimination system
PCB	Polychlorinated biphenyl
PCE	Tetrachloroethene
RCRA	Resource Conservation and Recovery Act
Res.	Resolution
SWRCB	State Water Resources Control Board
TCE	Trichloroethene
TCLP	Toxicity characteristic leaching procedure
tit.	Title
TPH	Total petroleum hydrocarbons
USC	United States Code
Water Board	San Francisco Bay Regional Water Quality Control Board

TABLE 6-2: LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS
Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Location	Requirement	Prerequisite	Citation[a]	ARAR Determination	Comments
FEDERAL ARARs					
National Historic Preservation Act of 1966, as Amended (16 USC § 470–470x-6)[b]					
Historic project owned or controlled by federal agency	Action to preserve historic properties; planning of action to 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, 40 CFR § 6.301(b)	Applicable	The Navy has determined that Building 41 at Site 6 and Building 114 at Site 8 are eligible for inclusion on the National Register of Historic Places as part of the NAS Alameda historic district (Woodbridge 1992). The selected soil and groundwater remedial actions for Sites 6 and 16 will not adversely affect these buildings.
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	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 Bay Plan, and 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.

TABLE 6-2: LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Location	Requirement	Prerequisite	Citation[a]	ARAR Determination	Comments
FEDERAL ARARs (Continued)					
Migratory Bird Treaty Act (16 USC §§ 703 – 712)[b]					
Migratory bird area	Protects almost all species of native migratory birds in the U.S. from unregulated "take," which can include poisoning at hazardous waste sites.	Presence of migratory birds	16 U.S.C. § 703	Relevant and appropriate	There are migratory birds on NAS Alameda. The Navy evaluated the habitat at these OU-1 sites and determined that there is no habitat suitable for migratory birds. Therefore, the Navy has complied with this ARAR. (Navy and Tetra Tech 1997; Tetra Tech 2004)
STATE ARARs					
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 San Francisco Bay and 100 feet of the shoreline.	San Francisco Bay Plan at Cal. Code Regs. tit. 14, §§ 10110 through 11990	Relevant and appropriate	The remedial actions selected in this ROD are in compliance with the substantive purposes of the San Francisco Bay Plan.

Notes:

a Only the substantive provisions of the requirements cited in this table are potential ARARs.

b Statutes and policies, and their citations, are provided as headings to identify general categories of potential 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 potential ARARs; specific potential ARARs are addressed in the table below each general heading; only substantive requirements of the specific citations are considered potential ARARs.

§ Section
§§ Sections
ARAR Applicable or relevant and appropriate requirement
CFR *Code of Federal Regulations*
CZMA Coastal Zone Management Act
USC *United States Code*

TABLE 6-3: ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS
Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Action	Requirement	Prerequisite	Citationa	ARAR Determination	Comments
			SOIL		
EXCAVATION AND OFF-SITE DISPOSAL					
FEDERAL ARARs					
Resource Conservation and Recovery Act (42 USC, Chapter 82, Sections 6901-6991[i])[b]					
Excavate soil or generate other waste by constructing the groundwater treatment systems	Person who generates waste shall determine if the waste is a RCRA hazardous waste.	Generator of waste	Cal. Code Regs., tit. 22 §§ 66262.10(a), 66262.11	Applicable	This requirement is applicable for any operation that generates waste. Excavation of soil and construction of the groundwater treatment systems will generate waste. The Navy will characterize this waste in compliance with these regulations for proper off-site disposal.
	Requirements for analyzing waste to determine whether waste is hazardous.	Generator of waste	Cal. Code Regs., tit. 22 § 66264.13(a) and (b)	Applicable	This requirement is applicable for any operation that generates waste. Excavation of soil and construction of the groundwater treatment systems will generate waste. The Navy will characterize this waste in compliance with these regulations for proper off-site disposal.
Stockpile soil for disposal	Allows generators to accumulate solid remediation waste in an EPA-designated pile for storage only up to 2 years during remedial operations without triggering land disposal restrictions.	RCRA hazardous waste temporarily stored in piles	40 CFR § 264.554(d)(1)(i-ii), (d)(2), (e), (f), (h), (i), (j), and (k)	Relevant and appropriate	The Navy will stockpile excavated soil for off-site disposal in these temporary units.
Close stockpile	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 post-closure care in accordance with the closure and post-closure care requirements that apply to landfills.	Waste pile used to store RCRA hazardous waste	Cal. Code Regs. tit. 22, § 66264.258(a) and (b), except references to procedural requirements	Relevant and appropriate	The Navy will close the soil stockpile areas according to the substantive provisions of these requirements.
Clean Air Act (42 USC §§ 7401–7671)[b]					
Excavation of soil	Sets forth opacity limitations	Excavation	BAAQMD Regulation 6-302	Applicable	The Navy will comply with this regulation when excavating soil.
	Provides requirements for maintaining, covering, and stockpiling excavated VOC contaminated soil.	VOC contaminated soil stockpile	BAAQMD Regulation 8-40	Relevant and appropriate	The Navy will comply with this regulation when stockpiling soil on site .
Clean Water Act (33 USC §§ 1251–1387)[b]					
Excavation of soil	Owners or operators must implement best management practices to control or abate storm water discharges.	Construction activities that affect at least 1 acre	Clean Water Act § 402(p) (33 USC § 1342) 40 CFR §122.44(k)(2) and (k)(4)	Applicable	The Navy will comply with these Clean Water Act ARARs for each site where soil sampling results indicate that excavation is necessary and that excavation at the site will disturb 1 or more acres. The Navy is not required to obtain a Clean Water Act permit for storm water discharges because the excavations will occur on site. However, the Navy will use the substantive requirements of the state's general permit, Order Number 99-08-DWQ, as TBC criteria for complying with the Clean Water Act requirement to apply best management practices for storm water discharges.

TABLE 6-3: ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Action	Requirement	Prerequisite	Citationa	ARAR Determination	Comments
			GROUNDWATER		
OPERATION OF ISCO AND ACCELERATED BIOREMEDIATION TREATMENT SYSTEMS					
FEDERAL ARARs					
Safe Drinking Water Act (42 USC, ch. 6A, § 300[f]–300[j]-26)[b]					
Inject chemical oxidation agent or accelerated bioremediation agent into groundwater	The UIC program prohibits injection activities that allow movement of chemicals into underground sources of drinking water that may result in violations of MCLs or adversely affect human health.	An approved UIC program is required in states listed under Safe Drinking Water Act § 1422. Class I wells and Class IV wells are the relevant classifications for CERCLA sites. Class I wells are used to inject hazardous waste beneath the lowermost formation that contains an underground source of drinking water within 0.25 mile of the well.	40 CFR § 144.12, excluding the reporting requirements in § 144.12(b) and 144.12(c)(1)	Relevant and appropriate	The injection well (or wells) for this alternative would be considered a Class V well under these regulations. The injection of treatment chemicals will not cause the groundwater in the FWBZ to at Sites 6 and 16 to violate MCLs or adversely affect human health.
Resource Conservation and Recovery Act (42 USC, Chapter 82, Sections 6901-6991[i])[b]					
Container storage	Containers of RCRA hazardous waste must be (1) maintained in good condition, (2) compatible with hazardous waste to be stored, and (3) closed during storage except to add or remove waste.	Storage of RCRA hazardous waste not meeting small-quantity generator criteria before treatment, disposal, or storage elsewhere in a container.	Cal. Code Regs. tit. 22, § 66264.171, 66264.172, 66264.173	Applicable	The Navy may generate waste in construction of the ISCO and/or accelerated bioremediation components of the groundwater remedy. If the Navy does not temporarily stockpile this waste in conjunction with the soil excavated for off-site disposal, the Navy will place this waste in containers and characterize it for proper off-site disposal. If the Navy determines that the waste generated is RCRA hazardous waste, the Navy will comply with these requirements.
Container storage	Inspect container storage areas weekly for deterioration.	Storage of RCRA hazardous waste not meeting small-quantity generator criteria before treatment, disposal, or storage elsewhere in a container.	Cal. Code Regs. tit. 22, § 66264.174	Applicable	The Navy may generate waste in construction of the ISCO and/or accelerated bioremediation components of the groundwater remedy. If the Navy does not temporarily stockpile this waste in conjunction with the soil excavated for off-site disposal, the Navy will place this waste in containers and characterize it for proper off-site disposal. If the Navy determines that the waste generated is RCRA hazardous waste, the Navy will comply with these requirements.
Container storage	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) and (b)	Applicable	The Navy may generate waste in construction of the ISCO and/or accelerated bioremediation components of the groundwater remedy. If the Navy does not temporarily stockpile this waste in conjunction with the soil excavated for off-site disposal, the Navy will place this waste in containers and characterize it for proper off-site disposal. If the Navy determines that the waste generated is RCRA hazardous waste, the Navy will comply with these requirements.
Container storage	At closure, remove all hazardous waste and residues from the containment system, and decontaminate or remove all containers and liners.	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, § 66264.178	Applicable	The Navy may generate waste in construction of the ISCO and/or accelerated bioremediation components of the groundwater remedy. If the Navy does not temporarily stockpile this waste in conjunction with the soil excavated for off-site disposal, the Navy will place this waste in containers and characterize it for proper off-site disposal. If the Navy determines that the waste generated is RCRA hazardous waste, the Navy will comply with these requirements.

TABLE 6-3: ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Action	Requirement	Prerequisite	Citationa	ARAR Determination	Comments
			GROUNDWATER (Continued)		
MONITORING					
FEDERAL ARARs					
Resource Conservation and Recovery Act (42 USC, Chapter 82, Sections 6901-6991[i])[b]					
Monitor groundwater	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.
Monitor groundwater	Constituents of concern are 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.
Monitor groundwater	The POC is a vertical surface located at the hydraulically downgradient limit of the waste management area that extends through the uppermost aquifer underlying the regulated unit.	Hazardous waste treatment, storage, or disposal facility	Cal. Code Regs. tit. 22, § 66264.95(a) and (b)	Relevant and appropriate	This section is an ARAR for groundwater monitoring.
Monitor groundwater	General requirements for monitoring groundwater	Hazardous waste treatment, storage, or disposal facility	Cal. Code Regs. tit. 22, §§ 66264.97(b)(1)(A), (b)(1)(B), (b)(1)(C), (b)(1)(D)(1), (b)(1)(D)(2), (b)(2), (b)(4) through (b)(7), (e)(6), (e)(12)(A), (e)(12)(B), (e)(13), and (e)(15)	Relevant and appropriate	These sections are ARARs for groundwater corrective action, detection, and evaluation monitoring.
Monitor groundwater	General requirements for groundwater detection monitoring programs	Hazardous waste treatment, storage, or disposal facility	Cal. Code Regs. tit. 22, §§ 66264.98 (e)(1) through (5), (i), (j), (k)(1) through (3), (k)(4)(A), (k)(4)(D), (k)(5), (k)(7)(C), (k)(7)(D), (n)(1), (n)(2)(B), and (n)(2)(C)	Relevant and appropriate	These sections are ARARs for groundwater detection monitoring.
Monitor groundwater	General requirements for groundwater evaluation monitoring programs	Hazardous waste treatment, storage, or disposal facility	Cal. Code Regs. tit. 22, §§ 66264.99(e)(1) through (6), (f)(3), and (g)	Relevant and appropriate	These sections are ARARs for groundwater evaluation monitoring if such monitoring is necessary.
Monitor groundwater	Requires continued monitoring until the regulated unit has been in compliance with the water quality protection standard for a period of 3 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 (2)	Relevant and appropriate	This ARAR is relevant and appropriate for determining when detection and/or evaluation monitoring is no longer required.
Monitor groundwater	For compliance demonstration, each COC "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."	Regulated unit	Cal. Code Regs. tit. 27, § 20430(g)(2)	Relevant and appropriate	The substantive requirements in this state ARAR are relevant and appropriate to determining when corrective action monitoring is no longer required.

TABLE 6-3: ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Action	Requirement	Prerequisite	Citationa	ARAR Determination	Comments
			GROUNDWATER (Continued)		
INSTITUTIONAL CONTROLS					
STATE ARARs					
California Civil Code[b]					
Place institutional 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	The substantive ARAR provisions of Cal. Civil Code § 1471 are the following general narrative standards: "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 California Health & Safety Code." This narrative standard would be implemented through incorporation of environmental restrictive covenants in the deed at the time of transfer, if necessary.
California Health and Safety Code §§ 25202.5, 25222.1, 25232(b), 25233(c), 25234, and 25355.5(a)(1)(C)[b]					
Place institutional 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 ARAR provisions of Cal. Health & Safety Code § 25202.5 are the general narrative standards to restrict "present and future uses of all or part of the land on which the facility ... is located."
Place institutional controls	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 substances without a specific variance.	Hazardous waste property	Cal. Health & Safety Code § 25232(b)(1)(A) through (E)	Relevant and appropriate	Cal. Health & Safety Code § 25232(b) prohibits certain uses (i.e., residences, hospitals for humans, schools, and daycare centers) without a variance.
	Provides a process for obtaining a written variance from a land-use restriction.	Transfer of 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 obtaining variances from 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 of property from the Navy to a nonfederal entity	Cal. Health & Safety Code § 25234	Relevant and appropriate	Cal. Health & Safety Code § 25234 sets forth the relevant and appropriate substantive criteria for the removal of a land-use restriction on the grounds that "... the waste 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 or future uses of the property.	Transfer of 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, on the present or future uses of the site."

TABLE 6-3: ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)
Record of Decision for OU-1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

Action	Requirement	Prerequisite	Citationa	ARAR Determination	Comments
			GROUNDWATER (Continued)		
INSTITUTIONAL CONTROLS (Continued)					
STATE ARARs (Continued)					
Cal/EPA Department of Toxic Substances Control[b]					
Place institutional controls	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 that are not suitable for unrestricted use of the land. If it is not feasible to execute and record a limitation on land use, the Navy and DTSC shall use other mechanisms, such as the Base Master Plan, to ensure future land use will be compatible with the levels of hazardous material, hazardous wastes or constituents, or hazardous substances that remain on the site.	Institutional control.	Cal. Code Regs., tit. 22, § 67391.1	Relevant and appropriate	The Navy anticipates completing the soil and groundwater remedial actions while OU-1 is under Navy management. The Navy will initially place the institutional control in the Lease in Furtherance of Conveyance. If the remedial actions are not complete by the time the Navy transfers these OU-1 sites to a nonfederal entity, then the Navy will restructure the institutional controls into environmental restrictive covenants that will run with the land and will bind all subsequent transferees. EPA considers the following portions of Cal. Code Regs. tit. 22, § 67391.1 to be relevant and appropriate for this ROD: Cal. Code Regs. tit. 22, §§ 67391.1(a)(1), (a)(2), (d), (e)(1), and (e)(2). These requirements are applicable to RCRA-regulated units, and the CERCLA releases that are the subject of the groundwater remedies are not from RCRA-regulated units. However, the Navy has determined that these requirements are relevant and appropriate for the groundwater monitoring component of the remedial action. The Navy has identified the concentration limits of Cal. Code Regs. tit. 22 § 66264.94 as chemical-specific ARARs.

Notes:

a	Only the substantive provisions of the requirements cited in this table are potential ARARs.
b	Statutes and policies, and their citations, are provided as headings to identify general categories of potential 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 potential ARARs; specific potential ARARs are addressed in the table below each general heading; only substantive requirements of the specific citations are considered potential ARARs.
§	Section
§§	Sections
ARAR	Applicable or relevant and appropriate requirement
BAAQMD	Bay Area Air Management District
Cal. Code Regs.	*California Code of Regulations*
Cal/EPA	California Environmental Protection Agency
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	*Code of Federal Regulations*
DTSC	Department of Toxic Substances Control
MCL	Maximum contaminant level
RCRA	Resource Conservation and Recovery Act
TBC	To be considered
tit.	Title
UIC	Underground injection control
USC	*United States Code*
VOC	Volatile organic compound

7.0 DOCUMENTATION OF SIGNIFICANT CHANGES

The Proposed Plan for OU-1 Sites 6, 7, 8, and 16 was released for public comment on April 27, 2006 (Navy 2006). The Navy has reviewed all written and oral comments submitted during the public comment period. Upon review of these comments, it was determined that no significant changes to the selected remedial actions as originally identified in the Proposed Plan were necessary or appropriate.

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EPA. 2005b. Letter regarding Responses to Regulatory Agency Comments on the Draft Proposed Plan, Operable Unit 1, Installation Restoration Sites 6, 7, 8, and 16, Alameda Point, Alameda, California. From Anna-Marie Cook, EPA. To Thomas Macchiarella, Navy. December 12.

Woodbridge, S.B. 1992. "Historic Architectural Resources Inventory for Naval Air Station, Alameda."

ATTACHMENT A
ADMINISTRATIVE RECORD INDEX

127 pages.

Note: the Navy has included an updated Administrative Record Index in this Final version of the Operable Unit 1 Sites 6, 7, 8, and 16 Record of Decision.

DRAFT ADMINISTRATIVE RECORD FILE INDEX - UPDATE (SORTED BY RECORD DATE/RECORD NUMBER)

FILTERED DATA BY KEYWORDS/SITES

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	11-24-1999	NEESA	INITIAL ASSESSMENT STUDY (IAS)	ADMIN RECORD	001	SOUTHWEST DIVISION - BLDG. 1	181-03-0179	BOX 0010
	04-01-1983				002		41074200	
RPT	NONE				003			
NONE	00.0				004			
00000					005			
					006			
					007			
					008			
					009			
					010			
					011			
					012			
					017			

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N00236 / 000212 NONE RPT NONE 00215	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	001 002 003 004 005 006 007 008 009 010 011 012 013 014 015 016 017 018 019 020 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	SOUTHWEST DIVISION - BLDG. 1 SW061211-01 IMAGED APNT_019	

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)
					CANS C-2 AREA YARD D-13		

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N00236 / 000214 NONE RPT NONE 00066	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	001 002 003 004 005 006 007 008 009 010 011 012 013 014 015 016 017 018 019 020 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	SOUTHWEST DIVISION - BLDG. 1 SW061211-01 IMAGED APNT_019	181-03-0179 BOX 0011 41074200

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					CANS C-2 AR YARD D-13		

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N00236 / 000787 NONE RPT N62474-85-D-5620 00027	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	001 002 003 004 005 006 007 008 009 010 011 012 013 014 015 016 017 018 019 020 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	SOUTHWEST DIVISION - BLDG. 1 SW061211-02 IMAGED APNT_019	181-03-0179 BOX 0018 41074200

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					CANS C-2 AREA YARD D-13		

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N00236 / 000258 NONE RPT N62474-85-D-5620 00027	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	001 002 003 004 005 006 007 008 009 010 011 012 013 014 015 016 017 018 019 020 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	SOUTHWEST DIVISION - BLDG. 1 SW061211-01 IMAGED APNT_019	181-03-0179 BOX 0012 41074200

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					CANS C-2 AREA YARD D-13		

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N00236 / 000259 NONE RPT N62474-85-D-5620 00038	11-24-1999 **11-01-1988** DO 005 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	001 002 003 004 005 006 007 008 009 010 011 012 013 014 015 016 017 018 019 020 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	SOUTHWEST DIVISION - BLDG. 1 SW061211-01 IMAGED APNT_019	181-03-0179 BOX 0012 41074200

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					CANS C-2 AREA YARD D-13		

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N00236 / 000260 NONE RPT N62474-85-D-5620 00085	11-24-1999 **12-01-1988** DO 005 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	001 002 003 004 005 006 007 008 009 010 011 012 013 014 015 016 017 018 019 020 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	SOUTHWEST DIVISION - BLDG. 1 SW061211-01 IMAGED APNT_019	181-03-0179 BOX 0012 41074200

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					CANS C-2 AREA YARD D-13		

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N00236 / 000261 NONE RPT NONE 00345	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	001 002 003 004 005 006 007 008 009 010 011 012 013 014 015 016 017 018 019 020 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	SOUTHWEST DIVISION - BLDG. 1 SW061211-01 IMAGED APNT_019	181-03-0179 BOX 0013 41074200

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					CANS C-2 AREA YARD D-13		

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N00236 / 000262 NONE RPT N62474-85-D-5620 00078	11-24-1999 **12-01-1988** DO 005 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	001 002 003 004 005 006 007 008 009 010 011 012 013 014 015 016 017 018 019 020 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	SOUTHWEST DIVISION - BLDG. 1 SW061211-01 IMAGED APNT_019	181-03-0179 BOX 0013 41074200

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					CANS C-2 AREA YARD D-13		

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N00236 / 000274 NONE RPT N62474-85-D-5620 00123	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	001 002 003 004 005 006 007 008 009 010 011 012 013 014 015 016 017 018 019 020 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	SOUTHWEST DIVISION - BLDG. 1 SW061211-01 IMAGED APNT_019	181-03-0179 BOX 0013 41074200

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N00236 / 000275 NONE RPT N62474-85-D-5620 00034	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	001 002 003 004 005 006 007 008 009 010 011 012 013 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	SOUTHWEST DIVISION - BLDG. 1 SW061211-01 IMAGED APNT_019	181-03-0179 BOX 0013 41074200

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N00236 / 000291 NONE RPT N62474-85-D-5620 00212	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	001 002 003 004 005 006 007 008 009 010 011 012 013 014 015 016 017 018 019 020 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	SOUTHWEST DIVISION - BLDG. 1 SW061211-01 IMAGED APNT_019	181-03-0179 BOX 0013 41074200

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					CANS C-2 AREA YARD D-13		

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N00236 / 000322 NONE RPT NONE 00045	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	001 002 003 004 005 006 007 008 009 010 011 012 013 014 015 016 017 018 019 020 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	SOUTHWEST DIVISION - BLDG. 1 SW061211-01 IMAGED APNT_019	181-03-0179 BOX 0014 41074200

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N00236 / 000351 NONE RPT N62474-85-D-5620 00154	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	001 002 003 004 005 006 007 008 009 010 011 012 013 014 015 016 017 018 019 020 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	SOUTHWEST DIVISION - BLDG. 1 SW061211-02 IMAGED APNT_019	181-03-0179 BOX 0014 41074200

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N00236 / 000361 NONE RPT NONE 00086	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	001 002 003 004 005 006 007 008 009 010 011 012 013 014 015 016 017 018 019 020 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	SOUTHWEST DIVISION - BLDG. 1 SW061211-02 IMAGED APNT_019	181-03-0179 BOX 0014 41074200

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					CANS C-2 AREA YARD D-13		

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N00236 / 000371 NONE RPT NONE 00364	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	001 002 003 004 005 006 007 008 009 010 011 012 013 014 015 016 017 018 019 020 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	SOUTHWEST DIVISION - BLDG. 1 SW061211-02 IMAGED APNT_019	181-03-0179 BOX 0015 41074200

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Doc. Control No.	Prc. Date	Author Affil.							
Record Type	Record Date	Author						Location	FRC Accession No.
Contr./Guid. No.	CTO No.	Recipient Affil.						SWDIV Box No(s)	FRC Warehouse
Approx. # Pages	EPA Cat. #	Recipient	———	Subject	———	Classification	Sites	CD No.	FRC Box No(s) ——
							CANS C-2 AREA YARD D-13		

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N00236 / 000780 NONE RPT N62474-85-D-5620 00178	11-24-1999 **11-01-1989** DO 008 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	001 002 003 004 005 006 007 008 009 010 011 012 013 014 015 016 017 018 019 020 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	SOUTHWEST DIVISION - BLDG. 1 SW061211-02 IMAGED APNT_019	181-03-0179 BOX 0018 41074200

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					CANS C-2 AR YARD D-13		

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N00236 / 000783 NONE RPT N62474-85-D-5620 00093	11-24-1999 **01-01-1990** DO 005 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	001 002 003 004 005 006 007 008 009 010 011 012 013 014 015 016 017 018 019 020 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	SOUTHWEST DIVISION - BLDG. 1 SW061211-02 IMAGED APNT_019	181-03-0179 BOX 0018 41074200

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					CANS C-2 AREA YARD D-13		

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N00236 / 000785 NONE RPT N62474-85-D-5620 00283	11-24-1999 **02-01-1990** DO 008 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	001 002 003 004 005 006 007 008 009 010 011 012 013 014 015 016 017 018 019 020 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	SOUTHWEST DIVISION - BLDG. 1 SW061211-02 IMAGED APNT_019	181-03-0179 BOX 0018 41074200

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					CANS C-2 AREA YARD D-13			
N00236 / 000795 RPT NONE 00040	11-24-1999 **11-01-1990** NONE 00.0	CANONIE	PHASE 2A ANALYTICAL RESULTS FOR SITE 7, BUILDING 547 RI/FS (ENCLOSURE 5)	REFERENCE	007	SOUTHWEST DIVISION - BLDG. 1 SW061211-03 IMAGED APNT_019	181-03-0179 41074200	BOX 0019
N00236 / 000800 RPT NONE 00046	11-24-1999 **11-01-1990** NONE 00.0	CANONIE	PHASE 2A ANALYTICAL RESULTS FOR SITE 16, CANS C-2 RI/FS (ENCLOSURE 10)	REFERENCE	016	SOUTHWEST DIVISION - BLDG. 1 SW061211-03 IMAGED APNT_019	181-03-0179 41074200	BOX 0020
N00236 / 000815 86-018-1810 RPT NONE 00031	11-24-1999 **01-01-1991** NONE 00.0	CANONIE ENVIRONMENTAL T. BODKIN NAVFAC - EFA WEST B. DIZON	PHASE 2A SOIL GAS SURVEY RESULTS FOR SITE 3, AREA 97 AND FOR SITE 7, BUILDING 547, REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS)	ADMIN RECORD INFO REPOSITORY	003 007 BLDG. 547	SOUTHWEST DIVISION - BLDG. 1 SW060309-02 IMAGED APNT_011	181-03-0179 41074200	BOX 0022
N00236 / 000830 RPT NONE 00041	11-24-1999 **06-01-1992** NONE 00.0	CANONIE	REVISED PHASE 1 AND 2A ANALYTICAL RESULTS FOR SITE 7, BUILDING 547 RI/FS	REFERENCE	007	SOUTHWEST DIVISION - BLDG. 1 SW061211-03 IMAGED APNT_019	181-03-0179 41074200	BOX 0023
N00236 / 000834 RPT NONE 00047	11-24-1999 **06-01-1992** NONE 00.0	CANONIE	REVISED PHASE 1 AND 2A ANALYTICAL RESULTS FOR SITE 16, CANS C-2 AREA RI/FS - VOLUME 1	REFERENCE	016	SOUTHWEST DIVISION - BLDG. 1 SW061211-03 IMAGED APNT_019	181-03-0179 41074200	BOX 0024
N00236 / 000835 RPT NONE 00004	11-24-1999 **06-01-1992** NONE 00.0	CANONIE	REVISED PHASE 1 AND 2A ANALYTICAL RESULTS FOR SITE 16, CANS C-2 AREA RI/FS - VOLUME 2	REFERENCE	016	SOUTHWEST DIVISION - BLDG. 1 SW061211-03 IMAGED APNT_019	181-03-0179 41074200	BOX 0024

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N00236 / 000843 NONE RPT N62474-88-D-5086 00422	11-24-1999 **10-27-1992** 00121 00.0	PRC ENVIRONMENTAL MGMT INC. NAVFAC - EFA WEST	FINAL DATA SUMMARY REPORT REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) PHASES 2B AND 3 (VOLUME 1 OF 2 - TEXT) [SEE AR #844 - VOLUME 2]	ADMIN RECORD	004 005 006 007A 007B 008 010A 011 012 014 015 BLDG. 10 BLDG. 114 BLDG. 14 BLDG. 162 BLDG. 301 BLDG. 360 BLDG. 389 BLDG. 400 BLDG. 41 BLDG. 459 BLDG. 5	SOUTHWEST DIVISION - BLDG. 110 SW060309-02 IMAGED APNT_011	181-03-0179 BOX 0025 41074200

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N00236 / 000844 NONE RPT N62474-88-D-5086 00364	11-24-1999 **10-27-1992** 00121 00.0	PRC ENVIRONMENTAL MGMT INC. NAVFAC - EFA WEST	FINAL DATA SUMMARY REPORT REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) PHASES 2B AND 3 (VOLUME 2 OF 2 - APPENDICES A - G) [SEE AR #843 - VOLUME 1]	ADMIN RECORD	004 005 006 007A 007B 008 010A 011 012 014 015 BLDG. 10 BLDG. 114 BLDG. 14 BLDG. 162 BLDG. 301 BLDG. 360 BLDG. 389 BLDG. 400 BLDG. 41 BLDG. 459 BLDG. 5	SOUTHWEST DIVISION - BLDG. 110 SW060309-02 IMAGED APNT_011	181-03-0179 41074200	BOX 0025
N00236 / 000643 TC.A021.10075 MM N68711-00-D-0005 00008	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	001 002 003 007A 015 018 PHASE 1 PHASE 2A PHASE 2B PHASE 3 PHASE 5 PHASE 6	SOUTHWEST DIVISION - BLDG. 1 SW060629-02 IMAGED APNT_007	181-03-0188 41031858	BOX 0014

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N00236 / 000644 TC.A021.10075 MM N68711-00-D-0005 00005	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	001 002 007A 015	SOUTHWEST DIVISION - BLDG. 1 SW060629-02 IMAGED APNT_007	181-03-0188 41031858	BOX 0014
N00236 / 000646 TC.A021.10075 MM N68711-00-D-0005 00004	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	001 002 004 007A 007B 009 011 017 PHASE 1 PHASE 2A PHASE 2B PHASE 3 PHASE 5 PHASE 6	SOUTHWEST DIVISION - BLDG. 1 SW060629-02 IMAGED APNT_007	181-03-0188 41031858	BOX 0014
N00236 / 000647 TC.A021.10075 MM N68711-00-D-0005 00005	06-13-2003 **05-12-1993** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	12 MAY 1993 MONTHLY PROGRESS REVIEW MEETING MINUTES FOR THE REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS)	ADMIN RECORD INFO REPOSITORY	007A 015 PHASE 2A PHASE 2B PHASE 3 PHASE 5 PHASE 6	SOUTHWEST DIVISION - BLDG. 1 SW060629-02 IMAGED APNT_007	181-03-0188 41031858	BOX 0014
N00236 / 000650 TC.A021.10075 MM N68711-00-D-0005 00005	06-13-2003 **07-28-1993** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	28 JULY 1993 MONTHLY PROGRESS REVIEW MEETING MINUTES FOR THE REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS)	ADMIN RECORD INFO REPOSITORY	007A PHASE 1 PHASE 2A PHASE 2B PHASE 3 PHASE 5 PHASE 6	SOUTHWEST DIVISION - BLDG. 1 SW060629-02 IMAGED APNT_007	181-03-0188 41031858	BOX 0014

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N00236 / 000653 TC.A021.10075 MM N68711-00-D-0005 00004	06-13-2003 **09-22-1993** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	22 SEPTEMBER 1993 MONTHLY PROGRESS REVIEW MEETING MINUTES FOR THE REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS)	ADMIN RECORD INFO REPOSITORY	007A 015 PHASE 2A PHASE 2B PHASE 3 PHASE 5 PHASE 6	SOUTHWEST DIVISION - BLDG. 1 SW060629-02 IMAGED APNT_007	181-03-0188 41031858 BOX 0014
N00236 / 000858 NONE RPT N62474-88-D-5086 00303	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	001 002 003 004 005 006 007A 007B 007C 008 009 010A 010B 011 012 013 014 015 016 017 018 019 020	SOUTHWEST DIVISION - BLDG. 1 SW061211-03 IMAGED APNT_019	181-03-0179 41074200 BOX 0027

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N00236 / 000654 TC.A021.10075 MM N68711-00-D-0005 00008	06-13-2003 **10-06-1993** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	06 OCTOBER 1993 TECHNICAL REVIEW COMMITTEE MEETING MINUTES FOR THE REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS)	ADMIN RECORD INFO REPOSITORY	007A 013 015	SOUTHWEST DIVISION - BLDG. 1 SW060629-02 IMAGED APNT_007	181-03-0188 41031858	BOX 0014
N00236 / 000891 EFAW SER T4A2GK/L4087 CORRESP NONE 00002	11-24-1999 **01-07-1994** NONE 00.0	NAVFAC - EFA WEST G. KIKUGAWA DISTRIBUTION	SUBMISSION OF DRAFT FIELD INVESTIGATION WORK PLAN INTERIM REMEDIAL ACTION (IRA) SITE 7A NAVY EXCHANGE FUEL STATION (W/OUT ENCLOSURE) [SEE AR #993 - DRAFT FIELD INVESTIGATION WORK PLAN]	ADMIN RECORD INFO REPOSITORY	007A	SOUTHWEST DIVISION - BLDG. 1 SW060323-01 IMAGED APNT_002	181-03-0179 41074200	BOX 0028
N00236 / 000993 RPT NONE 00027	11-24-1999 **01-07-1994** NONE 00.0	PRC	DRAFT RI/FS STUDY INTERIM REMOVAL ACTION (IRA), SITE 7A BUILDING 459, NAVY EXCHANGE FUEL STATION FIELD INVESTIGATION WORK PLAN (WP)	ADMIN RECORD	007	SOUTHWEST DIVISION - BLDG. 1 SW060323-02 IMAGED APNT_002	181-03-0179 41074200	BOX 0029
N00236 / 001199 NONE COMMENTS NONE 00002	11-24-1999 **01-12-1994** NONE 00.0	RAB R. HOUGH NAVFAC - EFA WEST G. KIKUGAWA	COMMENTS ON THE DRAFT FIELD INVESTIGATION WORK PLAN FOR INTERIM REMOVAL ACTION AT BUILDING 459, NAVY EXCHANGE FUEL STATION	ADMIN RECORD	007A BLDG. 459	SOUTHWEST DIVISION - BLDG. 1 SW060406-02 IMAGED APNT_007	181-03-0179 41074200	BOX 0032
N00236 / 001202 NONE COMMENTS NONE 00004	11-24-1999 **03-29-1994** NONE 00.0	DTSC - BERKELEY T. LANPHAR NAVFAC - EFA WEST G. MUNEKAWA	SUBMISSION OF AGENCY COMMENTS ON DRAFT REMOVAL ACTION, SITE 7A, FIELD INVESTIGATION WORK PLAN (W/ ENCLOSURE) [INCLUDES CRWQCB INTERNAL MEMO DATED 16 MARCH 1994]	ADMIN RECORD	007A	SOUTHWEST DIVISION - BLDG. 1 SW060406-02 IMAGED APNT_007	181-03-0179 41074200	BOX 0032

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N00236 / 000658 TC.A021.10075 MM N68711-00-D-0005 00007	06-13-2003 **04-13-1994** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	13 APRIL 1994 MONTHLY PROGRESS REVIEW MEETING MINUTES FOR THE BRAC CLEANUP ACTIVITIES	ADMIN RECORD INFO REPOSITORY	004 005 008 010A 012 013 014 015 PHASE 2B PHASE 3	SOUTHWEST DIVISION - BLDG. 1 SW060629-02 IMAGED APNT_007	181-03-0188 41031858	BOX 0014
N00236 / 000659 TC.A021.10075 MM N68711-00-D-0005 00005	06-13-2003 **04-29-1994** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	29 APRIL 1994 MONTHLY PROGRESS REVIEW MEETING MINUTES FOR THE BRAC CLEANUP ACTIVITIES	ADMIN RECORD INFO REPOSITORY	006 007A 008 012 014 015 016 OU 1 PHASE 5 PHASE 6	SOUTHWEST DIVISION - BLDG. 1 SW060629-02 IMAGED APNT_007	181-03-0188 41031858	BOX 0014
N00236 / 001052 RESP NONE 00010	11-24-1999 **05-03-1994** NONE 00.0	NAVY	RESPONSE TO COMMENTS ON THE DRAFT FIELD INVESTIGATION RI/FS WORK PLANS (WP) INTERIM ACTION SITE 7A, EXCHANGE FUEL STATION	ADMIN RECORD	007	SOUTHWEST DIVISION - BLDG. 1 SW060323-02 IMAGED APNT_002	181-03-0179 41074200	BOX 0030
N00236 / 001053 EFAW SER T4A2GK/L4209 RESPONSE NONE 00006	11-24-1999 **05-03-1994** NONE 00.0	NAVFAC - EFA WEST M. PASCUA COMMUNITY ADVISORY COMMITTEE R. HOUGH	RESPONSE TO PUBLIC COMMENTS ON DRAFT FIELD INVESTIGATION REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) WORK PLANS INTERIM ACTION (W/ ENCLOSURE)	ADMIN RECORD	007A	SOUTHWEST DIVISION - BLDG. 1 SW060323-02 IMAGED APNT_002	181-03-0179 41074200	BOX 0030

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N00236 / 001059 NONE CORRESP NONE 00002	11-24-1999 **05-19-1994** NONE 00.0	DTSC - BERKELEY T. LANPHAR NAVFAC - EFA WEST G. MUNEKAWA	APPROVAL OF DRAFT FINAL FIELD INVESTIGATION WORK PLANS (WP), INTERIM REMOVAL ACTION (IRA)	INFO REPOSITORY	007A	SOUTHWEST DIVISION - BLDG. 1 SW070112-01 IMAGED APNT_008	181-03-0179 41074200	BOX 0030
N00236 / 000660 TC.A021.10075 MM N68711-00-D-0005 00006	06-13-2003 **05-25-1994** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	25 MAY 1994 DRAFT PROGRESS REVIEW MEETING MINUTES FOR THE BRAC CLEANUP ACTIVITIES	ADMIN RECORD INFO REPOSITORY	004 006 007A 008 012 014 015 016	SOUTHWEST DIVISION - BLDG. 1 SW060629-02 IMAGED APNT_007	181-03-0188 41031858	BOX 0014
N00236 / 000661 TC.A021.10075 MM N68711-00-D-0005 00006	06-13-2003 **06-08-1994** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	08 JUNE 1994 PROGRESS REVIEW MEETING MINUTES FOR THE BRAC CLEANUP ACTIVITIES	ADMIN RECORD INFO REPOSITORY	004 006 008 012 014 016 PHASE 2A PHASE 2B PHASE 5 PHASE 6	SOUTHWEST DIVISION - BLDG. 1 SW060629-02 IMAGED APNT_007	181-03-0188 41031858	BOX 0014
N00236 / 000662 TC.A021.10075 MM N68711-00-D-0005 00007	06-13-2003 **07-06-1994** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	06 JULY 1994 PROGRESS REVIEW MEETING MINUTES FOR THE BRAC CLEANUP ACTIVITIES	ADMIN RECORD INFO REPOSITORY	006 008 012 014 016	SOUTHWEST DIVISION - BLDG. 1 SW060629-02 IMAGED APNT_007	181-03-0188 41031858	BOX 0014
N00236 / 001103 NONE CORRESP NONE 00001	11-24-1999 **08-19-1994** NONE 00.0	DTSC - BERKELEY T. LANPHAR NAVFAC - EFA WEST G. MUNEKAWA	APPROVAL OF REMOVAL ACTION (RM), SITE 7A, DRAFT FINAL FIELD INVESTIGATION WORK PLAN (WP) AND TECHNICAL MEMORANDUM ™	INFO REPOSITORY	007	SOUTHWEST DIVISION - BLDG. 1 SW061120-02 IMAGED APNT_023	181-03-0179 41074200	BOX 0031

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N00236 / 001086 EFAW SER 09ER3DW/L4375 CORRESP NONE 00003	11-24-1999 **09-01-1994** NONE 00.0	NAVFAC - EFA WEST D. WONG DISTRIBUTION	SUBMISSION OF FINAL FIELD INVESTIGATION WORK PLAN FOR REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) INTERIM REMOVAL ACTION (IRA), SITE 7A, BUILDING 459 - NAVY EXCHANGE FUEL STATION (W/OUT ENCLOSURE) [SEE AR #1087 - FINAL FIELD INVESTIGATION WORK PLAN]	ADMIN RECORD INFO REPOSITORY	007A BLDG. 459	SOUTHWEST DIVISION - BLDG. 1 SW060406-01 IMAGED APNT_007	181-03-0179 41074200	BOX 0031
N00236 / 001126 EFAW SER 09ER3DW/L4375 CORRESP NONE 00002	11-24-1999 **09-01-1994** NONE 00.0	NAVFAC - EFA WEST D. WONG DISTRIBUTION	TRANSMITTAL OF FINAL FIELD INVESTIGATION WORK PLAN, REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS), INTERIM REMOVAL ACTION (IRA), SITE 7A NAVY EXCHANGE FUEL STATION	ADMIN RECORD INFO REPOSITORY	007	SOUTHWEST DIVISION - BLDG. 110 BOX 31 - 03/01/06	181-03-0179 41074200	BOX 0031
N00236 / 001087 NONE RPT N62474-88-D-5086 00031	11-24-1999 **09-14-1994** 00262 00.0	PRC ENVIRONMENTAL MGMT INC. NAVFAC - EFA WEST	FINAL FIELD INVESTIGATION WORK PLAN REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) INTERIM REMOVAL ACTION (IRA), SITE 7A, BUILDING 459 - NAVY EXCHANGE FUEL STATION	ADMIN RECORD INFO REPOSITORY	007A BLDG. 459	SOUTHWEST DIVISION - BLDG. 1 SW060406-01 IMAGED APNT_007	181-03-0179 41074200	BOX 0031
N00236 / 000663 TC.A021.10075 MM N68711-00-D-0005 00005	06-13-2003 **01-18-1995** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	18 JANUARY 1995 PROGRESS REVIEW MEETING MINUTES	ADMIN RECORD INFO REPOSITORY	005 007A 007C 013 015 016	SOUTHWEST DIVISION - BLDG. 1 SW060629-02 IMAGED APNT_007	181-03-0188 41031858	BOX 0014
N00236 / 000664 TC.A021.10075 MM N68711-00-D-0005 00007	06-13-2003 **02-14-1995** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	14 FEBRUARY 1995 PROGRESS REVIEW MEETING MINUTES	ADMIN RECORD INFO REPOSITORY	007A 014 018 BLDG. 457	SOUTHWEST DIVISION - BLDG. 1 SW060629-02 IMAGED APNT_007	181-03-0188 41031858	BOX 0014

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N00236 / 000666 TC.A021.10075 MM N68711-00-D-0005 00006	06-16-2003 **03-14-1995** DO 021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	14 MARCH 1995 PROGRESS REVIEW MEETING MINUTES	ADMIN RECORD INFO REPOSITORY	001 002 003 004 005 007A 007C 010A 012 013 014 015 018	SOUTHWEST DIVISION - BLDG. 1 SW060629-02 IMAGED APNT_007	181-03-0188 41031858	BOX 0014
N00236 / 001169 EFAW SER 09ER3GK/L5240 CORRESP NONE 00007	11-24-1999 **03-29-1995** NONE 00.0	NAVFAC - EFA WEST G. KIKUGAWA VARIOUS AGENCIES	TRANSMITTAL OF 1) DOCUMENT SUMMARY AND 2) DRAFT WORK PLAN, ECOLOGICAL RISK ASSESSMENT, TERRESTRIAL SCOPING ASSESSMENT AND THREATENED AND ENDANGERED SPECIES SURVEY (W/OUT ENCLOSURE 2) {SEE COMMENTS}	ADMIN RECORD	OU 1 OU 2 OU 3 OU 4	SOUTHWEST DIVISION - BLDG. 1 SW070427-01 IMAGED APNT_024	181-03-0179 41074200	BOX 0032
N00236 / 000667 TC.A021.10075 MM N68711-00-D-0005 00003	06-16-2003 **04-19-1995** DO 021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	19 APRIL 1995 PROGRESS REVIEW MEETING MINUTES	ADMIN RECORD INFO REPOSITORY	002 OU 1 OU 2 OU 3 OU 4	SOUTHWEST DIVISION - BLDG. 1 SW060629-02 IMAGED APNT_007	181-03-0188 41031858	BOX 0014
N00236 / 001182 EFAW SER 1831.2GK/L5120 CORRESP NONE 00005	11-24-1999 **05-01-1995** NONE 00.0	NAVFAC - EFA WEST G. KIKUGAWA DISTRIBUTION	SUBMISSION OF DOCUMENT SUMMARY FOR DRAFT DATA TRANSMITTAL MEMORANDUM FOR SITES 4, 5, 8, 10A, 12, AND 14 (W/ ENCLOSURE)	ADMIN RECORD INFO REPOSITORY	004 005 008 010A 012 014	SOUTHWEST DIVISION - BLDG. 1 SW060406-02 IMAGED APNT_007	181-03-0179 41074200	BOX 0032

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N00236 / 001188 EFAW SER 09ER3GK/L5126 CORRESP NONE 00003	11-24-1999 **05-18-1995** NONE 00.0	NAVFAC - EFA WEST G. KIKUGAWA DISTRIBUTION	SUBMISSION OF REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) DRAFT DATA TRANSMITTAL MEMORANDUM SITES 4, 5, 8, 10A, 12, AND 14 (W/OUT ENCLOSURE) [SEE AR #1189 AND AR #1190 - DRAFT DATA TRANSMITTAL MEMORANDUM]	ADMIN RECORD	004 005 008 010A 012 014	SOUTHWEST DIVISION - BLDG. 1 SW060406-02 IMAGED APNT_007	181-03-0179 41074200	BOX 0032
N00236 / 000668 TC.A021.10075 MM N68711-00-D-0005 00011	06-16-2003 **06-20-1995** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	20 JUNE 1995 MONTHLY TRACKING MEETING MINUTES FOR ENVIRONMENTAL ACTIONS	ADMIN RECORD INFO REPOSITORY	007A 007C 014 015 016 018 OU 1 OU 2	SOUTHWEST DIVISION - BLDG. 1 SW060629-02 IMAGED APNT_007	181-03-0188 41031858	BOX 0014
N00236 / 001213 EFAW SER 1831.2/5160 CORRESP NONE 00005	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	001 002 003 006 007 010 011 013 015 016 019	SOUTHWEST DIVISION - BLDG. 1 SW060406-02 IMAGED APNT_007	181-03-0179 41074200	BOX 0032

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N00236 / 001216 EFAW SER NO. 1831.2/5159 CORRESP NONE 00006	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	001 002 003 006 007A 007B 007C 010B 011 013 015 016 019	SOUTHWEST DIVISION - BLDG. 1 SW070511-01 IMAGED APNT_022	181-03-0179 41074200	BOX 0033
N00236 / 000669 TC.A021.10075 MM N68711-00-D-0005 00009	06-16-2003 **07-18-1995** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	18 JULY 1995 MONTHLY TRACKING MEETING MINUTES FOR ENVIRONMENTAL ACTIONS	ADMIN RECORD INFO REPOSITORY	007A 007C 014 015 016 018	SOUTHWEST DIVISION - BLDG. 1 SW060629-02 IMAGED APNT_007	181-03-0188 41031858	BOX 0014
N00236 / 001218 NONE COMMENTS NONE 00006	11-24-1999 **07-26-1995** NONE 00.0	DTSC - BERKELEY T. LANPHAR NAVFAC - EFA WEST C. GARIBALDI	COMMENTS ON THE REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) DATA TRANSMITTAL MEMORANDUM {PORTION OF THE MAILING LIST IS SENSITIVE} (INCLUDES CRWQCB COMMENTS DATED 07/05/95 ON THE DRAFT RI/FS DATA TRANSMITTAL MEMORANDUM)	ADMIN RECORD SENSITIVE	004 005 008 009 010 012 014	SOUTHWEST DIVISION - BLDG. 1 SW070427-01	181-03-0179 41074200	BOX 0033
N00236 / 001220 NONE COMMENTS NONE 00004	11-24-1999 **08-04-1995** NONE 00.0	DTSC - BERKELEY T. LANPHAR NAVFAC - EFA WEST C. GARIBALDI	COMMENTS ON THE PRELIMINARY DRAFT ENGINEERING EVALUATION/COST ANALYSIS (EE/CA) FOR THE REMOVAL ACTION (RM) WORK PLANS (WP)	ADMIN RECORD	014 016 018	SOUTHWEST DIVISION - BLDG. 1 SW070427-01	181-03-0179 41074200	BOX 0033

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N00236 / 000670 TC.A021.10075 MM N68711-00-D-0005 00008	06-16-2003 **02-20-1996** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	20 FEBRUARY 1996 MONTHLY TRACKING MEETING AGENDA FOR ENVIRONMENTAL ACTIONS (INCLUDES ATTENDANCE LIST AND NOTES)	ADMIN RECORD INFO REPOSITORY	002 003 004 005 007A 007C 013 014 015 016 018 OU 4	SOUTHWEST DIVISION - BLDG. 1 SW060629-02 IMAGED APNT_007	181-03-0188 41031858 BOX 0014
N00236 / 001189 NONE RPT N62474-88-D-5086 00175	11-24-1999 **04-01-1996** 00260 00.0	PRC ENVIRONMENTAL MGMT INC. NAVFAC - EFA WEST	FINAL REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) DATA TRANSMITTAL MEMORANDUM, VOLUME I OF II (INCLUDES REPLACEMENT PAGES CONVERTING THE DRAFT DATED 05/18/95 TO FINAL)	ADMIN RECORD	004 008 010A 012 014	SOUTHWEST DIVISION - BLDG. 1 SW060406-02 IMAGED APNT_007	181-03-0179 41074200 BOX 0032
N00236 / 001190 NONE RPT N62474-88-D-5086 00306	11-24-1999 **04-01-1996** 00260 00.0	PRC ENVIRONMENTAL MGMT, INC.	FINAL REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS), DATA TRANSMITTAL MEMORANDUM, VOLUME II OF II (INCLUDES REPLACEMENT PAGES CONVERTING THE DRAFT DATED 05/18/95 TO FINAL)	ADMIN RECORD	004 005 008 010A 012 014	SOUTHWEST DIVISION - BLDG. 1 SW060406-02 IMAGED APNT_007	181-03-0179 41074200 BOX 0032
N00236 / 001279 EFAW SER 18312GK/L6167 RESPONSE NONE 00009	11-24-1999 **04-01-1996** NONE 00.0	NAVFAC - EFA WEST G. KIKUGAWA DISTRIBUTION	SUBMISSION OF RESPONSES TO COMMENTS ON THE DRAFT REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) DATA TRANSMITTAL MEMORANDUM (W/ ENCLOSURE)	ADMIN RECORD	004 005 008 010A 012 014	SOUTHWEST DIVISION - BLDG. 1 SW060420-01 IMAGED APNT_009	181-03-0179 41074200 BOX 0034

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N00236 / 001280 EFAW SER 18312GK/6166 CORRESP NONE 00005	11-24-1999 **04-01-1996** NONE 00.0	NAVFAC - EFA WEST G. KIKUGAWA VARIOUS AGENCIES	TRANSMITTAL OF REPLACEMENT PAGES CONVERTING THE DRAFT REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS), DATA TRANSMITTAL MEMORANDUM DATED 05/18/95 TO FINAL (W/OUT ENCLOSURES) {REPLACEMENT PAGES INSERTED IN THE DOCUMENT}	ADMIN RECORD	004 005 008 010 012 014	SOUTHWEST DIVISION - BLDG. 1 SW070427-01	181-03-0179 41074200	BOX 0034
N00236 / 001284 EFAW SER 18312GK/L6153 CORRESP N62474-88-D-5086 00004	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	001 002 003 006 007 009 011 013 015 016 019 021 022 023	SOUTHWEST DIVISION - BLDG. 1 SW070427-01	181-03-0179 41074200	BOX 0034
N00236 / 001214 NONE RPT N62474-88-D-5086 00700	11-24-1999 **05-01-1996** 00280 00.0	PRC ENVIRONMENTAL MANAGEMENT, INC. D. BALCH 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	001 002 003 006 007 010 011 013 015 016 019	SOUTHWEST DIVISION - BLDG. 1 SW070427-01	181-03-0179 41074200	BOX 0033

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N00236 / 001215 NONE RPT N62474-88-D-5086 00800	11-24-1999 **05-01-1996** 00280 00.0	PRC ENVIRONMENTAL MGMT INC. D. BALCH 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	001 002 003 006 007 010 011 013 015 016 019	SOUTHWEST DIVISION - BLDG. 1 SW070427-01	181-03-0179 41074200 BOX 0033
N00236 / 000672 TC.A021.10075 MM N68711-00-D-0005 00005	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	001 002 015 016 018 OU 1 OU 2 OU 3 OU 4	SOUTHWEST DIVISION - BLDG. 1 SW060629-02 IMAGED APNT_007	181-03-0188 41031858 BOX 0014
N00236 / 001316 NONE RPT N62474-88-D-5086 00023	11-24-1999 **05-24-1996** 00082 00.0	PRC ENVIRONMENTAL MGMT INC. K. CHALOUPKA NAVFAC - EFA WEST T. BERNHARD	SUMMARY OF THE SCREENING EVALUATION METHODOLOGY AND RESULTS OF THE HUMAN HEALTH RISK-BASED SCREENING FOR PETROLEUM AT SITES 3, 7A, 7C, 14, AND 16 TIER 1 (MISSING TABLES A-2 AND A-3)	ADMIN RECORD	003 007A 007C 014 016 022	SOUTHWEST DIVISION - BLDG. 1 SW061106-01 IMAGED APNT_021	181-03-0179 41074200 BOX 0035
N00236 / 001299 EFAW SER 18312GK RESP NONE 00005	11-24-1999 **05-29-1996** NONE 00.0	NAVFAC - EFA WEST G. KIKUGAWA DTSC - BERKELEY T. LANPHAR	RESPONSE TO COMMENTS ON THE PRELIMINARY DRAFT ENGINEERING EVALUATION/COST ANALYSIS (EE/CA), REMOVAL ACTION WORK PLANS (RM)(WP)	ADMIN RECORD	016	SOUTHWEST DIVISION - BLDG. 1 SW070427-01	181-03-0179 41074200 BOX 0035

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N00236 / 000673 TC.A021.10075 MM N68711-00-D-0005 00009	06-16-2003 **06-25-1996** DO 0021	TETRA TECH EM INC. NAVFAC - EFA WEST	25 JUNE 1996 MONTHLY TRACKING MEETING MINUTES FOR ENVIRONMENTAL ACTIONS (INCLUDES ATTENDANCE LIST AND AGENDA) [MISSING ATTACHMENT C]	ADMIN RECORD INFO REPOSITORY	003 007 007A 007C 013 014 015 016 022	SOUTHWEST DIVISION - BLDG. 1 SW060629-02 IMAGED APNT_007	181-03-0188 41031858	BOX 0014
N00236 / 000674 TC.A021.10075 MM N68711-00-D-0005 00011	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	001 002 005 007 007A 007C 010 010A 014 015 016 018 022	SOUTHWEST DIVISION - BLDG. 1 SW060629-02 IMAGED APNT_007	181-03-0188 41031858	BOX 0014
N00236 / 001357 EFAW SER 1831.1/L6343 CORRESP NONE 00002	11-24-1999 **09-12-1996** NONE 00.0	NAVFAC - EFA WEST H. GEE DTSC - BERKELEY D. MURPHY	REQUEST FOR IDENTIFICATION OF STATE "APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS" (ARARS) FOR THE REMEDIAL INVESTIGATION AND FEASIBILITY STUDY (RI/FS) FOR OPERABLE UNITS	ADMIN RECORD	OU 1 OU 2 OU 3 OU 4	SOUTHWEST DIVISION - BLDG. 1 SW060406-03 IMAGED APNT_007	181-03-0179 41074200	BOX 0036

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N00236 / 000679 TC.A021.10075 MM N68711-00-D-0005 00010	06-16-2003 **09-17-1996** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	17 SEPTEMBER 1996 MONTHLY TRACKING MEETING MINUTES FOR ENVIRONMENTAL ACTIONS (INCLUDES ATTENDANCE LIST AND AGENDA) [MISSING ATTACHMENT C]	ADMIN RECORD INFO REPOSITORY	002 003 005 007 010 013 014 016 017 018 022	SOUTHWEST DIVISION - BLDG. 1 SW060629-02 IMAGED APNT_007	181-03-0188 41031858 BOX 0014
N00236 / 001359 RPT NONE 00051	11-24-1999 **10-16-1996** NONE 00.0	NAVY BERNHARD, TERESA DTSC LANPHAR, THOMAS	PETROLEUM SITES 3, 7A, 7C, 12, 14, AND 16 HUMAN HEALTH RISK-BASED SCREENING EVALUATIONS	ADMIN RECORD	003 007 012 014 016 022	SOUTHWEST DIVISION - BLDG. 110 BOX 36 - 03/15/06	181-03-0179 41074200 BOX 0036
N00236 / 000681 TC.A021.10075 MM N68711-00-D-0005 00016	06-16-2003 **12-17-1996** DO 021	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	001 003 005 007 012 014 016 022 OU 4	SOUTHWEST DIVISION - BLDG. 1 SW060629-02 IMAGED APNT_007	181-03-0188 41031858 BOX 0014 *
N00236 / 000682 TC.A021.10075 MM N68711-00-D-0005 00011	06-16-2003 **02-18-1997** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	18 FEBRUARY 1997 MONTHLY TRACKING MEETING MINUTES FOR ENVIRONMENTAL ACTIONS (INCLUDES ATTENDANCE LIST AND AGENDA)	ADMIN RECORD INFO REPOSITORY	002 003 005 007 014 017 022	SOUTHWEST DIVISION - BLDG. 1 SW060629-02 IMAGED APNT_007	181-03-0188 41031858 BOX 0014

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N00236 / 000683 TC.A021.10075 MM N68711-00-D-0005 00007	06-16-2003 **02-26-1997** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	26 FEBRUARY 1997 BACKGROUND ASSESSMENT MEETING MINUTES	ADMIN RECORD INFO REPOSITORY	003 004 005 007 011 012 018 022 OU 1 OU 2 OU 3	SOUTHWEST DIVISION - BLDG. 1 SW060629-02 IMAGED APNT_007	181-03-0188 41031858	BOX 0014
N00236 / 001395 EFAW SER 1831.1/L7115 RESPONSE NONE 00002	11-24-1999 **03-04-1997** NONE 00.0	NAVFAC - EFA WEST C. GARIBALDI DTSC - BERKELEY T. LANPHAR	RESPONSE TO DTSC'S RESPONSE TO REQUEST FOR IDENTIFICATION OF STATE APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARS) FOR THE REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) FOR OPERABLE UNITS	ADMIN RECORD	OU 1 OU 2 OU 3 OU 4	SOUTHWEST DIVISION - BLDG. 1 SW060406-03 IMAGED APNT_007	181-03-0179 41074200	BOX 0037
N00236 / 001390 NONE CORRESP NONE 00003	11-24-1999 **04-21-1997** NONE 00.0	DTSC - BERKELEY T. LANPHAR NAVFAC - EFA WEST C. GARIBALDI	INFORMATION REQUEST FOR SITES 15 AND 16 REMOVAL ACTIONS	ADMIN RECORD	015 016	SOUTHWEST DIVISION - BLDG. 1 SW060406-03 IMAGED APNT_007	181-03-0179 41074200	BOX 0036
N00236 / 000685 TC.A021.10075 MM N68711-00-D-0005 00012	06-16-2003 **04-29-1997** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	29 APRIL 1997 MONTHLY TRACKING MEETING MINUTES FOR ENVIRONMENTAL ACTIONS (INCLUDES ATTENDANCE LIST) [MISSING ATTACHMENT C] {SEE AR #684 - ATTACHMENT D}	ADMIN RECORD INFO REPOSITORY	003 004 005 007 010 012 022 OU 1	SOUTHWEST DIVISION - BLDG. 1 SW061023-01 IMAGED APNT_019	181-03-0188 41031858	BOX 0014

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N00236 / 001384 EFAW SER 1831.2GK/L7174 CORRESP N62474-94-D-7535 00002	11-24-1999 **05-15-1997** NONE 00.0	NAVFAC - EFA WEST G. KIKUGAWA VARIOUS AGENCIES	TRANSMITTAL OF 1) PRE-DRAFT, ENGINEERING EVALUATION/COST ANALYSIS (EE/CA) FOR SITE 15, AND 2) PRE-DRAFT ENGINEERING EVALUATION/COST ANALYSIS FOR SITE 16 (LETTER RECEIVED IN THE ADMINISTRATIVE RECORDS W/OUT ENCLOSURES)	ADMIN RECORD	015 016	CHOICE IMAGING SOLUTIONS SW070817-02	181-03-0179 41074200 BOX 0036
N00236 / 001421 EFAW SER 18311TB/7028 CORRESP NONE 00010	11-24-1999 **06-08-1997** NONE 00.0	NAVFAC - EFA WEST T. BERNHARD DISTRIBUTION	SUBMISSION OF PROPOSED OPERABLE UNIT 1 THROUGH 4 (OU 1, OU 2, OU 3, OU 4) REMEDIAL INVESTIGATION/FEASIBILITY STUDY/RECORD OF DECISION (RI/FS/ROD) SCHEDULE (W/ ENCLOSURE)	INFO REPOSITORY	OU 1 OU 2 OU 3 OU 4	SOUTHWEST DIVISION - BLDG. 1 SW060504-01 IMAGED APNT_009	181-03-0179 41074200 BOX 0037
N00236 / 001430 NONE COMMENTS NONE 00008	11-24-1999 **06-10-1997** NONE 00.0	DTSC - BERKELEY T. LANPHAR NAVFAC - EFA WEST C. GARIBALDI	COMMENTS ON THE DRAFT ADDENDUM ENGINEERING EVALUATION/COST ANALYSIS (EE/CA), SOIL REMOVAL ACTION (RM); DRAFT EE/CA, SOIL REMOVAL ACTION	ADMIN RECORD	015 016	CHOICE IMAGING SOLUTIONS SW070817-02	181-03-0179 41074200 BOX 0037
N00236 / 001424 EFAW SER 1831.2/L7202 RESP N62474-94-D-7535 00010	11-24-1999 **06-20-1997** NONE 00.0	NAVFAC - EFA WEST C. GARIBALDI USEPA - SAN FRANCISCO J. RICKS	SUBMISSION OF RESPONSE TO COMMENTS ON THE PRE-DRAFT ENGINEERING EVALUATION/COST ANALYSIS (EE/CA) FOR SITE 15 AND THE PRE-DRAFT EE/CA FOR SITE 16 (W/ ENCLOSURE)	ADMIN RECORD	015 016	SOUTHWEST DIVISION - BLDG. 1 SW060504-01 IMAGED APNT_009	181-03-0179 41074200 BOX 0037
N00236 / 001425 EFAW SER 1831.2/L7201 RESP N62474-94-D-7535 00011	11-24-1999 **06-20-1997** NONE 00.0	NAVFAC - EFA WEST C. GARIBALDI DTSC - BERKELEY T. LANPHAR	SUBMISSION OF RESPONSE TO COMMENTS ON THE PRE-DRAFT ENGINEERING EVALUATION/COST ANALYSIS (EE/CA) FOR SITE 15 AND THE PRE-DRAFT EE/CA FOR SITE 16 (W/ ENCLOSURE)	ADMIN RECORD	015 016	SOUTHWEST DIVISION - BLDG. 1 SW060504-01 IMAGED APNT_009	181-03-0179 41074200 BOX 0037

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N00236 / 000686 TC.A021.10075 MM N68711-00-D-0005 00011	06-16-2003 **06-23-1997** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	23 JUNE 1997 MONTHLY TRACKING MEETING MINUTES FOR ENVIRONMENTAL ACTIONS (INCLUDES ATTENDANCE LIST AND AGENDA) [MISSING ATTACHMENT C]	ADMIN RECORD INFO REPOSITORY	003 004 005 007 011 012 022	SOUTHWEST DIVISION - BLDG. 1 SW060629-02 IMAGED APNT_007	181-03-0188 41031858	BOX 0014
N00236 / 001428 EFAW SER 18311TB/7033 CORRESP NONE 00001	11-24-1999 **06-24-1997** NONE 00.0	NAVFAC - EFA WEST T. BERNHARD VARIOUS AGENCIES	NAVY REQUEST TO 1) EXTEND THE REVIEW OF DRAFT RISK BASED CORRECTIVE ACTION REPORT FOR IR SITES 03, 07, 11, 11 AND 22, AND 2)RE-SCHEDULE THE PROJECT TRACKING MEETING TO 26 AUGUST 1997	ADMIN RECORD	003 007 011 012 022	SOUTHWEST DIVISION - BLDG. 1 SW070330-03 IMAGED APNT_024	181-03-0179 41074200	BOX 0037
N00236 / 001427 RPT N62474-93-D-2151 00500	11-24-1999 **07-01-1997** 00037 00.0	ITC MCGUIRE, JOHN NAVY KIKUGAWA, GEORGE	DRAFT CONTRACTOR WORK PLAN, ENVIRONMENTAL PROTECTION PLAN, SAMPLING AND ANALYSIS PLAN (SAP), SITE HEALTH AND SAFETY PLAN (HASP), NON-TIME CRITICAL REMOVAL ACTIONS	REMOVED	015 016	SOUTHWEST DIVISION - BLDG. 1		
N00236 / 001423 NONE RPT N62474-94-D-7535 00100	11-24-1999 **07-14-1997** 00001 00.0	MOJU ENVIRONMENTAL TECHNOLOGIES, INC. A. IGBENE NAVFAC - EFA WEST G. KIKUGAWA	DRAFT FINAL ENGINEERING EVALUATION/COST ANALYSIS (EE/CA), SITE 16 - CANS C-2 AREA, SOIL REMOVAL ACTION (RM) [SEE AR # 1426 - EFAW TRANSMITTAL LETTER BY G. KIKUGAWA]	ADMIN RECORD	016	CHOICE IMAGING SOLUTIONS SW070817-02	181-03-0179 41074200	BOX 0037
N00236 / 001426 EFAW SER 1831.2GK/L7186 CORRESP NONE 00002	11-24-1999 **07-21-1997** 00037 00.0	NAVFAC - EFA WEST G.KIKUGAWA VARIOUS AGENCIES	TRANSMITTAL OF 1) DRAFT FINAL ADDENDUM ENGINEERING EVALUATION/COST ANALYSIS (EE/CA) - SITE 15 AND 2) DRAFT FINAL ENGINEERING EVALUATION/COST ANALYSIS - SITE 16 SOIL REMOVAL ACTION (W/OUT ENCLOSURES) [SEE AR #1422 - ENCLOSURE 1 AND AR #1423 - ENCLOSURE 2]	ADMIN RECORD	015 016	SOUTHWEST DIVISION - BLDG. 1 SW070427-02	181-03-0179 41074200	BOX 0037

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N00236 / 000687 TC.A021.10075 MM N68711-00-D-0005 00010	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	001 002 004 005 014 015 016 024 OU 2 OU 3	SOUTHWEST DIVISION - BLDG. 1 SW060629-02 IMAGED APNT_007	181-03-0188 41031858 BOX 0014
N00236 / 001433 NONE COMMENTS NONE 00007	11-24-1999 **08-22-1997** NONE 00.0	CLEAR WATER REVIVAL COMPANY P. LYNCH NAVFAC - SOUTHWEST DIVISION S. EDDE	COMMENTS ON THE DRAFT FINAL ENGINEERING EVALUATION/COST ANALYSIS (EE/CA) REPORT, REMOVAL ACTION (RM)	ADMIN RECORD	016	CHOICE IMAGING SOLUTIONS SW070817-02	181-03-0179 41074200 BOX 0037
N00236 / 001440 NONE RPT N62474-94-D-7609 00059	11-24-1999 **09-01-1997** 00022 00.0	TETRA TECH EM INC. N. HUTCHISON NAVFAC - EFA WEST D. WONG	FINAL SITE 16 REMOVAL ACTION OVERSIGHT WORK PLAN (SEE AR #1439 - EFA WEST TRANSMITTAL LETTER BY D. WONG)	ADMIN RECORD	016	SOUTHWEST DIVISION - BLDG. 1 SW060504-01 IMAGED APNT_009	181-03-0179 41074200 BOX 0037
N00236 / 001434 RPT N62474-93-D-2151 00272	11-24-1999 **09-12-1997** 00037 00.0	ITC J. MCGUIRE NAVFAC - EFA WEST G. KIKUGAWA	FINAL WORK PLAN, CONTRACTOR QUALITY CONTROL PLAN, ENVIRONMENTAL PROTECTION PLAN, SAMPLING AND ANALYSIS PLAN, SITE HEALTH AND SAFETY PLAN (HASP), NON-TIME CRITICAL REMOVAL ACTION (RA) AND SOIL REMOVAL	ADMIN RECORD	015 016	SOUTHWEST DIVISION - BLDG. 1 SW070112-01 IMAGED APNT_008	181-03-0179 41074200 BOX 0037

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N00236 / 000689 TC.A021.10075 MM N68711-00-D-0005 00013	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	001 003 004 005 007 011 012 014 015 022 OU 2	SOUTHWEST DIVISION - BLDG. 1 SW060629-02 IMAGED APNT_007	181-03-0188 BOX 0014 41031858
N00236 / 001441 NONE COMMENTS NONE 00002	11-24-1999 **09-19-1997** NONE 00.0	DTSC - BERKELEY T. LANPHAR NAVFAC - EFA WEST C. GARIBALDI	REVIEW AND APPROVAL OF THE DRAFT ENGINEERING EVALUATION/COST ANALYSIS (EE/CA) AND WORK PLANS (WP) FOR THE REMOVAL ACTIONS (RM)	ADMIN RECORD	015 016	SOUTHWEST DIVISION - BLDG. 1 SW070427-02	181-03-0179 BOX 0037 41074200
N00236 / 001439 EFAW SER 612.11DW/L7228 CORRESP N62474-94-D-7609 00003	11-24-1999 **09-24-1997** NONE 00.0	NAVFAC - EFA WEST D. WONG DISTRIBUTION	SUBMISSION OF THE FINAL SITE 16 REMOVAL ACTION OVERSIGHT WORK PLAN (W/OUT ENCLOSURE) [SEE AR #1440 - FINAL WORK PLAN]	ADMIN RECORD	016	SOUTHWEST DIVISION - BLDG. 1 SW060504-01 IMAGED APNT_009	181-03-0179 BOX 0037 41074200
N00236 / 001446 LTR NONE 00011	11-24-1999 **10-14-1997** NONE 00.0	ITC NAVY KIKUGAWA, GEORGE	REPLACEMENT PAGES FOR WORK PLAN (WP), NON-TIME CRITICAL REMOVAL ACTION (RM), SITE 16 CANS C-2 AREA AND SITE 15 TSTA (SEE AR #1434 - FINAL WORK PLAN)	ADMIN RECORD	015 016	SOUTHWEST DIVISION - BLDG. 1 SW070112-01 IMAGED APNT_008	181-03-0179 BOX 0037 41074200

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N00236 / 000690 TC.A021.10075 MM N68711-00-D-0005 00012	06-16-2003 **10-28-1997** DO	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	28 OCTOBER 1997 TRACKING MEETING MINUTES FOR ENVIRONMENTAL ACTIONS (INCLUDES ATTENDANCE LIST AND AGENDA) [MISSING ATTACHMENT B]	ADMIN RECORD INFO REPOSITORY	003 004 005 007 011 012 013 014 015 016 022 OU 1	SOUTHWEST DIVISION - BLDG. 1 SW060629-02 IMAGED APNT_007	181-03-0188 41031858	BOX 0014
N00236 / 001472 NONE RPT N62474-94-D-7535 00200	11-24-1999 **11-01-1997** DO 0009 00.0	MOJU ENVIRONMENTAL TECHNOLOGIES, INC. A. IGBENE NAVFAC - EFA WEST G. KIKUGAWA	FINAL SITE ACTION MEMORANDUM, NON-TIME CRITICAL REMOVAL ACTION (NTCRA) (INCLUDES FINAL ENGINEERING EVALUATION/COST ANALYSIS NTCRA AND RESPONSE TO COMMENTS ON DRAFT ACTION MEMORANDUM) [SEE AR # 1470 - EFAW TRANSMITTAL LETTER BY G. KIKUGAWA]	ADMIN RECORD	016	CHOICE IMAGING SOLUTIONS SW070817-02	181-03-0179 41074200	BOX 0038
N00236 / 001473 NONE RPT N62474-94-D-7535 00022	11-24-1999 **11-01-1997** DO 0001/DO 0009 00.0	MOJU ENVIRONMENTAL TECHNOLOGIES, INC. A. IGBENE NAVFAC - EFA WEST G. KIKUGAWA	FINAL IMPLEMENTATION WORK PLAN, NON-TIME CRITICAL REMOVAL ACTION [SEE AR # 1470 - EFAW TRANSMITTAL LETTER BY G. KIKUGAWA]	ADMIN RECORD	015 016	CHOICE IMAGING SOLUTIONS SW070817-02	181-03-0179 41074200	BOX 0038
N00236 / 001470 EFAW SER 612.4GK/L8026 CORRESP N62474-94-D-7535 00002	11-24-1999 **12-01-1997** NONE 00.0	NAVFAC - EFA WEST G. KIKUGAWA VARIOUS AGENCIES	TRANSMITTAL OF 1) FINAL ACTION MEMORANDUM ENGINEERING EVALUATION/COST ANALYSIS (EE/CA) AND RESPONSE TO COMMENTS FOR SITE 15, (2) FINAL ACTION MEMORANDUM, ENGINEERING EVALUATION/COST ANALYSIS (EE/CA) AND RESPONSE TO COMMENTS FOR SITE 16, (SEE COMMENTS)	ADMIN RECORD	015 016	CHOICE IMAGING SOLUTIONS SW070817-02	181-03-0179 41074200	BOX 0038

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N00236 / 001491 RPT NONE 00000	11-24-1999 **02-10-1998** NONE 00.0	TETRA TECH NAVY MCFADDEN, PATRIC	DRAFT OPERABLE UNIT 1 (OU1) REMEDIAL INVESTIGATION (RI) REPORT, VOLUME I {SEE AR #29 & 30 - COMMENTS BY EPA & DTSC}	REMOVED	OU 1	P3-C - BECHTEL NATIONAL PW - 45359744		
N00236 / 001492 RPT NONE 00000	11-24-1999 **02-10-1998** NONE 00.0	TETRA TECH NAVY MCFADDEN, PATRIC	DRAFT OPERABLE UNIT 1 (OU 1) REMEDIAL INVESTIGATION (RI) REPORT, VOLUME II {SEE AR #29 & 30 - COMMENTS BY EPA & DTSC}	REMOVED	OU 1	P3-C - BECHTEL NATIONAL PW - 45359744		
N00236 / 001493 RPT NONE 00000	11-24-1999 **02-10-1998** NONE 00.0	TETRA TECH NAVY MCFADDEN, PATRIC	DRAFT OPERABLE UNIT 1 (OU 1) REMEDIAL INVESTIGATION (RI) REPORT, VOLUME III {SEE AR #29 & 30 - COMMENTS BY EPA & DTSC}	REMOVED	OU 1	P3-C - BECHTEL NATIONAL PW - 45359744		
N00236 / 001494 RPT NONE 00000	11-24-1999 **02-10-1998** NONE 00.0	TETRA TECH NAVY MCFADDEN, PATRIC	DRAFT OPERABLE UNIT 1 (OU 1) REMEDIAL INVESTIGATION (RI) REPORT, VOLUME IV {SEE AR #29 & 30 - COMMENTS BY EPA & DTSC}	REMOVED	OU 1	SOUTHWEST DIVISION - BLDG. 1		
N00236 / 000694 TC.A021.10075 MM N68711-00-D-0005 00012	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	001 002 005 010 OU 1 OU 2	SOUTHWEST DIVISION - BLDG. 1 SW061023-01 IMAGED APNT_019	181-03-0188 41031858	BOX 0014
N00236 / 001509 NONE RPT N62474-93-D-2151 00124	11-24-1999 **03-25-1998** 00037 00.0	IT CORPORATION J. MCGUIRE NAVFAC - EFA WEST D. WONG	FINAL CONSTRUCTION CLOSURE REPORT, NON-TIME CRITICAL REMOVAL ACTION (NTCRA), SITE 16 - CANS C-2 AREA AND SITE 15 - SOIL REMOVAL AT TEMPORARY STORAGE AND TREATMENT AREA (SEE AR #1508 - EFA WEST TRANSMITTAL LETTER BY D. WONG)	ADMIN RECORD	015 016	SOUTHWEST DIVISION - BLDG. 1 SW060504-01 IMAGED APNT_009	181-03-0179 41074200	BOX 0039

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N00236 / 001523 NONE RPT N62474-94-D-7609 00100	11-24-1999 **04-01-1998** 00022 00.0	TETRA TECH EM INC. N. HUTCHISON NAVFAC - EFA WEST D. WONG	DRAFT PCB AND LEAD-CONTAMINATED SOIL REMOVAL ACTION (RM) CLOSE-OUT REPORT (SEE AR # 1522 - AND AR # 1577 - EFAW TRANSMITTAL LETTERS BY D. WONG)	ADMIN RECORD	016	CHOICE IMAGING SOLUTIONS SW070817-02	181-03-0179 41074200	BOX 0039
N00236 / 000029 TC.0271.10613 CORRESP N62474-94-D-7609 00015	11-16-2000 **04-10-1998** 00271	U.S. EPA - SAN FRANCISCO L. SUER NAVFAC - WESTERN DIVISION P. MCFADDEN	COMMENTS ON THE DRAFT REMEDIAL INVESTIGATION REPORT, DATED 2/10/98 (WITH ENCLOSURES)	ADMIN RECORD INFO REPOSITORY	OU 1	SOUTHWEST DIVISION - BLDG. 1 SW05072801 IMAGED APNT_001		
N00236 / 000030 TC.0271.10613 CORRESP N62474-94-D-7609 00024	11-16-2000 **04-15-1998** 00271	DTSC - BERKELEY M. CASSA NAVFAC - WESTERN DIVISION P. MCFADDEN	REVIEW AND COMMENTS OF THE DRAFT REMEDIAL INVESTIGATION (RI) REPORT (INCLUDES COMMENTS BY HERD DATED 6 APRIL 1998 AND GSU DATED 27 MARCH 1998)	ADMIN RECORD INFO REPOSITORY	OU 1	SOUTHWEST DIVISION - BLDG. 1 SW061106-01 IMAGED APNT_021		
N00236 / 000696 TC.A021.10075 MM N68711-00-D-0005 00010	06-16-2003 **04-21-1998** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	21 APRIL 1998 TRACKING MEETING MINUTES FOR ENVIRONMENTAL ACTIONS [MISSING ATTACHMENT A]	ADMIN RECORD INFO REPOSITORY	025 OU 1	SOUTHWEST DIVISION - BLDG. 1 SW060629-02 IMAGED APNT_007	181-03-0188 41031858	BOX 0014
N00236 / 001508 EFAW SER 612.11/L8133 CORRESP NONE 00003	11-24-1999 **05-12-1998** NONE 00.0	NAVFAC - EFA WEST D. WONG DISTRIBUTION	SUBMISSION OF THE FINAL CONSTRUCTION CLOSURE REPORT, NON-TIME CRITICAL REMOVAL ACTION (NTCRA), SITE 16 - CANS C-2 AREA AND SITE 15 - SOIL REMOVAL AT TEMPORARY STORAGE AND TREATMENT AREA (W/OUT ENCLOSURE) [SEE AR #1509 - FINAL CONSTRUCTION CLOSURE REPORT]	ADMIN RECORD	015 016	SOUTHWEST DIVISION - BLDG. 1 SW060504-01 IMAGED APNT_009	181-03-0179 41074200	BOX 0039

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N00236 / 001522 EFAW SER 612.11DW/L8157 CORRESP N62474-94-D-7609 00001	11-24-1999 **06-08-1998** 00022 00.0	NAVFAC - EFA WEST D. WONG VARIOUS AGENCIES	TRANSMITTAL OF THE DRAFT PCB AND LEAD CONTAMINATED SOIL REMOVAL ACTION (RM) CLOSEOUT REPORT (W/OUT ENCLOSURE) [SEE AR # 1523 - DRAFT CLOSE-OUT REPORT]	ADMIN RECORD	016	CHOICE IMAGING SOLUTIONS SW070817-02	181-03-0179 41074200	BOX 0039
N00236 / 000698 TC.A021.10075 MM N68711-00-D-0005 00021	06-16-2003 **06-16-1998** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	16 JUNE 1998 TRACKING MEETING MINUTES FOR ENVIRONMENTAL ACTIONS (INCLUDES PROJECT STATUS SUMMARY SHEETS)	ADMIN RECORD INFO REPOSITORY	006 007 008 015 016 OU 1	SOUTHWEST DIVISION - BLDG. 1 SW060629-02 IMAGED APNT_007	181-03-0188 41031858	BOX 0014
N00236 / 001530 NONE COMMENTS NONE 00002	11-24-1999 **06-26-1998** NONE 00.0	DTSC - BERKELEY M. CASSA NAVFAC - EFA WEST D. WONG	COMMENTS ON THE DRAFT PCB- AND LEAD-CONTAMINATED SOIL REMOVAL ACTION (RM) CLOSE-OUT REPORT	ADMIN RECORD	016	CHOICE IMAGING SOLUTIONS SW070817-02	181-03-0179 41074200	BOX 0039
N00236 / 001646 NONE MM NONE 00060	11-24-1999 **07-07-1998** NONE 00.0	NAVFAC - EFA WEST RAB MEMBERS	07 JULY 1998 RESTORATION ADVISORY BOARD (RAB) MEETING SUMMARY (INCLUDES ATTENDANCE LIST, AGENDA, AND VARIOUS HANDOUTS) {PORTION OF MAILING LIST IS SENSITIVE}	ADMIN RECORD SENSITIVE	OU 1	SOUTHWEST DIVISION - BLDG. 1 SW060629-03 IMAGED APNT_008	181-03-0179 41074200	BOX 0044
N00236 / 000700 TC.A021.10075 MM N68711-00-D-0005 00027	06-16-2003 **07-21-1998** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	21 JULY 1998 TRACKING MEETING MINUTES FOR ENVIRONMENTAL ACTIONS (INLCUDES AGENDA AND PROJECT STATUS SHEETS) [PORTION OF ATTACHMENT B IS SENSITIVE]	ADMIN RECORD INFO REPOSITORY SENSITIVE	OU 1	SOUTHWEST DIVISION - BLDG. 1 SW060629-02 IMAGED APNT_007	181-03-0188 41031858	BOX 0014
N00236 / 001557 EFAW SER 612.11DW/L8189 CORRESP NONE 00001	11-24-1999 **08-17-1998** NONE 00.0	NAVFAC - EFA WEST D. WONG VARIOUS AGENCIES	TRANSMITTAL OF REPLACEMENT PAGES CONVERTING DRAFT DATED APRIL 1998 TO FINAL PCB AND LEAD CONTAMINATED SOIL REMOVAL ACTION CLOSEOUT REPORT (LETTER RECEIVED IN THE ADMINISTRATIVE RECORDS W/OUT ENCLOSURE)	ADMIN RECORD	016	CHOICE IMAGING SOLUTIONS SW070817-02	181-03-0179 41074200	BOX 0040

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N00236 / 000701 TC.A021.10075 MM N68711-00-D-0005 00053	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	001 002 005 010 016	SOUTHWEST DIVISION - BLDG. 1 SW060629-02 IMAGED APNT_007	181-03-0188 41031858	BOX 0014
N00236 / 000702 TC.A021.10075 MM N68711-00-D-0005 00025	06-16-2003 **09-15-1998** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	15 SEPTEMBER 1998 BASE REALIGNMENT AND CLOSURE (BRAC) CLEANUP TEAM (BCT) MONTHLY TRACKING MEETING MINUTES FOR AFTER ACTION REPORT (INLCUDES ATTENDANCE SHEET, AGENDA, AND VARIOUS HANDOUTS)	ADMIN RECORD INFO REPOSITORY	014 025 OU 1	SOUTHWEST DIVISION - BLDG. 1 SW060629-02 IMAGED APNT_007	181-03-0188 41031858	BOX 0014
N00236 / 000703 TC.A021.10075 MM N68711-00-D-0005 00021	06-16-2003 **10-20-1998** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	20 OCTOBER 1998 BASE REALIGNMENT AND CLOSURE (BRAC) CLEANUP TEAM (BCT) MONTHLY TRACKING MEETING MINUTES FOR ENVIRONMENTAL ACTIONS (INCLUDES ATTENDANCE LIST, AGENDA, AND VARIOUS HANDOUTS) [PORTION OF THE DOCUMENT IS SENSITIVE]	ADMIN RECORD INFO REPOSITORY SENSITIVE	007 OU 1	SOUTHWEST DIVISION - BLDG. 1 SW060629-02 IMAGED APNT_007	181-03-0188 41031858	BOX 0014
N00236 / 000031 TC.0271.10613 CORRESP N62474-94-D-7609 00019	11-16-2000 **11-03-1998** 00271	DTSC - BERKELEY M. CASSA NAVFAC - WESTERN DIVISION P. MCFADDEN	COMPILED REVIEW AND COMMENTS ON THE REVISED DRAFT REMEDIAL INVESTIGATION (RI) REPORT (INCLUDES HERD COMMENTS DATED 29 OCTOBER 1998 AND GSU COMMENTS DATED 02 NOVEMBER 1998)	ADMIN RECORD INFO REPOSITORY	OU 1	SOUTHWEST DIVISION - BLDG. 1 SW070511-01 IMAGED APNT_022		
N00236 / 000032 TC.0271.10613 LTR N62474-94-D-7609 00015	11-16-2000 **11-06-1998** 00271	U.S. EPA, SAN FRANCISCO, CA L. SUER NAVFAC - WESTERN DIVISION P. MCFADDEN	REVIEW AND COMMENTS ON THE REVISED DRAFT REMEDIAL INVESTIGATION (RI) REPORT	ADMIN RECORD INFO REPOSITORY	OU 1	SOUTHWEST DIVISION - BLDG. 1 SW070511-01 IMAGED APNT_022		

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N00236 / 000704 TC.A021.10075 MM N68711-00-D-0005 00030	06-16-2003 **11-17-1998** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	17 NOVEMBER 1998 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	OU 1	SOUTHWEST DIVISION - BLDG. 1 SW060629-02 IMAGED APNT_007	181-03-0188 41031858	BOX 0014
N00236 / 001573 NONE RPT N62474-94-D-7609 00500	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	001 002 003 004 005 006 007 009 011 012 013 014 016 022 023	SOUTHWEST DIVISION - BLDG. 1 SW070427-02	181-03-0179 41074200	BOX 0040
N00236 / 001662 NONE MM NONE 00032	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	001 002 005 007 OU 1	SOUTHWEST DIVISION - BLDG. 1 SW060629-03 IMAGED APNT_008	181-03-0179 41074200	BOX 0045
N00236 / 001577 NONE RPT N62474-94-D-7609 00484	11-24-1999 **01-18-1999** 00166 00.0	TETRA TECH EM INC. M. SHARMA NAVFAC - EFA WEST M. MCFADDEN	DRAFT FINAL OPERABLE UNIT (OU) 1 REMEDIAL INVESTIGATION (RI) REPORT, VOLUME I OF IV (TEXT, TABLES, FIGURES) {SEE AR #1578, 1579 & 1580 - VOLS. II, III & IV}	ADMIN RECORD	OU 1	SOUTHWEST DIVISION - BLDG. 1 SW060420-02 IMAGED APNT_009	181-03-0179 41074200	BOX 0041

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N00236 / 001578 NONE RPT N62474-94-D-7609 00080	11-24-1999 **01-18-1999** 00166 00.0	TETRA TECH EM INC. M. SHARMA NAVFAC - EFA WEST P. MCFADDEN	DRAFT FINAL OPERABLE UNIT (OU) 1 REMEDIAL INVESTIGATION (RI) REPORT, VOLUME II OF IV (CHAPTER 6 FIGURES) {SEE AR #1577, 1579 & 1580 - VOLS. I, III & IV}	ADMIN RECORD	OU 1	SOUTHWEST DIVISION - BLDG. 1 SW060420-02 IMAGED APNT_009	181-03-0179 41074200	BOX 0041
N00236 / 001579 NONE RPT N62474-94-D-7609 01391	11-24-1999 **01-18-1999** 00166 00.0	TETRA TECH EM INC. M. SHARMA NAVFAC - EFA WEST P. MCFADDEN	DRAFT FINAL OPERABLE UNIT (OU) 1 REMEDIAL INVESTIGATION (RI) REPORT, VOLUME III OF IV (APPENDICES) {SEE AR #1577, 1578 & 1580 - VOLS. I, II & IV}	ADMIN RECORD	OU 1	SOUTHWEST DIVISION - BLDG. 1 SW060420-02 IMAGED APNT_009	181-03-0179 41074200	BOX 0041
N00236 / 001580 NONE RPT N62474-94-D-7609 00784	11-24-1999 **01-18-1999** 00166 00.0	TETRA TECH EM INC. M. SHARMA NAVFAC - EFA WEST P. MCFADDEN	DRAFT FINAL OPERABLE UNIT (OU) 1 REMEDIAL INVESTIGATION (RI) REPORT, VOLUME IV OF IV (APPENDIX D) {SEE AR #1577, 1578 & 1579 - VOLS. I, II & III}	ADMIN RECORD	OU 1	SOUTHWEST DIVISION - BLDG. 1 SW060420-02 IMAGED APNT_009	181-03-0179 41074200	BOX 0041
N00236 / 001621 NONE RPT N62474-94-D-7609 00289	11-24-1999 **04-08-1999** 00166 00.0	TETRA TECH EM INC. M. SHARMA NAVFAC - SOUTHWEST DIVISION P. MCFADDEN	DRAFT OPERABLE UNIT (OU) 1 FEASIBILITY STUDY (FS) REPORT (APPENDIX A AND PORTIONS OF THE COST ESTIMATE ARE CONFIDENTIAL)	ADMIN RECORD SENSITIVE	006 007 008 015 016 OU 1	SOUTHWEST DIVISION - BLDG. 1 SW060504-02 IMAGED APNT_009	181-03-0179 41074200	BOX 0043
N00236 / 001626 SER 612.11DW/L9149 RESPONSE NONE 00003	11-24-1999 **05-27-1999** NONE 00.0	NAVFAC - EFA WEST S. EDDE RWQCB R. MCMURTRY	RESPONSE TO REQUEST FOR TECHNICAL REPORT FROM RWQCB ON INSTALLATION RESTORATION SITE 7, FORMER GAS STATION (W/OUT ENCLOSURE)	ADMIN RECORD INFO REPOSITORY	007	SOUTHWEST DIVISION - BLDG. 1 SW061027-01 IMAGED APNT_015	181-03-0179 41074200	BOX 0043

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N00236 / 001680 NONE MM NONE 00071	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	001 002 006 007 008 015 016 017 025 BLDG. 400 BLDG. 5 OU 1 OU 2 OU 3 OU 4	SOUTHWEST DIVISION - BLDG. 1 SW060504-02 IMAGED APNT_009	181-03-0179 41074200	BOX 0045

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N00236 / 001679 NONE MM NONE 00029	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	001 002 003 004 005 009 010 013 014 017 019 020 021 022 023 024 025 1112 360 400 410 BLDG. 14 BLDG. 162 BLDG. 5 OU 1 OU 2 OU 3 OU 4	SOUTHWEST DIVISION - BLDG. 1 SW060504-02 IMAGED APNT_009	181-03-0179 BOX 0045 41074200
N00236 / 000041 NONE RPT N62474-94-D-7609 00010	11-20-2000 **08-23-1999** 00124	TETRA TECH EM INC. P. BOUCHER NAVFAC - WESTERN DIVISION R. YEE	DRAFT FINAL APPROACH FOR COMPLETION OF THE REMEDIAL INVESTIGATION (RI) AND FEASIBILITY STUDY (FS) REPORT AND PROPOSED PLAN (PP) FOR THE STORM DRAIN SYSTEM	ADMIN RECORD INFO REPOSITORY	018 OU 1 OU 2	SOUTHWEST DIVISION - BLDG. 1 SW070413-01 IMAGED APNT_022	

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N00236 / 001677 NONE MM NONE 00033	01-21-2000 **10-05-1999** NONE 10.4	NAVFAC - EFA WEST VVARIOUS AGENCIES	05 OCTOBER 1999 DRAFT RESTORATION ADVISORY BOARD (RAB) MEETING SUMMARY (INCLUDES AGENDA, VARIOUS HANDOUTS AND SIGN-IN SHEETS)	ADMIN RECORD	001 002 005 010 014 025 BLDG. 400 BLDG. 5 OU 1 OU 2 OU 3	SOUTHWEST DIVISION - BLDG. 1 SW070511-02 IMAGED APNT_022	181-03-0179 41074200	BOX 0045
N00236 / 001676 NONE MM NONE 00030	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	001 002 004 006 007 008 010 012 015 016 017 018 020 024 025 BLDG. 400 BLDG. 5 OU 1 OU 2 OU 3 OU 4	SOUTHWEST DIVISION - BLDG. 1 SW070427-02	181-03-0179 41074200	BOX 0045

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N00236 / 001674 NONE MM NONE 00033	01-21-2000 **12-07-1999** NONE 10.4	NAVFAC - SOUTHWEST DIVISION NAVFAC - SOUTHWEST DIVISION	7 DECEMBER 1999 DRAFT RESTORATION ADVISORY BOARD (RAB) MEETING MINUTES (INCLUDES AGENDA, SIGN IN SHEETS AND VARIOUS HANDOUT MATERIALS) [PORTION OF SECTION 3 IS CONFIDENTIAL]	ADMIN RECORD SENSITIVE	002 OU 1 OU 2 OU 4	SOUTHWEST DIVISION - BLDG. 1 SW060615-04 IMAGED APNT_006	181-03-0179 41074200	BOX 0045
N00236 / 000511 TC.A021.10074 MM N68711-00-D-0005 00026	06-11-2003 **01-04-2000** DO 21	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	001 002 005 010 014 025 BLDG. 400 OU 1 OU 2 OU 3 OU 4	SOUTHWEST DIVISION - BLDG. 1 SW060629-01 IMAGED APNT_007	181-03-0188 41031858	BOX 0013
N00236 / 001681 NONE MM NONE 00008	02-15-2000 **01-04-2000** NONE	NAVFAC - WESTERN DIVISION NAVFAC - SOUTHWEST DIVISION	04 JANUARY 2000 RESTORATION ADVISORY BOARD (RAB) MEETING SUMMARY (WITH ENCLOSURES)	ADMIN RECORD INFO REPOSITORY	001 002 005 010 025 BLDG. 400 BLDG. 5 OU 1 OU 2 OU 3 OU 4	SOUTHWEST DIVISION - BLDG. 110 BOX 45 - 04/05/06	181-03-0179 41074200	BOX 0045

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N00236 / 000515 TC.A021.10074 MM N68711-00-D-0005 00014	06-11-2003 **03-07-2000** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	07 MARCH 2000 RESTORATION ADVISORY BOARD (RAB) MEETING SUMMARY (PORTION OF SECTION VII IS SENSITIVE) [ATTENDANCE LIST IS MISSING]	ADMIN RECORD SENSITIVE	025 OU 1 OU 2 OU 3 OU 4	SOUTHWEST DIVISION - BLDG. 1 SW060629-01 IMAGED APNT_007	181-03-0188 41031858	BOX 0013
N00236 / 001692 NONE RPT N62474-94-D-7609 00125	04-27-2000 **03-31-2000** 0236 & 0245	TETRA TECH EM INC. D. SHAFER NAVFAC - SOUTHWEST DIVISION	FINA FEASIBILITY STUDY (FS) FOR THE MARSH CRUST AND THE FORMER SUBTIDAL AREA (PORTION OF CHAPTER 3 AND APPENDIX A IS CONFIDENTIAL)	ADMIN RECORD SENSITIVE	002 003 004 005 006 007 OU 1 OU 2 OU 3	SOUTHWEST DIVISION - BLDG. 1 SW060504-02 IMAGED APNT_010	181-03-0179 41074200	BOX 0046
N00236 / 000554 TC.A021.10074 MM N68711-00-D-0005 00011	06-11-2003 **05-02-2000** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	06 JUNE 2000 RESTORATION ADVISORY BOARD (RAB) MEETING SUMMARY [ATTENDANCE LIST IS MISSING]	ADMIN RECORD	006 014 015 016 025 OU 1 OU 2 OU 3 OU 4	SOUTHWEST DIVISION - BLDG. 1 SW060629-01 IMAGED APNT_007	181-03-0188 41031858	BOX 0013
N00236 / 001702 NONE RPT N62474-94-D-7609 00100	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	001 002 003 004 006 OU 1 OU 2 OU 3 OU 4 WELL S27	CHOICE IMAGING SOLUTIONS SW070817-03	181-03-0179 41074200	BOX 0046

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N00236 / 000719 TC.A021.10075 MM N68711-00-D-0005 00005	06-16-2003 **05-16-2000** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	16 MAY 2000 BASE REALIGNMENT AND CLOSURE (BRAC) CLEANUP TEAM (BCT) MONTHLY TRACKING MEETING AFTER ACTION REPORT (AGENDA IS MISSING)	ADMIN RECORD INFO REPOSITORY	OU 1 OU 3	SOUTHWEST DIVISION - BLDG. 1 SW060907-01 IMAGED APNT_003	181-03-0188 41031858	BOX 0015
N00236 / 000560 TC.A021.10074 MM N68711-00-D-0005 00009	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	001 025 OU 1 OU 2 OU 4	SOUTHWEST DIVISION - BLDG. 1 SW060629-01 IMAGED APNT_007	181-03-0188 41031858	BOX 0013
N00236 / 000588 TC.A021.10074 MM N68711-00-D-0005 00010	06-11-2003 **08-01-2000** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	01 AUGUST 2000 RESTORATION ADVISORY BOARD (RAB) MEETING SUMMARY (PORTION OF SECTION VI IS SENSITIVE) [ATTENDANCE LIST IS MISSING]	ADMIN RECORD SENSITIVE	003 006 007 008 014 015 016 OU 1 OU 2 OU 3 PARCEL 168	SOUTHWEST DIVISION - BLDG. 1 SW060629-01 IMAGED APNT_007	181-03-0188 41031858	BOX 0013

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N00236 / 000590 TC.A021.10074 MM N68711-00-D-0005 00019	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	001 002 005 007 013 025 OU 1 OU 2 OU 2A OU 2B OU 2C OU 3 OU 4 OU 5 OU 7	SOUTHWEST DIVISION - BLDG. 1 SW060629-01 IMAGED APNT_007	181-03-0188 41031858	BOX 0013
N00236 / 000591 TC.A021.10074 MM N68711-00-D-0005 00013	06-11-2003 **11-07-2000** DO 021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	07 NOVEMBER 2000 RESTORATION ADVISORY BOARD (RAB) MEETING MINUTES (MISSING ATTENDANCE LIST)	ADMIN RECORD	007 027 OU 1	SOUTHWEST DIVISION - BLDG. 1 SW060629-01 IMAGED APNT_007	181-03-0188 41031858	BOX 0013
N00236 / 000042 DS.0202.13653 RPT N62474-94-D-7609 00192	12-18-2000 **12-04-2000** 00202	TETRA TECH EM INC. N. HUTCHISON NAVFAC - SOUTHWEST DIVISION G. CLARK	DRAFT FINAL STORM SEWER STUDY REPORT {SEE AR #7 - DRAFT FINAL STORM SEWER STUDY REPORT ADDENDUM & #240 - TECHNICAL MEMORANDUM ADDENDUM}	ADMIN RECORD INFO REPOSITORY	OU 1 OU 2A OU 2B OU 2C OU 3 OU 4A OU 5	SOUTHWEST DIVISION - BLDG. 1 SW061027-01 IMAGED APNT_015		

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N00236 / 000058 SWDIV SER 06CA.GC/1044 LTR NONE 00003	02-01-2001 **12-27-2000** NONE	NAVFAC - SOUTHWEST DIVISION G. CLARK DTSC, BERKELEY, CA M. CASSA	IDENTIFICATION OF STATE APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARS) FOR REMOVAL ACTIONS	ADMIN RECORD INFO REPOSITORY	003 004 005 009 011 016 019 021	SOUTHWEST DIVISION - BLDG. 1 SW061005-01 IMAGED APNT_016	181-03-0179 41074200	BOX 0002
N00236 / 000055 DS.0385.15989 & SWDIV SER 06CA.GL/1043 PLAN N62474-94-D-7609 00615	01-10-2001 **12-28-2000** 00385	TETRA TECH EM INC. N. HUTCHISON NAVFAC - SOUTHWEST DIVISION G. LORTON	DRAFT FIELD SAMPLING PLAN (FSP) - SUPPLEMENTAL REMEDIAL INVESTIGATION DATA GAP SAMPLING [INCLUDES QUALITY ASSURANCE PROJECT PLAN (QAPP) AS ATTACHMENT] (INCLUDES SWDIV TRANSMITTAL LETTER BY G. LORTON)	ADMIN RECORD INFO REPOSITORY	OU 1 OU 2	SOUTHWEST DIVISION - BLDG. 1 SW060123-01 IMAGED APNT_003	181-03-0179 41074200	BOX 0001
N00236 / 000593 NONE MM NONE 00010	06-11-2003 **01-02-2001** NONE	NAVFAC - EFA WEST VARIOUS AGENCIES	02 JANUARY 2001 RESTORATION ADVISORY BOARD (RAB) MEETING SUMMARY	ADMIN RECORD	002 015 OU 1 OU 3 OU 4	SOUTHWEST DIVISION - BLDG. 1 SW070413-01 IMAGED APNT_022	181-03-0188 41031858	BOX 0013
N00236 / 000053 DS.0386.15580, 15580-01 AND 15580-02 RPT N62474-94-D-7609 00163	01-05-2001 **01-05-2001** 00386	TETRA TECH EM INC. C. FENNESSY NAVFAC - SOUTHWEST DIVISION G. CLARK	DRAFT REMOVAL ACTIONS FOR DISSOLVED-PHASE GROUNDWATER CONTAMINANTS, ENGINEERING EVALUATION AND COST ANALYSIS (EE/CA) - INCLUDES REVISION 2 REPLACEMENT PAGES ISSUED 17 APRIL 2001 THAT HAVE BEEN INSERTED INTO THE DOCUMENT	ADMIN RECORD INFO REPOSITORY	009 011 016 021	SOUTHWEST DIVISION - BLDG. 1 SW060123-01 IMAGED APNT_003	181-03-0179 41074200	BOX 0001
N00236 / 000007 TC.0202.10421 & EFAW SER 612.14/L0044 RPT N62474-94-D-7609 00113	08-17-2000 **01-15-2001** 00202	TETRA TECH EM INC. N. HUTCHISON NAVFAC - SOUTHWEST DIVISION G. CLARK	DRAFT FINAL STORM SEWER STUDY REPORT, TOTAL PETROLEUM HYDROCARBON (TPH) ADDENDUM - INCLUDES SWDIV TRANSMITTAL LETTER BY G. CLARK, RESPONSE TO COMMENTS ON THE DRAFT STORM SEWER STUDY REPORT DATED SEPTEMBER 1999 (*SEE COMMENTS)	ADMIN RECORD INFO REPOSITORY	018 OU 1 OU 2A OU 2B OU 2C OU 3 OU 4A OU 5	SOUTHWEST DIVISION - BLDG. 1 SW061027-01 IMAGED APNT_015	181-03-0179 41074200	BOX 0001

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N00236 / 000692 TC.A021.10075 MM N68711-00-D-0005 00008	06-17-2003 **01-16-2001** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	16 JANUARY 2001 FINAL BASE REALIGNMENT AND CLOSURE (BRAC) CLEANUP TEAM (BCT) MONTHLY TRACKING MEETING MINUTES FOR THE AFTER ACTION REPORT (INCLUDES AGENDA)	ADMIN RECORD INFO REPOSITORY	004 009 011 015 016 021	SOUTHWEST DIVISION - BLDG. 1 SW060629-02 IMAGED APNT_007	181-03-0188 41031858	BOX 0014
N00236 / 002472 SWDIV SER 06CA.GC/0080 CORRESP NONE 00004	08-28-2006 **01-20-2001** NONE	NAVFAC - SOUTHWEST DIVISION G. CLARK USEPA - SAN FRANCISCO A. COOK	REQUEST FOR REGULATORY AGENCIES TO STOP REVIEW OF ENGINEERING EVALUATION/COST ANALYSIS PENDING SUBMITTAL OF REVISIONS (PORTION OF THE MAILING LIST IS SENSITIVE)	ADMIN RECORD SENSITIVE	009 011 016 019 021	SOUTHWEST DIVISION - BLDG. 1 SW061120-04 IMAGED APNT_024		
N00236 / 000594 NONE MM NONE 00012	06-11-2003 **02-06-2001** NONE	NAVFAC - EFA WEST VARIOUS AGENCIES	06 FEBRUARY 2001 RESTORATION ADVISORY BOARD (RAB) MEETING SUMMARY (INCLUDES AGENDA)	ADMIN RECORD	004 005 006 007 008 009 010 011 012 013 014 015 016 019 021 022 023 OU 1 OU 2A OU 2B OU 2C	SOUTHWEST DIVISION - BLDG. 1 SW070413-01 IMAGED APNT_022	181-03-0188 41031858	BOX 0013

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N00236 / 002539 NONE CORRESP NONE 00003	09-19-2006 **02-08-2001** NONE	DTSC - BERKELEY M. CASSA NAVFAC - SOUTHWEST DIVISION G. CLARK	RESPONSE TO REQUEST FOR IDENTIFICATION OF STATE APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARS) FOR REMOVAL ACTIONS (PORTION OF THE MAILING LIST IS SENSITIVE)	ADMIN RECORD SENSITIVE	003 004 005 009 011 016 019 021	SOUTHWEST DIVISION - BLDG. 1 SW061120-04 IMAGED APNT_024		
N00236 / 000730 TC.A021.10075 MM N68711-00-D-0005 00011	06-17-2003 **02-20-2001** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	20 FEBRUARY 2001 FINAL BASE REALIGNMENT AND CLOSURE (BRAC) CLEANUP TEAM (BCT) MONTHLY TRACKING MEETING AFTER ACTION REPORT (INCLUDES AGENDA)	ADMIN RECORD INFO REPOSITORY	002 009 011 016 021 OU 4A OU 5	SOUTHWEST DIVISION - BLDG. 1 SW060907-01 IMAGED APNT_003	181-03-0188 41031858	BOX 0015
N00236 / 002407 NONE COMMENTS NONE 00013	08-21-2006 **03-01-2001** NONE	USEPA - SAN FRANCISCO A. COOK NAVFAC - SOUTHWEST DIVISION G. LORTON	REVIEW AND COMMENTS ON DRAFT FIELD SAMPLING PLAN (FSP), SUPPLEMENTAL REMEDIAL INVESTIGATION DATA GAP SAMPLING, QUALITY ASSURANCE PROJECT PLAN (QAPP)	ADMIN RECORD	OU 1 OU 2	SOUTHWEST DIVISION - BLDG. 1 SW061106-02 IMAGED APNT_021		
N00236 / 002408 NONE COMMENTS NONE 00013	08-21-2006 **03-02-2001** NONE	DTSC - BERKELEY M. CASSA NAVFAC - SOUTHWEST DIVISION G. LORTON	REVIEW AND COMMENTS ON DRAFT FIELD SAMPLING PLAN (FSP)- SUPPLEMENTAL REMEDIAL INVESTIGATION DATA GAP SAMPLING (INCLUDES COMMENTS BY GSU DATED 15 FEBRUARY 2001) [PORTION OF THE MAILING LIST IS SENSITIVE]	ADMIN RECORD SENSITIVE	OU 1 OU 2	SOUTHWEST DIVISION - BLDG. 1 SW061106-02 IMAGED APNT_021		
N00236 / 000091 2199.9285 (LBJ) LTR NONE 00004	06-25-2001 **03-16-2001** NONE	CRWQCB - OAKLAND B. JOB NAVFAC - SOUTHWEST DIVISION M. MCCLELLAND	REVIEW AND COMMENTS ON THE DRAFT REMOVAL ACTIONS FOR DISSOLVED - PHASE GROUNDWATER CONTAMINANTS, ENGINEERING EVALUATION/COST ANALYSIS (EE/CA) [PORTION OF THE MAILING LIST IS CONFIDENTIAL]	ADMIN RECORD INFO REPOSITORY SENSITIVE	009 011 016 021	SOUTHWEST DIVISION - BLDG. 1 SW060123-02 IMAGED APNT_002	181-03-0179 41074200	BOX 0003

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N00236 / 000731 TC.A021.10075 MM N68711-00-D-0005 00012	06-17-2003 **03-20-2001** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	20 MARCH 2001 FINAL BASE REALIGNMENT AND CLOSURE (BRAC) CLEANUP TEAM (BCT) MONTHLY TRACKING MEETING AFTER ACTION REPORT (INCLUDES AGENDA)	ADMIN RECORD INFO REPOSITORY	005 009 011 016 018 021 OU 6	SOUTHWEST DIVISION - BLDG. 1 SW060907-01 IMAGED APNT_003	181-03-0188 41031858	BOX 0015
N00236 / 001938 1174 RPT N62474-98-D-2076 00345	02-01-2005 **03-30-2001** 00013	IT CORPORATION D. SHAFER NAVFAC - SOUTHWEST DIVISION	DRAFT WORK PLAN (WP) FOR THE FUEL REMEDIATION MEASURES (INCLUDES QUALITY CONTROL PLAN (QCP), SAMPLING AND ANALYSIS PLAN (SAP), SITE HEALTH AND SAFETY PLAN (SHSP) AND ENVIRONMENTAL PROTECTION PLAN (EPP))	ADMIN RECORD	007 PARCEL 37	CHOICE IMAGING SOLUTIONS SW060825-04 IMAGED APNT_017		
N00236 / 000596 TC.A021.10074 MM N68711-00-D-0005 00019	06-11-2003 **04-03-2001** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	03 APRIL 2001 FINAL RESTORATION ADVISORY BOARD (RAB) MEETING SUMMARY (INCLUDES MEETING AGENDA AND SIGN-IN SHEETS)	ADMIN RECORD	014 015 017 024 025 OU 1 OU 2 OU 4	SOUTHWEST DIVISION - BLDG. 1 SW060629-01 IMAGED APNT_007	181-03-0188 41031858	BOX 0013
N00236 / 000092 NONE LTR NONE 00008	06-25-2001 **04-09-2001** NONE	USEPA - SAN FRANCISCO A. COOK NAVFAC - SOUTHWEST DIVISION G. CLARK	REVIEW AND COMMENTS ON THE DRAFT REMOVAL ACTIONS FOR DISSOLVED - PHASE GROUNDWATER CONTAMINANTS, ENGINEERING EVALUATION/COST ANALYSIS (EE/CA) [WITH ENCLOSURE]	ADMIN RECORD INFO REPOSITORY	009 011 016 021	SOUTHWEST DIVISION - BLDG. 1 SW060123-02 IMAGED APNT_002	181-03-0179 41074200	BOX 0003
N00236 / 000093 NONE LTR NONE 00004	06-25-2001 **04-12-2001** NONE	DTSC - BERKELEY M. CASSA NAVFAC - SOUTHWEST DIVISION G. CLARK	REVIEW AND COMMENTS ON THE DRAFT REMOVAL ACTIONS FOR DISSOLVED - PHASE GROUNDWATER CONTAMINANTS, ENGINEERING EVALUATION/COST ANALYSIS (EE/CA) [PORTION OF THE MAILING LIST IS CONFIDENTIAL]	ADMIN RECORD INFO REPOSITORY SENSITIVE	009 011 016 021	SOUTHWEST DIVISION - BLDG. 1 SW060123-02 IMAGED APNT_002	181-03-0179 41074200	BOX 0003

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N00236 / 000732 TC.A021.10075 MM N68711-00-D-0005 00011	06-17-2003 **04-17-2001** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	17 APRIL 2001 FINAL BASE REALIGNMENT AND CLOSURE (BRAC) CLEANUP TEAM (BCT) MONTHLY TRACKING MEETING AFTER ACTION REPORT (INCLUDES AGENDA)	ADMIN RECORD INFO REPOSITORY	002 015 OU 1 OU 2 OU 6 UST 608	SOUTHWEST DIVISION - BLDG. 1 SW060907-01 IMAGED APNT_003	181-03-0188 41031858	BOX 0015
N00236 / 000604 TC.A021.10074 MM N68711-00-D-0005 00013	06-11-2003 **05-01-2001** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	01 MAY 2001 FINAL RESTORATION ADVISORY BOARD (RAB) MEETING SUMMARY (INCLUDES MEETING AGENDA AND SIGN-IN SHEETS)	ADMIN RECORD	025 OU 1 OU 2 OU 3 OU 4 OU 4A	SOUTHWEST DIVISION - BLDG. 1 SW060629-01 IMAGED APNT_007	181-03-0188 41031858	BOX 0013
N00236 / 000187 DS.0385.16940 & SWDIV SER 06CA.GL/0546 PLAN N62474-94-D-7609 00786	07-05-2001 **05-14-2001** 00385	TETRA TECH EM INC. N. HUTCHISON NAVFAC - SOUTHWEST DIVISION G. LORTON	DRAFT FINAL FIELD SAMPLING PLAN AND QUALITY ASSURANCE PROJECT PLAN (FSP/QAPP), SUPPLEMENTAL REMEDIAL INVESTIGATION DATA GAPS SAMPLING (INCLUDES SWDIV TRANSMITTAL LETTER BY G. LORTON) {SEE AR #229 - ADDENDUM A, #239 - ADDENDUM B & #252 - ADDENDUM C}	ADMIN RECORD INFO REPOSITORY	OU 1 OU 2	SOUTHWEST DIVISION - BLDG. 1 SW060223-01 IMAGED APNT_011	181-03-0179 41074200	BOX 0009
N00236 / 000605 TC.A021.10074 MM N68711-00-D-0005 00015	06-11-2003 **06-05-2001** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	06 JUNE 2001 FINAL RESTORATION ADVISORY BOARD (RAB) MEETING SUMMARY (INCLUDES AGENDA AND SIGN-IN SHEETS)	ADMIN RECORD	006 007	SOUTHWEST DIVISION - BLDG. 1 SW060629-01 IMAGED APNT_007	181-03-0188 41031858	BOX 0013
N00236 / 002405 NONE COMMENTS NONE 00003	08-21-2006 **06-13-2001** NONE	DTSC - BERKELEY M. CASSA NAVFAC - SOUTHWEST DIVISION G. LORTON	REVIEW AND COMMENTS ON DRAFT FINAL FIELD SAMPLING PLAN, SUPPLEMENTAL REMEDIAL INVESTIGATION DATA GAP SAMPLING (PORTION OF THE MAILING LIST IS SENSITIVE)	ADMIN RECORD SENSITIVE	OU 1 OU 2	SOUTHWEST DIVISION - BLDG. 1 SW061106-02 IMAGED APNT_021		

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N00236 / 000736 TC.A021.10075 MM N68711-00-D-0005 00011	06-17-2003 **06-19-2001** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	19 JUNE 2001 FINAL BASE REALIGNMENT AND CLOSURE (BRAC) CLEANUP TEAM (BCT) MONTHLY TRACKING MEETING AFTER ACTION REPORT (INCLUDES AGENDA) [MISSING PAGE 7 OF 7]	ADMIN RECORD INFO REPOSITORY	014 OU 1 OU 2 UST 608	SOUTHWEST DIVISION - BLDG. 1 SW061005-01 IMAGED APNT_016	181-03-0188 41031858	BOX 0015
N00236 / 000204 TC.0386.11025 & SWDIV SER 06CA.GC/0701 MISC N62474-94-D-7609 00017	07-12-2001 **07-06-2001** 00386	NAVFAC - SOUTHWEST G. CLARK US EPA - SAN FRANCISCO A. COOK	RESPONSE TO COMMENTS ON THE DRAFT REMOVAL ACTIONS FOR DISSOLVED-PHASE GROUNDWATER CONTAMINANTS ENGINEERING EVALUATION/COST ANALYSIS (EE/CA) {A PORTION OF THE MAILING LIST IS SENSITIVE}	ADMIN RECORD INFO REPOSITORY SENSITIVE	009 011 016 021	CHOICE IMAGING SOLUTIONS SW070817-01	181-03-0179 41074200	BOX 0010
N00236 / 000190 1518.0, 1518.1 & SWDIV SER 06CA.GL/0617 & 0756 RPT N62474-98-D-2076 00422	07-12-2001 **07-20-2001** 00037	IT CORPORATION M. MOISE NAVFAC - SOUTHWEST DIVISION	FINAL CORRECTIVE ACTION WORK PLAN, HYDROCARBON PLUME DELINEATION, REMEDIATION, & SITE CLOSURE MEASURES, CORRECTIVE ACTION AREAS 7, 11, AND 13, REVISION 1 (INCLUDES QUALITY CONTROL PLAN, SAMPLING AND ANALYSIS PLAN, AND SITE HEALTH AND SAFETY PLAN)	ADMIN RECORD INFO REPOSITORY	007 013 023 CAA 11	SOUTHWEST DIVISION - BLDG. 1 SW060209-01 IMAGED APNT_002	181-03-0179 41074200	BOX 0009
N00236 / 000189 1538.0, 1538.1 & SWDIV SER 06CA.GL\0627 PLAN N62474-98-D-2076 00366	07-05-2001 **08-01-2001** 00013	IT CORPORATION D. SHAFER NAVFAC - SOUTHWEST DIVISION	FINAL PROJECT PLANS FUEL REMEDIATION MEASURES, REVISION 1 (INCLUDES WORK PLAN, QUALITY CONTROL PLAN, SAMPLING & ANALYSIS PLAN, SITE HEALTH & SAFETY PLAN AND ENVIRONMENTAL PROTECTION PLAN)	ADMIN RECORD INFO REPOSITORY	007 PARCEL 37	SOUTHWEST DIVISION - BLDG. 1 SW060223-01 IMAGED APNT_011	181-03-0179 41074200	BOX 0009
N00236 / 000308 1249 & SWDIV SER 06CA.GC/0816 PLAN N62474-98-D-2076 00279	12-13-2001 **08-10-2001** 00059	IT CORPORATION NAVFAC - SOUTHWEST DIVISION	DRAFT PROJECT PLANS (WORK PLAN, QUALITY CONTROL PLAN, SAMPLING & ANALYSIS PLAN & SITE HEALTH & SAFETY PLAN) FOR THE AIR SPARGING/SOIL VAPOR EXTRACTION (AS/SVE) PILOT TEST REMOVAL ACTIONS, REVISION 1[INCLUDES RESPONSE TO NAVY COMMENTS ON PRELIMINARY DRAFT]	ADMIN RECORD INFO REPOSITORY	009 011 016 021	SOUTHWEST DIVISION - BLDG. 1 SW050728-01 IMAGED APNT_001		

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N00236 / 000738 TC.A021.10075 MM N68711-00-D-0005 00014	06-17-2003 **08-21-2001** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	21 AUGUST 2001 FINAL BASE REALIGNMENT AND CLOSURE (BRAC) CLEANUP TEAM (BCT) MONTHLY TRACKING MEETING AFTER ACTION REPORT (INCLUDES AGENDA AND SIGN-IN SHEET)	ADMIN RECORD INFO REPOSITORY	009 011 016 021 026	SOUTHWEST DIVISION - BLDG. 1 SW060907-01 IMAGED APNT_003	181-03-0188 41031858 BOX 0015
N00236 / 000229 DS.0385.17292 & SWDIV SER 06CA.GL/0852 RPT N62474-94-D-7609 00087	09-21-2001 **08-23-2001** 00385	TETRA TECH EM INC. N. HUTCHISON NAVFAC - SOUTHWEST DIVISION G. LORTON	ADDENDUM A - FINAL FIELD SAMPLING PLAN/QUALITY ASSURANCE PROJECT PLAN (FSP/QAPP), SUPPLEMENTAL REMEDIAL INVESTIGATION DATA GAP SAMPLING {SEE AR #187 - DRAFT FINAL FSP/QAPP, AR #239 - ADDENDUM B & AR #252 - ADDENDUM C}	ADMIN RECORD INFO REPOSITORY	OU 1 OU 2	SOUTHWEST DIVISION - BLDG. 1 SW060223-02 IMAGED APNT_011	181-03-0179 41074200 BOX 0011
N00236 / 000239 DS.0385.17345 & SWDIV SER 06CA.GL/0852 RPT N62474-94-D-7609 00037	09-21-2001 **08-27-2001** 00385	TETRA TECH EM INC. N. HUTCHISON NAVFAC - SOUTHWEST DIVISION G. LORTON	ADDENDUM B - FINAL FIELD SAMPLING PLAN/QUALITY ASSURANCE PROJECT PLAN (FSP/QAPP), SUPPLEMENTAL REMEDIAL INVESTIGATION DATA GAP SAMPLING {SEE AR #187 - DRAFT FINAL FSP/QAPP, AR #229 - ADDENDUM A & AR #252 - ADDENDUM C}	ADMIN RECORD INFO REPOSITORY	OU 1 OU 2	SOUTHWEST DIVISION - BLDG. 1 SW060223-02 IMAGED APNT_011	181-03-0179 41074200 BOX 0012
N00236 / 000240 TC.0202.11178 MEMO N62474-94-D-7609 00047	09-25-2001 **08-30-2001** 00202	TETRA TECH EM INC. N. HUTCHISON NAVFAC - SOUTHWEST DIVISION G. CLARK	STORM SEWER STUDY - TECHNICAL MEMORANDUM ADDENDUM AND RESPONSE TO CRWQCB, DTSC, & EPA COMMENTS {SEE AR #7 - DRAFT FINAL STORM SEWER STUDY REPORT ADDENDUM & #42 - DRAFT FINAL STORM SEWER STUDY REPORT} (MISSING FIGURES 3-4C AND 3-5C)	ADMIN RECORD INFO REPOSITORY	018 OU 1 OU 2A OU 2B OU 2C OU 3 OU 4A OU 5	SOUTHWEST DIVISION - BLDG. 1 SW061027-01 IMAGED APNT_015	181-03-0179 41074200 BOX 0012

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N00236 / 000608 TC.A021.10074 MM N68711-00-D-0005 00014	06-11-2003 **09-04-2001** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	04 SEPTEMBER 2001 FINAL RESTORATION ADVISORY BOARD (RAB) MEETING SUMMARY (INCLUDES MEETING AGENDA AND SIGN-IN SHEETS)	ADMIN RECORD	003 007 009 011 016 017 020 021 024 028 029	SOUTHWEST DIVISION - BLDG. 1 SW060629-01 IMAGED APNT_007	181-03-0188 41031858	BOX 0013
N00236 / 000609 TC.A021.10074 MM N68711-00-D-0005 00014	06-11-2003 **10-02-2001** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	02 OCTOBER 2001 FINAL RESTORATION ADVISORY BOARD (RAB) MEETING SUMMARY (INCLUDES MEETING AGENDA AND SIGN-IN SHEETS)	ADMIN RECORD	OU 1 OU 2 OU 3 OU 4 OU 5	SOUTHWEST DIVISION - BLDG. 1 SW060629-01 IMAGED APNT_007	181-03-0188 41031858	BOX 0013
N00236 / 000252 DS.0385.17352 & SWDIV SER 06CA.GL/1057 MISC N62474-94-D-7609 00011	10-11-2001 **10-04-2001** 00385	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	ADDENDUM C - FINAL FIELD SAMPLING PLAN, SUPPLEMENTAL REMEDIAL INVESTIGATION DATA GAP SAMPLING {SEE AR #187 - DRAFT FINAL FSP/QAPP, AR #229 - ADDENDUM A & AR #239 - ADDENDUM B} (INCLUDES SWDIV TRANSMITTAL LETTER BY G. LORTON)	ADMIN RECORD INFO REPOSITORY	OU 1 OU 2	SOUTHWEST DIVISION - BLDG. 1 SW060223-02 IMAGED APNT_011	181-03-0179 41074200	BOX 0012
N00236 / 000309 NONE CORRESP NONE 00008	12-13-2001 **10-12-2001** NONE	U.S. EPA, SAN FRANCISCO, CA A. COOK NAVFAC - SOUTHWEST DIVISION G. CLARK	COMMENTS ON THE DRAFT PROJECT PLANS, AIR SPARGING/SOIL VAPOR EXTRACTION PILOT TEST FOR REMOVAL ACTIONS (W/ ENCLOSURE)	ADMIN RECORD INFO REPOSITORY	009 011 016 021	SOUTHWEST DIVISION - BLDG. 1 SW050728-01 IMAGED APNT_001		

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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 / 000267 DS.0386.15778 & SWDIV SER 06CA.GC/1090 MEMO N62474-94-D-7609 00282	11-02-2001 **10-15-2001** 00386	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	DRAFT DISSOLVED PHASE GROUNDWATER CONTAMINANTS, NON-TIME CRITICAL REMOVAL ACTION, ACTION MEMORANDUM (INCLUDES SWDIV TRANSMITTAL LETTER BY G. CLARK) [MISSING TABLE 2-8 IN SECTION 2]	ADMIN RECORD INFO REPOSITORY	009 011 016 021	SOUTHWEST DIVISION - BLDG. 1 SW061027-01 IMAGED APNT_015	181-03-0179 BOX 0013 41074200
N00236 / 000610 TC.A021.10074 MM N68711-00-D-0005 00050	06-11-2003 **11-06-2001** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	06 NOVEMBER 2001 FINAL RESTORATION ADVISORY BOARD (RAB) MEETING SUMMARY (INCLUDES MEETING AGENDA, SIGN-IN SHEETS, AND VARIOUS HANDOUTS) [PORTION OF ATTACHMENT C IS SENSITIVE]	ADMIN RECORD SENSITIVE	004 005 009 011 016	SOUTHWEST DIVISION - BLDG. 1 SW060629-01 IMAGED APNT_007	181-03-0188 BOX 0013 41031858
N00236 / 000313 2700.0 PLAN N62474-98-D-2076 00501	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	001 003 004 005 006 007 008 009 010 011 012 014 016 021 025 GROUP 026 027	SOUTHWEST DIVISION - BLDG. 1 SW060629-01 IMAGED APNT_007	

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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 / 000741 TC.A021.10075 MM N68711-00-D-0005 00011	06-17-2003 **12-18-2001** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	18 DECEMBER 2001 FINAL BASE REALIGNMENT AND CLOSURE (BRAC) CLEANUP TEAM (BCT) MONTHLY TRACKING MEETING AFTER ACTION REPORT (INCLUDES AGENDA)	ADMIN RECORD INFO REPOSITORY	004 007 013 014 015 025	SOUTHWEST DIVISION - BLDG. 1 SW060907-01 IMAGED APNT_003	181-03-0188 41031858	BOX 0015
N00236 / 000354 2119.9285 (LMM) COMMENTS NONE 00009	04-10-2002 **01-28-2002** NONE	CRWQCB - OAKLAND L. MEILLIER NAVFAC - SOUTHWEST DIVISION R. WEISSENBORN	COMMENTS ON THE DRAFT WORK PLAN FOR BASEWIDE GROUNDWATER MONITORING PROGRAM (PORTION OF THE DISTRIBUTION LIST IS SENSITIVE)	ADMIN RECORD INFO REPOSITORY SENSITIVE	004 005 008 009 016 025 GROUP 026 027 BLDG. 410 OU 1 UST 608-1	SOUTHWEST DIVISION - BLDG. 1 SW060629-01 IMAGED APNT_007	181-03-0188 41031858	BOX 0001
N00236 / 000617 TC.A021.10074 MM N68711-00-D-0005 00047	06-12-2003 **03-05-2002** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	05 MARCH 2002 DRAFT RESTORATION ADVISORY BOARD (RAB) MEETING SUMMARY (INCLUDES MEETING AGENDA, SIGN-IN SHEETS, AND VARIOUS HANDOUTS)	ADMIN RECORD INFO REPOSITORY	004 005 014 015 018 028 OU 1 OU 3	SOUTHWEST DIVISION - BLDG. 1 SW060629-01 IMAGED APNT_007	181-03-0188 41031858	BOX 0013

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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 / 000747 TC.A021.10075 MM N68711-00-D-0005 00087	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	001 002 004 009 011 014 015 016 021 026 OU 1 OU 2	SOUTHWEST DIVISION - BLDG. 1 SW060907-01 IMAGED APNT_003	181-03-0188 41031858 BOX 0015
N00236 / 000620 TC.A021.10074 MM N68711-00-D-0005 00031	06-12-2003 **05-01-2002** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	01 MAY 2002 FINAL RESTORATION ADVISORY BOARD (RAB) MEETING SUMMARY (INCLUDES MEETING AGENDA, SIGN-IN SHEETS, AND VARIOUS HANDOUTS)	ADMIN RECORD INFO REPOSITORY	026 OU 1 OU 2 OU 3 OU 4A OU 5	SOUTHWEST DIVISION - BLDG. 1 SW060629-01 IMAGED APNT_007	181-03-0188 41031858 BOX 0013
N00236 / 001808 3834 RPT N62474-98-D-2076 00436	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	001 003 GROUP 005 GROUP 006 007 008 009 014 016 025 GROUP 026 027	SOUTHWEST DIVISION - BLDG. 1 SW060629-04 IMAGED APNT_008	

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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 / 000364 TC.0386.11571 RPT N62474-94-D-7609 00277	06-17-2002 **05-21-2002** 00386	TETRA TECH EM INC. J. HELGE NAVFAC - SOUTHWEST DIVISION	DRAFT FINAL WATER TOWER & ANTENNA SITES, LEAD REMOVAL ACTION ENGINEERING EVALUATION AND COST ANALYSIS (EE/CA) [PORTIONS OF SECTIONS 4 AND 5 - COST ESTIMATES ARE CONFIDENTIAL]	ADMIN RECORD INFO REPOSITORY SENSITIVE	008 BLDG. 33 BLDG. 36A BLDG. 36B BLDG. 61 BLDG. 73B BLDG. 88 OU 1 OU 2A OU 2B OU 2C OU 3 OU 4A OU 4B OU 4C OU 5 OU 6 PARCEL 105 PARCEL 106 PARCEL 107 PARCEL 79 PARCEL 98	SOUTHWEST DIVISION - BLDG. 1 SW060518-01 IMAGED APNT_010	181-03-0188 41031858	BOX 0002

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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 / 000369 TC.0386.11534 MEMO N62474-94-D-7609 00352	06-18-2002 **05-21-2002** 00386	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	DRAFT ACTION MEMORANDUM, PARCELS 79, 98, 105, 106, AND 107, LEAD IN SOIL AND LEAD BASED PAINT, NON-TIME CRITICAL REMOVAL ACTION (NTCRA) [PORTIONS OF SECTION 5, APPENDICES A AND C - ESTIMATED COSTS ARE CONFIDENTIAL]	ADMIN RECORD INFO REPOSITORY SENSITIVE	008 BLDG. 73B OU 1 OU 2A OU 2B OU 2C OU 3 OU 4A OU 4B OU 4C OU 5 OU 6 PARCEL 105 PARCEL 106 PARCEL 107 PARCEL 79 PARCEL 98	SOUTHWEST DIVISION - BLDG. 1 SW060518-01 IMAGED APNT_010	181-03-0188 41031858	BOX 0002
N00236 / 000370 3546 RPT N62474-98-D-2076 00348	06-18-2002 **06-07-2002** 00059	IT CORPORATION D. SHAFER NAVFAC - SOUTHWEST DIVISION	DRAFT FINAL WORK PLAN CHEMICAL OXIDATION PILOT TESTING FOR REMOVAL ACTIONS, REVISION 1 (INCLUDES SWDIV TRANSMITTAL LETTER BY G. CLARK) [PORTION OF THE MAILING LIST IS SENSITIVE]	ADMIN RECORD INFO REPOSITORY SENSITIVE	009 011 016 021 AREA 37 BLDG. 14 BLDG. 162 BLDG. 351 BLDG. 398 BLDG. 402 BLDG. 410 BLDG. 586 BLDG. 608 BLDG. 620 OU 1 OU 2A	SOUTHWEST DIVISION - BLDG. 1 SW070511-01 IMAGED APNT_022	181-03-0188 41031858	BOX 0002

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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 / 001726 3546.1 PLAN N62474-98-D-2076 01000	10-30-2003 **06-07-2002** 00059	IT CORPORATION J. SCIACCA NAVFAC - SOUTHWEST DIVISION	DRAFT FINAL WORK PLAN CHEMICAL OXIDATION PILOT TESTING FOR REMOVAL ACTIONS AT INSTALLATION RESTORATION SITES 9, 11/21, AND 16, REVISION 1 (INCLUDES SWDIV TRANSMITTAL LETTER FROM G. CLARK)	ADMIN RECORD INFO REPOSITORY	009 011 016 021	SOUTHWEST DIVISION - BLDG. 110 04/25/06	
N00236 / 001809 4100 RPT N62474-98-D-2076 00600	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	001 003 GROUP 005 GROUP 006 007 008 009 014 016 025 GROUP 026 027	SOUTHWEST DIVISION - BLDG. 110 06/12/06	

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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 / 000367 SWDIV SER 06CA.AD/0624 PLAN NONE 00035	06-18-2002 **06-14-2002** NONE	NAVFAC - SOUTHWEST DIVISION A. DICK US EPA - SAN FRANCISCO A. COOK	TRANSMITTAL OF DRAFT SITE MANAGEMENT PLAN AMENDMENT (W/ ENCLOSURE) [INCLUDES DRAFT SITE MANAGEMENT PLAN]	ADMIN RECORD INFO REPOSITORY	001 002 006 007 008 009 013 014 015 016 017 019 020 022 023 024 025 026 027 028 029 AREA 1 AREA 2 AREA 3 OU 1 OU 2A OU 2B OU 2C OU 3 OU 4A OU 4B OU 4C OU 5 OU 6	SOUTHWEST DIVISION - BLDG. 1 SW070413-01 IMAGED APNT_022	181-03-0188 BOX 0002 41031858

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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 / 000376 TC.0386.11607 MEMO N62474-94-D-7609 00293	06-24-2002 **06-17-2002** 00386	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	DRAFT ACTION MEMORANDUM FOR SITES 9 AND 16, DISSOLVED-PHASE GROUNDWATER CONTAMINANTS, NON-TIME CRITICAL REMOVAL ACTION (NTCRA) [INCLUDES SWDIV TRANSMITTAL LETTER BY G. CLARK)] {PORTION OF THE DOCUMENT RELATING TO COST IS CONFIDENTIAL}	ADMIN RECORD INFO REPOSITORY SENSITIVE	009 016 BLDG. 351 BLDG. 402 BLDG. 410 BLDG. 608 OU 1 OU 2A	SOUTHWEST DIVISION - BLDG. 1 SW060601-01 IMAGED APNT_012	181-03-0188 41031858	BOX 0003
N00236 / 001722 SWDIV SER 06CA.GC/0640 CORRESP NONE 00002	10-30-2003 **06-20-2002** NONE	NAVFAC - SOUTHWEST DIVISION G. CLARK DTSC - BERKELEY M. LIAO	REQUEST FOR IDENTIFICATION OF POTENTIAL STATE CHEMICAL-SPECIFIC, ACTION SPECIFIC, AND LOCATION SPECIFIC ARARS	ADMIN RECORD INFO REPOSITORY	006 007 008 016 OU 1	SOUTHWEST DIVISION - BLDG. 1 SW060814-01 IMAGED APNT_014		
N00236 / 001984 NONE COMMENTS NONE 00006	03-10-2005 **07-10-2002** NONE	CRWQCB - S.F. BAY REGION L. MEILLIER NAVFAC - SOUTHWEST DIVISION G. CLARK	COMMENTS ON THE DRAFT WORKPLAN (WP) FOR THE CHEMICAL OXIDATION PILOT TEST (MISSING PAGES 2 AND 4) [PORTION OF THE MAILING LIST IS SENSITIVE]	ADMIN RECORD SENSITIVE	009 011 016 021	SOUTHWEST DIVISION - BLDG. 1 SW061120-02 IMAGED APNT_023		
N00236 / 000750 TC.A021.10075 MM N68711-00-D-0005 00052	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	001 002 013 OU 1 OU 2A OU 2B OU 5	SOUTHWEST DIVISION - BLDG. 1 SW060921-01 IMAGED APNT_005	181-03-0188 41031858	BOX 0015

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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 / 000405 TC.0386.11651 RESPONSE N62474-94-D-7609 00020	07-29-2002 **07-18-2002** 00386	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	COMPILED RESPONSE TO COMMENTS ON THE DRAFT ACTION MEMORANDUM NON-TIME CRITICAL REMOVAL ACTION LEAD IN SOIL AND LEAD BASED PAINT [COMMENTS BY DTSC, ARC ECOLOGY - 06/24/02, ALAMEDA POINT COLLABORATIVE - 06/17/02, & THE SIERRA CLUB - 06/23/02] W/ENCLOSURES	ADMIN RECORD INFO REPOSITORY SENSITIVE	008 BLDG. 23 BLDG. 24 BLDG. 73B OU 1 OU 2A OU 2B OU 2C OU 3 OU 4A OU 4B OU 4C OU 5 OU 6 PARCEL 105 PARCEL 106 PARCEL 107 PARCEL 79 PARCEL 98	SOUTHWEST DIVISION - BLDG. 1 SW060518-01 IMAGED APNT_010	181-03-0188 41031858	BOX 0003

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N00236 / 000406 DS.0385.15645 RPT N62474-94-D-7609 02083	08-06-2002 **07-25-2002** 00385	TETRA TECH EM INC. N. HUTCHISON NAVFAC - SOUTHWEST DIVISION G. LORTON	DATA SUMMARY REPORT - SUPPLEMENTAL REMEDIAL INVESTIGATION DATA GAP SAMPLING FOR OPERABLE UNITS 1 & 2, (OU 1, OU 2) [VOLUMES 1-3 OF 3]	ADMIN RECORD INFO REPOSITORY	003 004 005 006 009 013 014 015 016 019 021 022 023 BLDG. 14 BLDG. 162 BLDG. 397 BLDG. 398 BLDG. 400 BLDG. 41 BLDG. 410 BLDG. 497 BLDG. 5 BLDG. 528 BLDG. 608 OU 1 OU 2 OU 2A OU 2B OU 2C	SOUTHWEST DIVISION - BLDG. 1 SW060615-01 & SW060615-02 IMAGED APNT_004	181-03-0188 41031858	BOX 0003 BOX 0004
N00236 / 001986 NONE COMMENTS NONE 00003	03-10-2005 **08-01-2002** NONE	U.S. EPA - SAN FRANCISCO A. COOK NAVFAC - SOUTHWEST DIVISION G. CLARK	REVIEW AND COMMENTS ON THE DRAFT ACTION MEMORANDUM (AM) DISSOLVED-PHASE GROUNDWATER CONTAMINANTS NON-TIME CRITICAL REMOVAL ACTION (TCRA)	ADMIN RECORD	009 016	SOUTHWEST DIVISION - BLDG. 1 SW060615-04 IMAGED APNT_006		

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N00236 / 001985 NONE COMMENTS NONE 00011	03-10-2005 **08-15-2002** NONE	DTSC - BERKELEY M. LIAO NAVFAC - SOUTHWEST DIVISION G. CLARK	REVIEW AND COMMENTS ON THE DRAFT FINAL WORK PLAN (WP) FOR THE CHEMICAL OXIDATION PILOT TESTING FOR REMOVAL ACTIONS (INCLUDES HAZARDOUS SUBSTANCES UNIT COMMENTS DATED 8/7/02)	ADMIN RECORD	009 011 016 021	SOUTHWEST DIVISION - BLDG. 1 SW070511-02 IMAGED APNT_022	

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N00236 / 000412 TC.0190.11423 - MOD. 2 RPT N62474-94-D-7609 00400	08-29-2002 **08-16-2002** 00190	TETRA TECH EM INC. G. FOULK NAVFAC - SOUTHWEST DIVISION	DRAFT SUPPLEMENTAL ENVIRONMENTAL BASELINE SURVEY (SEE AR #1054 - EBS)	ADMIN RECORD INFO REPOSITORY	001 002 003 004 005 006 007 008 009 010 011 012 013 014 015 016 017 019 020 021 022 023 024 025 026 027 028 029 OU 1 OU 2A OU 2B OU 2C OU 3 OU 4A OU 4B	SOUTHWEST DIVISION - BLDG. 1	181-03-0188 BOX 0004 41031858

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					OU 4C OU 5 OU 6			
N00236 / 000426 4284 AND SWDIV SER 06CA.GC/0825 PLAN N62474-98-D-2076 00239	09-25-2002 **08-16-2002** 00088	IT CORPORATION J. MCGUIRE NAVFAC - SOUTHWEST DIVISION	DRAFT WORK PLAN REMOVAL ACTIONS FOR PARCELS 79, 98, 105, 106, AND 107 (INCLUDES SWDIV TRANSMITTAL LETTER BY G. CLARK) [PORTION OF THE MAILING LIST IS CONFIDENTIAL]	ADMIN RECORD INFO REPOSITORY SENSITIVE	008 OU 1 PARCEL 105 PARCEL 106 PARCEL 107 PARCEL 79 PARCEL 98	SOUTHWEST DIVISION - BLDG. 1 SW060601-02 IMAGED APNT_012	181-03-0188 41031858	BOX 0005
N00236 / 000751 NONE MM NONE 00061	06-17-2003 **08-20-2002** NONE	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	20 AUGUST 2002 FINAL BASE REALIGNMENT AND CLOSURE (BRAC) CLEANUP TEAM (BCT) MONTHLY TRACKING MEETING AFTER ACTION REPORT (INCLUDES AGENDA, SIGN-IN SHEET, AND VARIOUS HANDOUTS)	ADMIN RECORD INFO REPOSITORY	009 011 014 015 016 020 021 028 OU 5	SOUTHWEST DIVISION - BLDG. 1 SW060921-01 IMAGED APNT_005	181-03-0188 41031858	BOX 0015
N00236 / 000410 SWDIV SER 06CA.MM/0847 CORRESP NONE 00036	08-28-2002 **08-21-2002** NONE	NAVFAC - SOUTHWEST DIVISION M. MCCLELLAND US EPA, SF & VARIOUS A. COOK & DISTRIBUTION	TRANSMITTAL OF THE FINAL SITE MANAGEMENT PLAN AMENDMENT IN ACCORDANCE WITH THE FEDERAL FACILITIES AGREEMENT FOR ACTIVITY (PORTION OF THE MAILING LIST IS SENSITIVE)	ADMIN RECORD INFO REPOSITORY SENSITIVE	OU 1 OU 2A OU 2B OU 2C OU 3 OU 4A OU 4B OU 4C OU 5 OU 6	SOUTHWEST DIVISION - BLDG. 1 SW061120-01 IMAGED APNT_023	181-03-0188 41031858	BOX 0004

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N00236 / 001987 NONE CORRESP NONE 00010	03-10-2005 **08-21-2002** NONE	U.S. EPA - SAN FRANCISCO A. COOK NAVFAC - SOUTHWEST DIVISION G. CLARK	REVIEW AND COMMENTS ON THE DRAFT FINAL WORK PLAN (WP) FOR THE CHEMICAL OXIDATION PILOT TESTING FOR REMOVAL ACTIONS	ADMIN RECORD	009 011 016 021	SOUTHWEST DIVISION - BLDG. 1 SW061120-02 IMAGED APNT_023	
N00236 / 000411 TC.0386.11669 & SWDIV SER 06CA.GC\0860 RESPONSE N62474-94-D-7609 00009	08-29-2002 **08-23-2002** 00386	NAVFAC - SOUTHWEST DIVISION G. CLARK US EPA - SAN FRANCISCO A. COOK	TRANSMITTAL OF TETRA TECH RESPONSES TO EPA COMMENTS ON THE DRAFT ACTION MEMORANDUM FOR SITES 9 AND 16, DISSOLVED-PHASE GROUNDWATER CONTAMINANTS, NON-TIME CRITICAL REMOVAL ACTION (W/ ENCLOSURES) [INCLUDES SWDIV TRANSMITTAL LETTER BY G. CLARK]	ADMIN RECORD INFO REPOSITORY SENSITIVE	009 016 025	SOUTHWEST DIVISION - BLDG. 1 SW060615-02 IMAGED APNT_004	181-03-0188 BOX 0004 41031858
N00236 / 000435 SWDIV SER 06CA.GC\0029 MEMO NONE 00091	10-31-2002 **10-07-2002** NONE	IN-SITU OXIDATIVE TECHNOLOGIES NAVFAC - SOUTHWEST DIVISION	IN SITU CHEMICAL OXIDATION PILOT TEST TECHNICAL MEMORANDUM AND HEALTH AND SAFETY PLAN FOR IN SITU CHEMICAL OXIDATION PILOT TESTS ADDENDUM (INCLUDES SWDIV TRANSMITTAL LETTER BY G. CLARK) [PORTION OF THE MAILING LIST IS SENSITIVE]	ADMIN RECORD INFO REPOSITORY SENSITIVE	009 011 016 016N 016S 021	SOUTHWEST DIVISION - BLDG. 1 SW070511-01 IMAGED APNT_022	181-03-0188 BOX 0006 41031858

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N00236 / 000436 DS.A033.10075 AND SWDIV SER 06CA.LO/0019 RPT N68711-00-D-0005 00237	10-31-2002 **10-08-2002** DO A033	TETRA TECH EM INC. B. KELLY 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	001 002 003 004 006 007 008 009 013 014 015 016 019 020 022 023 026 027 028 BLDG. 13 OU 1 OU 2A OU 2B OU 2C OU 3 OU 4A OU 4B OU 4C OU 5 OU 6	SOUTHWEST DIVISION - BLDG. 1 SW060601-02 IMAGED APNT_013	181-03-0188 BOX 0006 41031858

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N00236 / 000437 SWDIV SER 06CA.GC/0040 RESPONSE NONE 00032	11-01-2002 **10-11-2002** NONE	NAVFAC - SOUTHWEST DIVISION G. CLARK US EPA - SAN FRANCISCO A. COOK	SWDIV TRANSMITTAL OF RESPONSES TO COMMENTS ON THE DRAFT WORK PLAN CHEMICAL OXIDATION PILOT TESTING REMOVAL ACTIONS AT INSTALLATION RESTORATION SITES 9, 11/21, AND 16 (W/ ENCLOSURE) [PORTION OF THE MAILING LIST IS SENSITIVE]	ADMIN RECORD INFO REPOSITORY SENSITIVE	009 011 016 021 OU 1 OU 2A	SOUTHWEST DIVISION - BLDG. 1 SW061120-01 IMAGED APNT_023	181-03-0188 41031858	BOX 0006
N00236 / 000752 TC.A021.10075 MM N68711-00-D-0005 00028	06-17-2003 **10-15-2002** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	15 OCTOBER 2002 FINAL BASE REALIGNMENT AND CLOSURE (BRAC) CLEANUP TEAM (BCT) MONTHLY TRACKING MEETING AFTER ACTION REPORT (INCLUDES AGENDA, SIGN-IN SHEET, AND VARIOUS HANDOUTS)	ADMIN RECORD INFO REPOSITORY	005 006 007 011 013 014 015 025 OU 1 OU 2A	SOUTHWEST DIVISION - BLDG. 1 SW060907-01 IMAGED APNT_003	181-03-0188 41031858	BOX 0015

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N00236 / 000456 NONE COMMENTS NONE 00007	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	001 002 003 004 006 007 008 009 013 014 015 016 019 020 022 023 027 028 OU 1 OU 2A OU 2B OU 2C OU 3 OU 4A OU 4B OU 4C OU 5 OU 6	SOUTHWEST DIVISION - BLDG. 1 SW060615-02 IMAGED APNT_004	181-03-0188 41031858 BOX 0010
N00236 / 000755 NONE MM NONE 00027	06-17-2003 **12-17-2002** NONE	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	17 DECEMBER 2002 FINAL BASE REALIGNMENT AND CLOSURE (BRAC) CLEANUP TEAM (BCT) MONTHLY TRACKING MEETING AFTER ACTION REPORT (INCLUDES AGENDA, SIGN-IN SHEET, AND VARIOUS HANDOUTS)	ADMIN RECORD INFO REPOSITORY	025 OU 1 OU 2	SOUTHWEST DIVISION - BLDG. 1 SW060907-01 IMAGED APNT_003	181-03-0188 41031858 BOX 0015

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N00236 / 001871 5325 RPT N62474-98-D-2076 00030	09-27-2004 **01-03-2003** 00013	IT CORPORATION NAVFAC - SOUTHWEST DIVISION	DRAFT PILOT TEST REPORT AND PROGRESS UPDATE FUEL REMEDIATION MEASURES REVISION 0	ADMIN RECORD INFO REPOSITORY	007 PARCEL 37	SOUTHWEST DIVISION - BLDG. 110 07/14/06		
N00236 / 000455 5125.0 & SWDIV SER 06CA.GC\0317 RPT N62474-98-D-2076 00269	01-29-2003 **01-06-2003** 00088	IT CORPORATION J. MCGUIRE NAVFAC - SOUTHWEST DIVISION	FINAL WORK PLAN REMOVAL ACTIONS FOR PARCELS 79, 98, 105, 106, AND 107 (INCLUDES PROJECT QUALITY CONTROL PLAN, SAMPLING & ANALYSIS PLAN, AND SITE HEALTH & SAFETY PLAN)	ADMIN RECORD INFO REPOSITORY SENSITIVE	008 OU 1 PARCEL 105 PARCEL 106 PARCEL 107 PARCEL 79 PARCEL 98	SOUTHWEST DIVISION - BLDG. 1 SW060601-03 IMAGED APNT_014	181-03-0188 41031858	BOX 0010
N00236 / 000470 SWDIV SER 06CA.AD/0357 RPT NONE 00031	02-06-2003 **01-16-2003** NONE	NAVFAC - SOUTHWEST DIVISION A. DICK U.S. EPA A. COOK	TRANSMITTAL OF SITE MANAGEMENT PLAN UPDATE (W/ ENCLOSURE)	ADMIN RECORD INFO REPOSITORY	017 020 024 025 029 OU 1 OU 2A OU 2B OU 2C OU 3 OU 4A OU 4B OU 4C OU 5 OU 6	SOUTHWEST DIVISION - BLDG. 1 SW060615-02 IMAGED APNT_004	181-03-0188 41031858	BOX 0010

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N00236 / 000995 TC.A021.10125 MM N68711-00-D-0005 00047	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	001 005 007 009 011 013 014 015 016 017 020 021 027 028 029 OU 5	SOUTHWEST DIVISION - BLDG. 1 SW061120-02 IMAGED APNT_023	
N00236 / 000474 5425 & SWDIV SER 06CA.GC/0409 RPT N62474-98-D-2076 00751	02-19-2003 **02-03-2003** 00059	IT CORPORATION J. SCIACCA NAVFAC - SOUTHWEST DIVISION	FINAL WORK PLAN CHEMICAL OXIDATION PILOT TESTING FOR REMOVAL ACTIONS AT INSTALLATION RESTORATION SITES 9, 11/21, AND 16, REVISION 0 [INCLUDES SWDIV TRANSMITTAL LETTER BY G. CLARK] {PORTION OF THE MAILING LIST IS SENSITIVE}	ADMIN RECORD INFO REPOSITORY SENSITIVE	009 011 016 021	SOUTHWEST DIVISION - BLDG. 1 SW061120-01 IMAGED APNT_023	181-03-0188 41031858 BOX 0010
N00236 / 000999 TC.A021.10125 MM N68711-00-D-0005 00023	08-20-2003 **02-18-2003** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	FINAL BASE REALIGNMENT AND CLOSURE (BRAC) CLEANUP TEAM (BCT) MONTHLY TRACKING MEETING MINUTES AFTER ACTION REPORT FOR THE 18 FEBRUARY 2003 - INCLUDES AGENDA, SIGN-IN SHEET, AND HANDOUT MATERIALS	ADMIN RECORD INFO REPOSITORY	009 011 014 015 016 021 027 028 OU 1 OU 2A OU 2B	SOUTHWEST DIVISION - BLDG. 1 SW05072801 IMAGED APNT_001	

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N00236 / 001810 5642 RPT N62474-98-D-2076 00045	04-22-2004 **03-14-2003** 00078	IT CORPORATION R. CONDIT NAVFAC - SOUTHWEST DIVISION	DRAFT BASEWIDE GROUNDWATER MONITORING PROGRAM, GROUNDWATER MONITORING REPORT FALL 2002	ADMIN RECORD INFO REPOSITORY	007	SOUTHWEST DIVISION - BLDG. 1 SW060921-01 IMAGED APNT_005	
N00236 / 001031 TC.A021.10126 MM N68711-00-D-0005 00026	08-20-2003 **04-01-2003** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	FINAL RESTORATION ADVISORY BOARD (RAB) MEETING MINUTES SUMMARY FOR THE 01 APRIL 2003 MEETING - INCLUDES AGENDA, SIGN-IN SHEETS, AND HANDOUT MATERIALS	ADMIN RECORD INFO REPOSITORY	002 004 007	SOUTHWEST DIVISION - BLDG. 1 SW05072801 IMAGED APNT_001	
N00236 / 001000 TC.A021.10125 MM N68711-00-D-0005 00033	08-20-2003 **04-15-2003** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION	FINAL BASE REALIGNMENT AND CLOSURE (BRAC) CLEANUP TEAM (BCT) MONTHLY TRACKING MEETING MINUTES AFTER ACTION REPORT FOR THE 15 APRIL 2003 - INCLUDES AGENDA, SIGN-IN SHEET, AND HANDOUT MATERIALS	ADMIN RECORD INFO REPOSITORY	004 005 014 015 OU 1 OU 2A OU 2B OU 5	SOUTHWEST DIVISION - BLDG. 1 SW05072801 IMAGED APNT_001	

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N00236 / 000502 CTO-0059/0010 & SWDIV 06CA.GC/0840 RPT N68711-95-D-7526 00285	06-03-2003 **05-19-2003** 00059	BECHTEL ENVIRONMENTAL, INC. E. JOHANSEN NAVFAC - SOUTHWEST DIVISION	DRAFT WORK PLAN FOR ASSESSMENT OF POLYNUCLEAR AROMATIC HYDROCARBONS (PAH) CONTAMINATIONAT SELECTED CERCLA SITES AND EBS PARCELS [INLCUDES SWDIV TRANSMITTAL LETTER BY G. CLARK] {PORTIONS OF FIGURES AND ATTACHMENT C ARE CONFIDENTIAL}	ADMIN RECORD INFO REPOSITORY SENSITIVE	003 004 005 006 007 008 009 010 011 012 013 016 019 021 022 023 030 031 032 PARCEL 205 PARCEL 28 PARCEL 51	SOUTHWEST DIVISION - BLDG. 1 SW060615-03 IMAGED APNT_004	181-03-0188 41031858	BOX 0012
N00236 / 000767 FILE NO. 2119.9284 COMMENTS NONE 00003	07-29-2003 **06-26-2003** NONE	CRWQCB - SAN FRANCISCO J. HUANG NAVFAC - SOUTHWEST DIVISION L. OCAMPO	COMMENTS ON THE DRAFT ADDENDUM TO THE FIELD SAMPLING AND QUALITY ASSURANCE PROJECT PLAN	ADMIN RECORD INFO REPOSITORY	004 006	SOUTHWEST DIVISION - BLDG. 1 SW070511-01 IMAGED APNT_022	181-03-0188 41031858	BOX 0016

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N00236 / 000772 NONE PUB NOTICE NONE 00016	08-04-2003 **07-01-2003** NONE	NAVFAC - SOUTHWEST DIVISION M. MCCLELLAND PUBLIC INTEREST	JULY 2003 ALAMEDA POINT FOCUS ENVIRONMENTAL NEWSLETTER	ADMIN RECORD	001 002 003 004 005 006 007 008 009 010 011 012 013 014 015 016 017 018 019 020 021 022 023 024 025 026 027 028 029 030 031 032	SOUTHWEST DIVISION - BLDG. 1 SW070112-01 IMAGED APNT_008	181-03-0188 BOX 0016 41031858

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N00236 / 000763 6321 RPT N62474-98-D-2076 00281	07-22-2003 **07-04-2003** 00107	SHAW ENVIRONMENTAL, INC. NAVFAC - SOUTHWEST DIVISION	FIELD SUMMARY REPORT FOR THE IN-SITU CHEMICAL OXIDATION PILOT TESTS (CD COPY OF APPENDIX A IS ENCLOSED)	ADMIN RECORD INFO REPOSITORY	009 011 016 021	SOUTHWEST DIVISION - BLDG. 1 SW061227-01 IMAGED APNT_022	181-03-0188 41031858	BOX 0016
N00236 / 000762 DS.A021.10799 & SWDIV SER 06CA.GC/1037 RPT N68711-00-D-0005 00200	07-22-2003 **07-15-2003** DO 0021	TETRA TECH EM INC. NAVFAC - SOUTHWEST	DRAFT SUPPLEMENTAL SAMPLING AND ANALYSIS PLAN (INCLUDES SWDIV TRANSMITTAL LETTER BY G. CLARK) {PORTION OF THE MAILING LIST IS SENSITIVE}	ADMIN RECORD INFO REPOSITORY	007 AREA 37 BLDG. 530	CHOICE IMAGING SOLUTIONS SW070817-02	181-03-0188 41031858	BOX 0015
N00236 / 001797 TC.B010.10186 MM N68711-03-D-5104 00032	04-22-2004 **07-15-2003** 00010	SULTECH NAVFAC - SOUTHWEST DIVISION	15 JULY 2003 FINAL BASE REALIGNMENT AND CLOSURE (BRAC) CLEANUP TEAM (BCT) MONTHLY TRACKING MEETING MINUTES AFTER ACTION REPORT (INCLUDES AGENDA, SIGN-IN SHEETS, AND VARIOUS HANDOUTS) [PORTION OF THE SIGN-IN SHEET IS SENSITIVE]	ADMIN RECORD INFO REPOSITORY SENSITIVE	004 007 025	SOUTHWEST DIVISION - BLDG. 1 SW060814-01 IMAGED APNT_014		

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N00236 / 001988 NONE CORRESP NONE 00006	03-10-2005 **07-15-2003** NONE	DTSC - BERKELEY M. LIAO NAVFAC - SOUTHWEST DIVISION G. CLARK	REVIEW AND COMMENTS ON THE DRAFT WORK PLAN (WP) FOR THE ASSESSMENT OF POLYCYCLIC AROMATIC HYDROCARBON (PAH) CONTAMINATION AT SELECTED CERCLA SITES AND ENVIRONMENTAL BASELINE STUDY (EBS) PARCELS (INCLUDES COMMENTS BY HERD DATED 08 JULY 2003)	ADMIN RECORD	003 004 005 006 007 008 009 010 011 012 013 014 015 016 019 021 022 023 030 031 032 PARCEL 205 PARCEL 28 PARCEL 51	SOUTHWEST DIVISION - BLDG. 1 SW060615-04 IMAGED APNT_006	

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N00236 / 001803 TC.B010.10187 MM N68711-03-D-5104 00034	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	001 002 003 005 006 007 008 009 011 014 016 021 025 026 027 BLDG. 195	SOUTHWEST DIVISION - BLDG. 1 SW060814-01 IMAGED APNT_014	
N00236 / 000889 6482 & SWDIV SER 06CA.GC/1147 PLAN N62474-98-D-2076 00292	08-08-2003 **08-08-2003** 00107	SHAW ENVIRONMENTAL, INC. D. SHAFER NAVFAC - SOUTHWEST DIVISION	DRAFT WORK PLAN FOR THE FULL-SCALE IN-SITU CHEMICAL OXIDATION TESTING, REVISION 0 (INCLUDES RESPONSE TO COMMENTS ON THE INTERNAL DRAFT SAMPLING AND ANALYSIS PLAN, FULL SCALE IN-SITU CHEMICAL OXIDATION TESTING AND SWDIV TRANSMITTAL LETTER BY G. CLARK)	ADMIN RECORD INFO REPOSITORY SENSITIVE	009 016	SOUTHWEST DIVISION - BLDG. 1 SW060223-03 IMAGED APNT_012	
N00236 / 001723 NONE COMMENTS NONE 00006	10-30-2003 **08-18-2003** NONE	DTSC - BERKELEY M. LIAO NAVFAC - SOUTHWEST DIVISION G. CLARK	COMMENTS ON THE DRAFT SUPPLEMENTAL SAMPLING AND ANALYSIS PLAN	ADMIN RECORD INFO REPOSITORY	007	SOUTHWEST DIVISION - BLDG. 1 SW070112-01 IMAGED APNT_008	
N00236 / 001799 TC.B010.10186 MM N68711-03-D-5104 00025	04-22-2004 **09-16-2003** 00010	SULTECH NAVFAC - SOUTHWEST DIVISION	16 SEPTEMBER 2003 FINAL BASE REALIGNMENT AND CLOSURE (BRAC) CLEANUP TEAM (BCT) MONTHLY TRACKING MEETING AFTER ACTION REPORT (INCLUDES AGENDA, SIGN-IN SHEETS AND VARIOUS HANDOUTS) [PORTION OF THE SIGN-IN SHEET IS SENSITIVE]	ADMIN RECORD INFO REPOSITORY SENSITIVE	007 014 015 022 023 035	SOUTHWEST DIVISION - BLDG. 1 SW060814-01 IMAGED APNT_014	

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N00236 / 001715 DS.A021.10800 PLAN N68711-00-D-0005 00146	10-15-2003 **10-07-2003** DO 021	TETRA TECH EM INC. C. HUNTER NAVFAC - SOUTHWEST DIVISION	FINAL SAMPLING AND ANALYSIS PLAN (FIELD SAMPLING PLAN/QUALITY ASSURANCE PROJECT PLAN), SITE 07 SUPPLEMENTAL SAMPLING AND ANALYSIS PLAN	ADMIN RECORD INFO REPOSITORY	007	SOUTHWEST DIVISION - BLDG. 1 SW061227-01 IMAGED APNT_022	
N00236 / 001929 NONE CORRESP NONE 00012	01-10-2005 **10-08-2003** NONE	VARIOUS AGENCIES NAVFAC - SOUTHWEST DIVISION G. CLARK	COMPILATION OF COMMENTS ON THE DRAFT WORKPLAN FOR THE FULL-SCALE IN-SITU CHEMICAL OXIDATION	ADMIN RECORD INFO REPOSITORY	009 016	SOUTHWEST DIVISION - BLDG. 1 SW061211-03 IMAGED APNT_019	
N00236 / 001930 NONE COMMENTS NONE 00005	01-10-2005 **10-31-2003** NONE	DTSC - BERKELEY M. LIAO NAVFAC - SOUTHWEST DIVISION G. CLARK	COMMENTS ON THE DRAFT WORKPLAN, FULL-SCALE IN-SITU CHEMICAL OXIDATION	ADMIN RECORD INFO REPOSITORY	009 016	SOUTHWEST DIVISION - BLDG. 1 SW061120-02 IMAGED APNT_023	

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N00236 / 001757 SWDIV SER 06CA.AD/1416 RPT NONE 00033	01-15-2004 **11-05-2003** NONE	NAVFAC - SOUTHWEST DIVISION M. MCCLELLAND US EPA - SAN FRANCISCO A. COOK	SITE MANAGEMENT PLAN UPDATE - [INCLUDES SWDIV TRANSMITTAL LETTER BY M. MCCLELLAND]	ADMIN RECORD INFO REPOSITORY	001 002 003 004 005 006 007 008 009 011 012 013 014 015 016 018 019 020 021 022 023 024 025 026 027 OU 1 OU 2A OU 2B OU 2C OU 3 OU 4A OU 4B OU 4C OU 5 OU 6	SOUTHWEST DIVISION - BLDG. 1 SW060814-01 IMAGED APNT_014	

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N00236 / 001731 6566 RPT N62474-98-D-2076 00040	11-19-2003 **11-11-2003** 00103	SHAW ENVIRONMENTAL, INC. NAVFAC - SOUTHWEST DIVISION	GROUNDWATER MONITORING REPORT FOR INSTALLATION RESTORATION SITE 6, SUMMER 2002 TO SPRING 2003 (DOCUMENT WAS ISSUED WITH SECTION 6 ONLY AND REPLACEMENT PAGES) [***SEE COMMENTS]	ADMIN RECORD INFO REPOSITORY SENSITIVE	006	SOUTHWEST DIVISION - BLDG. 110	
N00236 / 001732 6567 RPT N62474-98-D-2076 00040	11-19-2003 **11-11-2003** 00103	SHAW ENVIRONMENTAL, INC. NAVFAC - SOUTHWEST DIVISION	GROUNDWATER MONITORING REPORT FOR INSTALLATION RESTORATION SITE 7, SUMMER 2002 TO SPRING 2003 (DOCUMENT WAS ISSUED WITH SECTION 6 ONLY AND REPLACEMENT PAGES) [***SEE COMMENTS]	ADMIN RECORD INFO REPOSITORY SENSITIVE	007	SOUTHWEST DIVISION - BLDG. 110	
N00236 / 001733 6550 RPT N62474-98-D-2076 00040	11-19-2003 **11-11-2003** 00103	SHAW ENVIRONMENTAL, INC. NAVFAC - SOUTHWEST DIVISION	GROUNDWATER MONITORING REPORT FOR INSTALLATION RESTORATION SITE 8, SUMMER 2002 TO SPRING 2003 (DOCUMENT WAS ISSUED WITH SECTIONS 6 ONLY AND REPLACEMENT PAGES) [***SEE COMMENTS]	ADMIN RECORD INFO REPOSITORY SENSITIVE	008	SOUTHWEST DIVISION - BLDG. 110	
N00236 / 001736 6560 RPT N62474-98-D-2076 00100	11-19-2003 **11-11-2003** 00103	SHAW ENVIRONMENTAL, INC. NAVFAC - SOUTHWEST DIVISION	GROUNDWATER MONITORING REPORT FOR INSTALLATION RESTORATION SITE 16, SUMMER 2002 TO SPRING 2003 (DOCUMENT WAS ISSUED WITH SECTION 6 ONLY AND REPLACEMENT PAGES) [***SEE COMMENTS]	ADMIN RECORD INFO REPOSITORY SENSITIVE	016	SOUTHWEST DIVISION - BLDG. 110	

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N00236 / 001880 SWDIV SER. 06CA.CD/1492 MISC NONE 00002	10-18-2004 **11-24-2003** NONE	NAVFAC - SOUTHWEST DIVISION T. MACCHIARELLA EPA - SAN FRANCISCO M. RIPPERDA	OFFICIAL TRANSMISSION LETTER OF THE WINTER 2002 QUARTERLY GROUNDWATER MONITORING REPORTS	ADMIN RECORD INFO REPOSITORY	001 002 003 005 006 007 008 009 014 016 025 GROUP 027	CHOICE IMAGING SOLUTIONS SW070829-02	
N00236 / 001749 7001 PLAN N62474-98-D-2076 00344	01-14-2004 **12-22-2003** 00107	SHAW ENVIRONMENTAL, INC. D. BRANSFORD NAVFAC - SOUTHWEST DIVISION	FINAL WORK PLAN, FULL-SCALE IN-SITU CHEMICAL OXIDATION TESTING, REVISION 0 (INCLUDES SAMPLING AND ANALYSIS PLAN, SITE HEALTH AND SAFETY PLAN, QUALITY CONTROL PLAN, ENVIRONMENTAL PROTECTION PLAN, IDWMP, AND RESPONSE TO COMMENTS ON THE DRAFT VERSION)	ADMIN RECORD INFO REPOSITORY SENSITIVE	009 016	SOUTHWEST DIVISION - BLDG. 1 SW061120-02 IMAGED APNT_023	
N00236 / 001765 SWDIV SER 06CA.GC\0164 RPT N68711-00-D-0005 02999	02-25-2004 **02-13-2004** 00031	TETRA TECH EM INC. C. HUNTER NAVFAC - SOUTHWEST DIVISION G. CLARK	DRAFT REMEDIAL INVESTIGATION REPORT (VOLUMES 1-3 OF 3) [MISSING PAGE 2 OF BORING LOG CPTS8-03 AND BORING LOG S16-DGS-SG03 IN APPENDX A; PAGE 13 OF TABLE D-96 AND TABLE D-101 IN APPENDIX D; MISSING PAGE 4 OF TABLE 4.2 IN APPENDIX G] {***SEE COMMENTS}	ADMIN RECORD INFO REPOSITORY SENSITIVE	006 007 008 016 OU 1	SOUTHWEST DIVISION - BLDG. 1 SW061027-02 IMAGED APNT_015	
N00236 / 001775 6699 & SWDIV SER 06CA.CG/0222 RPT N62474-98-D-2076 00030	03-02-2004 **02-27-2004** 00103	SHAW ENVIRONMENTAL, INC. NAVFAC - SOUTHWEST DIVISION	GROUNDWATER MONITORING REPORT FOR INSTALLATION RESTORATION SITE 6, SUMMER 2002 TO SPRING 2003 (DOCUMENT WAS ISSUED WITH ORIGINAL SECTIONS 7 & 8 ONLY AND REPLACEMENT PAGES) [***SEE COMMENTS]	ADMIN RECORD INFO REPOSITORY	006	SOUTHWEST DIVISION - BLDG. 110	

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N00236 / 001776 6700 & SWDIV SER 06CA.CG/0222 RPT N62474-98-D-2076 00040	03-02-2004 **02-27-2004** 00103	SHAW ENVIRONMENTAL, INC. NAVFAC - SOUTHWEST DIVISION	GROUNDWATER MONITORING REPORT FOR INSTALLATION RESTORATION (IR) SITE 7, SUMMER 2002 TO SPRING 2003 (DOCUMENT WAS ISSUED WITH ORIGINAL SECTIONS 7 & 8 ONLY AND REPLACEMENT PAGES) [***SEE COMMENTS]	ADMIN RECORD INFO REPOSITORY	007	SOUTHWEST DIVISION - BLDG. 110	
N00236 / 001777 6701 & SWDIV SER 06CA.CG/0222 RPT N62474-98-D-2076 00040	03-02-2004 **02-27-2004** 00103	SHAW ENVIRONMENTAL, INC. NAVFAC - SOUTHWEST DIVISION	GROUNDWATER MONITORING REPORT FOR INSTALLATION RESTORATION SITE 8, SUMMER 2002 TO SPRING 2003 (DOCUMENT WAS ISSUED WITH ORIGINAL SECTIONS 7 & 8 ONLY AND REPLACEMENT PAGES) [***SEE COMMENTS]	ADMIN RECORD INFO REPOSITORY	008	SOUTHWEST DIVISION - BLDG. 110	
N00236 / 001780 6704 & SWDIV SER 06CA.CG/0222 RPT N62474-98-D-2076 00050	03-02-2004 **02-27-2004** 00103	SHAW ENVIRONMENTAL, INC. NAVFAC - SOUTHWEST DIVISION	GROUNDWATER MONITORING REPORT FOR INSTALLATION RESTORATION SITE 16, SUMMER 2002 TO SPRING 2003 (DOCUMENT WAS ISSUED WITH ORIGINAL SECTIONS 7 & 8 ONLY AND REPLACEMENT PAGES) [***SEE COMMENTS]	ADMIN RECORD INFO REPOSITORY	016	SOUTHWEST DIVISION - BLDG. 110	
N00236 / 001841 NONE PUB NOTICE NONE 00004	06-15-2004 **03-01-2004** NONE	PUBLIC INTEREST	NEWSLETTER REGARDING CLEANUP OPTIONS BEING EVALUATED	ADMIN RECORD IR-READY	005 009 014 015 016 025 026	SOUTHWEST DIVISION - BLDG. 1 SW060921-01 IMAGED APNT_005	

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N00236 / 001812 CTO-0059/0127 OR SWDIV SER 06CA.DN/0379 RPT N68711-95-D-7526 00127	04-22-2004 **03-30-2004** 00059	BECHTEL ENVIRONMENTAL, INC. E. JOHANSEN NAVFAC - SOUTHWEST DIVISION	FIELD ACTIVITY REPORT ASSESSMENT OF POLYNUCLEAR AROMATIC HYDROCARBONS (PAH) CONTAMINATION AT SELECTED CERCLA SITES AND EBS PARCELS (CD COPY OF APPENDICES B THROUGH D AND ATTACHMENT E-1 IS ENCLSOED) [INCLUDES SWDIV TRANSMITTAL LETTER BY T. MACCHIARELLA]	ADMIN RECORD INFO REPOSITORY SENSITIVE	003 004 005 006 007 008 009 010 011 012 013 016 019 021 022 023 030 031 032 PARCEL 205 PARCEL 28 PARCEL 51	SOUTHWEST DIVISION - BLDG. 1 SW060615-04 IMAGED APNT_006	
N00236 / 001847 NONE MISC NONE 00020	07-19-2004 **04-08-2004** NONE	U.S. EPA - SAN FRANCISCO A. COOK NAVFAC - SOUTHWEST DIVISION T. MACCHIARELLA	COMMENTS ON THE DRAFT REMEDIAL INVESTIGATION REPORT	ADMIN RECORD INFO REPOSITORY	006 007 008 016 OU 1	SOUTHWEST DIVISION - BLDG. 1 SW060907-02 IMAGED APNT_003	
N00236 / 001820 8832 AND 6982 RPT N62474-98-D-2076 00171	04-29-2004 **04-16-2004** 00103	SHAW ENVIRONMENTAL, INC. J. MCGUIRE BRAC PMO WEST	GROUNDWATER MONITORING REPORT FOR SUMMER 2003 TO SPRING 2004 (INCLUDES REPLACEMENT COVER, TITLE AND SIGNATURE PAGES THAT REFLECT SUMMER 2003 TO SPRING 2004) [PORTION OF MAILING LIST IS SENSITIVE; CD COPY OF APPENDICES A THROUGH D ENCLOSED]	ADMIN RECORD INFO REPOSITORY SENSITIVE	016	SOUTHWEST DIVISION - BLDG. 1 SW060814-01 IMAGED APNT_014	

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N00236 / 001848 FILE NO. 2199.9285 (JCH) COMMENTS NONE 00004	07-19-2004 **04-20-2004** NONE	CRWQCB - SAN FRANCISCO J. HUANG NAVFAC - SOUTHWEST DIVISION T. MACCHIARELLA	COMMENTS ON THE DRAFT REMEDIAL INVESTIGATION REPORT {PORTION OF THE MAILING LIST IS CONFIDENTIAL}	ADMIN RECORD INFO REPOSITORY SENSITIVE	006 007 008 016 OU 1	SOUTHWEST DIVISION - BLDG. 1 SW060907-02 IMAGED APNT_003	
N00236 / 001830 7788.0, 7789 & SWDIV SER 06CA.CD/0507 MISC N62474-98-D-2076 00007	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	001 002 003 005 006 007 008 009 014 016 025 GROUP	SOUTHWEST DIVISION - BLDG. 1 SW060814-01 IMAGED APNT_014	
N00236 / 002025 NONE COMMENTS NONE 00006	05-03-2005 **05-14-2004** NONE	ARC ECOLOGY L. LOIZOS NAVFAC - SOUTHWEST DIVISION G. CLARK	COMMENTS ON THE DRAFT REMEDIAL INVESTIGATION (RI) REPORT SUBMITTED ON BEHALF OF COMMUNITY MEMBERS OF THE RESTORATION ADVISORY BOARD (RAB) [PORTION OF DOCUMENT (PERSONAL E-MAIL ADDRESS) IS SENSITIVE]	ADMIN RECORD INFO REPOSITORY SENSITIVE	006 007 008 016 OU 1	SOUTHWEST DIVISION - BLDG. 1 SW060907-04 IMAGED APNT_003	
N00236 / 001837 NONE COMMENTS NONE 00035	06-08-2004 **05-28-2004** NONE	DTSC - BERKELEY M. LIAO NAVFAC - SOUTHWEST DIVISION T. MACCHIARELLA	COMMENTS ON THE DRAFT REMEDIAL INVESTIGATION REPORT (INCLUDES COMMENTS BY GSU DATED 02 APRIL 2004) [PORTION OF THE MAILING LIST IS SENSITIVE]	ADMIN RECORD INFO REPOSITORY SENSITIVE	006 007 008 016 OU 1	SOUTHWEST DIVISION - BLDG. 1 SW060907-02 IMAGED APNT_003	
N00236 / 002066 SWDIV SER 06CA.GC/0750 CORRESP NONE 00001	07-27-2005 **07-19-2004** NONE	NAVFAC - SOUTHWEST DIVISION T. MACCHIARELLA U.S. EPA - SAN FRANCISCO A. COOK	REQUEST FOR A MILESTONE EXTENSION ON THE DRAFT FINAL OPERABLE UNIT (OU) REMEDIAL INVESTIGATION (RI) REPORT	ADMIN RECORD INFO REPOSITORY	OU 1	SOUTHWEST DIVISION - BLDG. 1 SW061005-03 IMAGED APNT_019	

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N00236 / 001894 TC.B010.10255 MM N68711-03-D-5104 00068	11-22-2004 **08-05-2004** 00010	SULTECH NAVFAC - SOUTHWEST DIVISION	05 AUGUST 2004 DRAFT RESTORATION ADVISORY BOARD (RAB) MEETING SUMMARY (INCLUDES AGENDA AND VARIOUS HANDOUTS) [CD COPY ENCLOSED] {PORTION OF THE MAILING LIST FOR ATTACHMENT B-1 IS SENSITIVE}	ADMIN RECORD INFO REPOSITORY	025 030 BLDG. 1 OU 1 OU 2A OU 2B	SOUTHWEST DIVISION - BLDG. 1 SW060907-02 IMAGED APNT_003	
N00236 / 001892 TC.B010.10261 MM N68711-03-D-5104 00026	11-22-2004 **08-17-2004** 00010	SULTECH NAVFAC - SOUTHWEST DIVISION	17 AUGUST 2004 FINAL BASE REALIGNMENT AND CLOSURE (BRAC) CLEANUP TEAM (BCT) MONTHLY TRACKING MEETING AFTER ACTION REPORT (INCLUDES AGENDA, 07/20/04 MEETING MINUTES AND VARIOUS HANDOUTS) [CD COPY ENCLOSED]	ADMIN RECORD INFO REPOSITORY	026 030 BLDG. 20 BLDG. 23 OU 1 OU 2A OU 2B	SOUTHWEST DIVISION - BLDG. 1 SW060907-02 IMAGED APNT_003	
N00236 / 001876 SWDIV SER. 06CA.GL/0942 RPT NONE 00043	09-27-2004 **09-14-2004** NONE	NAVFAC - SOUTHWEST DIVISION T. MACCHIARELLA USEPA - SAN FRANCISCO	FINAL SITE MANAGEMENT PLAN FOR FISCAL YEAR 2005 [INCLUDES SWDIV TRANSMITTAL LETTER BY T. MACCHIARELLA] {PORTION OF MAILING LIST IS SENSITIVE}	ADMIN RECORD INFO REPOSITORY SENSITIVE	OU 1 OU 2A OU 2C OU 3 OU 4A OU 4B OU 4C OU 5 OU 6	SOUTHWEST DIVISION - BLDG. 1 SW060907-02 IMAGED APNT_003	
N00236 / 001893 TC.B010.10262 MM N68711-03-D-5104 00052	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	001 007 015 022 032 OU 1 OU 2 OU 2A OU 2B	SOUTHWEST DIVISION - BLDG. 1 SW060907-02 IMAGED APNT_003	

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N00236 / 001913 TC.B010.10257 MM N68711-03-D-5104 00035	01-03-2005 **10-07-2004** 00010	SULTECH NAVFAC - SOUTHWEST DIVISION	07 OCTOBER 2004 FINAL RESTORTION ADVISORY BOARD (RAB) MEETING SUMMARY (INCLUDES AGENDA, 21 SEPTEMBER 2004 MONTHLY BCT MEETING MINUTES AND VARIOUS HANDOUTS)	ADMIN RECORD INFO REPOSITORY	032 OU 1 OU 2A OU 2B	SOUTHWEST DIVISION - BLDG. 1 SW060907-02 IMAGED APNT_003	
N00236 / 001882 DS.A031.10624/1062 5 & SER 06CA.GC/1022 RPT N68711-00-D-0005 03569	10-20-2004 **10-18-2004** DO 031	TETRA TECH EM INC. C. HUNTER BRAC PMO WEST G. CLARK	FINAL OPERABLE UNIT 1 REMEDIAL INVESTIGATION REPORT, VOLUMES I - III OF III (VOLUME I - TEXT, VOLUME II - APPX. A-F & I-J, AND VOLUME III - APPX. G-H) [INCLUDES REPLACEMENT PAGES CONVERTING DRAFT FINAL (DATED 10/1/2004) TO FINAL - SEE COMMENTS]	ADMIN RECORD INFO REPOSITORY SENSITIVE	006 007 008 016 OU 1	SOUTHWEST DIVISION - BLDG. 1 SW061027-03 IMAGED APNT_016	
N00236 / 001978 NONE COMMENTS NONE 00006	03-09-2005 **10-18-2004** NONE	DTSC - BERKELEY M. LIAO NAVFAC - SOUTHWEST DIVISION T. MACCHIARELLA	COMMENTS ON THE DRAFT REMEDIAL INVESTIGATION (RI) REPORT	ADMIN RECORD INFO REPOSITORY	006 007 008 016 OU 1	CHOICE IMAGING SOLUTIONS SW070817-03	
N00236 / 002023 BRAC SER BPMOW.GC/0057 CORRESP NONE 00001	05-03-2005 **10-27-2004** NONE	BRAC PMO WEST R. PLASEIED U.S. EPA - SAN FRANCISCO A. COOK	REQUEST FOR AN EXTENSION ON THE DRAFT FEASIBILITY STUDY (FS) REPORT	ADMIN RECORD INFO REPOSITORY	OU 1	SOUTHWEST DIVISION - BLDG. 1 SW061005-03 IMAGED APNT_016	
N00236 / 001902 8554 & SWDIV BPMOW.CXD/0076 CORRESP N62474-98-D-2076 00012	12-06-2004 **11-10-2004** NONE	NAVFAC - SOUTHWEST DIVISION R. PLASEIED U.S. EPA - SAN FRANCISCO A. COOK	TRANSMITTAL OF GROUNDWATER MONITORING REPORTS FOR SUMMER 2003 TO SPRING 2004 [INCLUDES SUMMARY OF SIGNIFICANT CHANGES TO THE ANNUAL 2003 TO 2004 ALAMEDA BASEWIDE GROUNDWATER MONITORING PROGRAM AND SWDIV TRANSMITTAL LETTER BY R. PLASEIED]	ADMIN RECORD INFO REPOSITORY	001 002 003 005 006 007 008 009 027 032 OU 2C	SOUTHWEST DIVISION - BLDG. 110 06/21/06	

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N00236 / 001901 SWDIV SER BPMOW.CXD/0129 MISC NONE 00050	12-02-2004 **11-22-2004** NONE	NAVFAC - SOUTHWEST DIVISION R. PLASEIED EPA - SAN FRANCISCO	TRANSMITTAL OF RESPONSE TO REGULATOR COMMENTS FOR THE SPRING 2003 ALAMEDA POINT QUARTERLY GROUNDWATER REPORTS	ADMIN RECORD INFO REPOSITORY	001 002 005 007 008 025	SOUTHWEST DIVISION - BLDG. 110 06/21/06	
N00236 / 001907 DS.A031.10627 & SWDIV SER 06CA.GC\0155 RPT N68711-00-D-0005 00519	12-10-2004 **12-01-2004** DO 0031	TETRA TECH EM INC. C. HUNTER NAVFAC - SOUTHWEST DIVISION	DRAFT FEASIBILITY STUDY REPORT FOR OPERABLE UNIT 1 (OU 1) [INCLUDES SWDIV TRANSMITTAL LETTER BY R. PLASEIED] {PORTION OF MAILING LIST IS CONFIDENTIAL} PAGES 6-12 AND 6-13 REPLACED	ADMIN RECORD INFO REPOSITORY SENSITIVE	006 007 008 016 OU 1	SOUTHWEST DIVISION - BLDG. 1 SW061027-04 IMAGED APNT_016	
N00236 / 001815 8827 AND 6977 RPT N62474-98-D-2076 00149	04-29-2004 **12-17-2004** 00103	SHAW ENVIRONMENTAL, INC. J. MCGUIRE BRAC PMO WEST	GROUNDWATER MONITORING REPORT FOR SUMMER 2003 TO SPRING 2004 (INCLUDES REPLACEMENT COVER, TITLE AND SIGNATURE PAGES THAT REFLECT SUMMER 2003 TO SPRING 2004) [PORTION OF MAILING LIST IS SENSITIVE; CD COPY OF APPENDICES A THROUGH D ENCLOSED]	ADMIN RECORD INFO REPOSITORY SENSITIVE	006	SOUTHWEST DIVISION - BLDG. 1 SW060814-01 IMAGED APNT_014	
N00236 / 001816 8828 AND 6978 RPT N62474-98-D-2076 00221	04-29-2004 **12-17-2004** 00103	SHAW ENVIRONMENTAL, INC. J. MCGUIRE BRAC - SAN DIEGO	GROUNDWATER MONITORING REPORT FOR SUMMER 2003 TO SPRING 2004 (INCLUDES REPLACEMENT COVER, TITLE AND SIGNATURE PAGES THAT REFLECT SUMMER 2003 TO SPRING 2004) [PORTION OF MAILING LIST IS SENSITIVE; CD COPY OF APPENDICES A THROUGH D ENCLOSED]	ADMIN RECORD INFO REPOSITORY SENSITIVE	007	SOUTHWEST DIVISION - BLDG. 1 SW060814-01 IMAGED APNT_014	
N00236 / 001817 8829 AND 6979 RPT N62474-98-D-2076 00190	04-29-2004 **12-17-2004** 00103	SHAW ENVIRONMENTAL, INC. J. MCGUIRE BRAC PMO WEST	GROUNDWATER MONITORING REPORT FOR 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 D ENCLOSED]	ADMIN RECORD INFO REPOSITORY SENSITIVE	008	CHOICE IMAGING SOLUTIONS SW060825-02 IMAGED APNT_017	

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N00236 / 002007 TC.B010.10265 MM N68711-03-D-5104 00017	04-12-2005 **12-21-2004** 00010	SULTECH BRAC PMO WEST	21 DECEMBER 2004 FINAL BASE REALIGNMENT AND CLOSURE (BRAC) AND CLEANUP TEAM (BCT) MONTLHY TRACKING MEETING AFTER ACTION REPORT (INCLUDES AGENDA AND VARIOUS HANDOUT MATERIALS)	ADMIN RECORD INFO REPOSITORY	006 007 008 016 OU 1	SOUTHWEST DIVISION - BLDG. 1 SW060921-02 IMAGED APNT_005		
N00236 / 000778 8840 & BRAC SER BPMOW.CD/0238 RPT N62474-98-D-2076 00100	08-04-2003 **12-22-2004** 0078 & 0103	SHAW ENVIRONMENTAL, INC. J. MCGUIRE BRAC PMO WEST	GROUNDWATER MONITORING REPORT FOR INSTALLATION RESTORATION SITE 6, 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	006	CHOICE IMAGING SOLUTIONS SW070829-01	181-03-0188 41031858	BOX 0017
N00236 / 000823 8841 & BRAC SER BPMOW.CD/0238 RPT N62474-98-D-2076 00100	08-04-2003 **12-22-2004** 0078 & 0103	SHAW ENVIRONMENTAL, INC. J. MCGUIRE BRAC PMO WEST	GROUNDWATER MONITORING REPORT FOR INSTALLATION RESTORATION SITE 7, 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	007	CHOICE IMAGING SOLUTIONS SW070829-01	181-03-0188 41031858	BOX 0017
N00236 / 000824 8842 & BRAC SER BPMOW.CD/0238 RPT N62474-98-D-2076 00100	08-04-2003 **12-22-2004** 0078 & 0103	SHAW ENVIRONMENTAL, INC. J. MCGUIRE BRAC PMO WEST	GROUNDWATER MONITORING REPORT FOR INSTALLATION RESTORATION SITE 8, SUMMER 2002 TO SPRING 2003 (CD COPY OF APPENDICES A AND B ENCLOSED) [INCLUDES REPLACEMENT PAGES ISSUED ON DIFFERENT DATES WITH DIFFERRENT DOCUMENT CONTROL NUMBERS] {***SEE COMMENTS}	ADMIN RECORD INFO REPOSITORY	008	CHOICE IMAGING SOLUTIONS SW070829-01	181-03-0188 41031858	BOX 0017
N00236 / 000861 8844 & BRAC SER BPMOW.CD/0238 RPT N62474-98-D-2076 00100	08-04-2003 **12-22-2004** 0078 & 0103	SHAW ENVIRONMENTAL, INC. J. MCGUIRE BRAC PMO WEST	GROUNDWATER MONITORING REPORT FOR INSTALLATION RESTORATION SITE 16, 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	016	CHOICE IMAGING SOLUTIONS SW070829-02	181-03-0188 41031858	BOX 0017

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N00236 / 001967 8840 & SWDIV SER BPMOW.CD\0238 RPT N62474-98-D-2076 00025	03-02-2005 **12-22-2004** 0078 & 0103	SHAW ENVIRONMENTAL, INC. J. MCGUIRE BRAC - SAN DIEGO	GROUNDWATER MONITORING REPORT FOR INSTALLATION RESTORATION SITE 6, SUMMER 2002 TO SPRING 2003 (DOCUMENT WAS ISSUED WITH REVISED SECTIONS 7 & 8 ONLY AND REPLACEMENT PAGES) [***SEE COMMENTS]	ADMIN RECORD INFO REPOSITORY	006	SOUTHWEST DIVISION - BLDG. 110	
N00236 / 001968 8841 & SWDIV SER BPMOW.CD\0238 RPT N62474-98-D-2076 00025	03-02-2005 **12-22-2004** 0078 & 0103	SHAW ENVIRONMENTAL, INC. J. MCGUIRE BRAC - SAN DIEGO	GROUNDWATER MONITORING REPORT FOR INSTALLATION RESTORATION SITE 7, SUMMER 2002 TO SPRING 2003 (DOCUMENT WAS ISSUED WITH REVISED SECTIONS 7 & 8 ONLY AND REPLACEMENT PAGES) [***SEE COMMENTS]	ADMIN RECORD INFO REPOSITORY	007	SOUTHWEST DIVISION - BLDG. 110	
N00236 / 001969 8842 & SWDIV SER BPMOW.CD\0238 RPT N62474-98-D-2076 00025	03-02-2005 **12-22-2004** 0078 & 0103	SHAW ENVIRONMENTAL, INC. J. MCGUIRE NAVFAC - SOUTHWEST DIVISION	GROUNDWATER MONITORING REPORT FOR INSTALLATION RESTORATION SITE 8, SUMMER 2002 TO SPRING 2003 (DOCUMENT WAS ISSUE WITH REVISED SECTIONS 7 & 8 ONLY AND REPLACEMENT PAGES) [***SEE COMMENTS]	ADMIN RECORD INFO REPOSITORY	008	SOUTHWEST DIVISION - BLDG. 110	
N00236 / 001972 8844 & SWDIV SER BPMOW.CD\0238 RPT N62474-98-D-2076 00025	03-04-2005 **12-22-2004** 0078 & 0103	SHAW ENVIRONMENTAL, INC. J. MCGUIRE BRAC - SAN DIEGO	GROUNDWATER MONITORING REPORT FOR INSTALLATION RESTORATION SITE 16, SUMMER 2002 TO SPRING 2003 (DOCUMENT WAS ISSUED WITH REVISED SECTIONS 7 & 8 ONLY AND REPLACEMENT PAGES) [***SEE COMMENTS]	ADMIN RECORD INFO REPOSITORY	016	SOUTHWEST DIVISION - BLDG. 110	
N00236 / 001975 8875 & SWDIV SER BPMOW.CD\0238 RPT NONE 00050	03-04-2005 **12-22-2004** 00103	SHAW ENVIRONMENTAL, INC. NAVFAC - SOUTHWEST DIVISION	RESPONSE TO COMMENTS ON THE GROUNDWATER MONITORING REPORTS, SUMMER 2002 TO SPRING 2003 [INCLUDES SWDIV TRANMITTAL LETTER BY T. MACCHIARELLA] {PORTION OF MAILING LIST IS CONFIDENTIAL}	ADMIN RECORD INFO REPOSITORY SENSITIVE	002 006 008 025 GROUP	SOUTHWEST DIVISION - BLDG. 110 08/09/06	

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N00236 / 001955 NONE CORRESP NONE 00001	02-09-2005 **01-24-2005** NONE	EPA - SAN FRANCISCO A. COOK NAVFAC - SOUTHWEST DIVISION T. MACCHIARELLA	EPA REQUESTS FOR A THIRTY (30) DAY EXTENSION FOR REVIEW OF THE DRAFT FEASIBILITY STUDY REPORT	ADMIN RECORD INFO REPOSITORY	006 007 008 016 OU 1	SOUTHWEST DIVISION - BLDG. 1 SW061027-04 IMAGED APNT_016	
N00236 / 002003 NONE COMMENTS NONE 00028	04-04-2005 **03-16-2005** NONE	U.S. EPA - S.F. REGION A. COOK NAVFAC - SOUTHWEST DIVISION T. MACCHIARELLA	REVIEW AND COMMENTS ON THE DRAFT FEASIBILITY STUDY REPORT	ADMIN RECORD INFO REPOSITORY	006 007 008 016 OU 1	SOUTHWEST DIVISION - BLDG. 1 SW061120-02 IMAGED APNT_023	
N00236 / 002018 NONE COMMENTS NONE 00020	05-02-2005 **04-08-2005** NONE	DTSC - BERKELEY M. LIAO NAVFAC - SOUTHWEST DIVISION T. MACCHIARELLA	COMMENTS ON THE DRAFT FEASIBILITY REPORT (INCLUDES COMMENTS BY GSU DATED 18 MARCH 2005 AND ESU DATED 21 MARCH 2005)	ADMIN RECORD INFO REPOSITORY	006 007 008 016 OU 1	SOUTHWEST DIVISION - BLDG. 1 SW060921-02 IMAGED APNT_005	
N00236 / 002019 NONE COMMENTS NONE 00012	05-02-2005 **04-08-2005** NONE	DTSC - BERKELEY M. LIAO NAVFAC - SOUTHWEST DIVISION T. MACCHIARELLA	COMMENTS ON THE DRAFT FINAL REMEDIAL INVESTIGATION (RI) REPORT	ADMIN RECORD INFO REPOSITORY	006 007 008 016 OU 1	SOUTHWEST DIVISION - BLDG. 1 SW060907-04 IMAGED APNT_003	
N00236 / 002036 SWDIV SER BPMOW.GC/0707 CORRESP NONE 00003	05-18-2005 **05-11-2005** NONE	NAVFAC - SOUTHWEST DIVISION T. MACCHIARELLA US EPA - SAN FRANCISCO A. COOK	NOTICE OF AN EXTENSION ON THE RESPONSES TO COMMENTS ON THE DRAFT FINAL FEASIBILITY STUDY REPORT	ADMIN RECORD INFO REPOSITORY	006 007 008 016 OU 1	SOUTHWEST DIVISION - BLDG. 1 SW070413-01 IMAGED APNT_022	

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N00236 / 002075 NONE COMMENTS NONE 00007	08-10-2005 **07-18-2005** NONE	EPA - SAN FRACISCO A. COOK NAVFAC - SOUTHWEST DIVISION T. MACHIARELLA	REVIEW AND COMMENTS FOR DRAFT FINAL FEASIBILITY REPORT	ADMIN RECORD INFO REPOSITORY	006 007 008 016 OU 1	SOUTHWEST DIVISION - BLDG. 1 SW061005-03 IMAGED APNT_019	
N00236 / 002076 NONE COMMENTS NONE 00011	08-10-2005 **07-20-2005** NONE	M. LIAO DTSC - BERKELEY NAVFAC - SOUTHWEST DIVISION T. MACHIARELLA	REVIEW AND COMMENTS FOR THE DRAFT FINAL FEASIBILITY REPORT	ADMIN RECORD INFO REPOSITORY	006 007 008 016 OU 1	SOUTHWEST DIVISION - BLDG. 1 SW061005-03 IMAGED APNT_019	
N00236 / 002048 DS.B098.20042 & DS.B098.20043 RPT N68711-03-D-5104 00700	06-17-2005 **09-28-2005** 00098	SULTECH C. HUNTER NAVFAC - SOUTHWEST DIVISION	FINAL FEASIBILITY STUDY REPORT (INCLUDES REPLACEMENT PAGES ISSUED ON 9/28/05 CONVERTING DRAFT FINAL DATED 6/15/05 TO FINAL) {PORTION OF MAILING LIST IS CONFIDENTIAL, CD COPY OF DRAFT FINAL & FINAL ENCLOSED}	ADMIN RECORD INFO REPOSITORY SENSITIVE	006 007 008 016 OU 1	SOUTHWEST DIVISION - BLDG. 1	
N00236 / 002174 DS.B098.20045 AND BRAC SER 06CA.GC\1336 RPT N68711-03-D-5104 00027	12-14-2005 **10-28-2005** 00098	SULTECH BRAC PMO WEST	DRAFT PROPOSED PLAN (INCLUDES BRAC PMO WEST TRANSMITTAL LETTER BY T. MACCHIARELLA)	ADMIN RECORD	006 007 008 016 OU 1	SOUTHWEST DIVISION - BLDG. 1 SW061005-03 IMAGED APNT_019	
N00236 / 002188 NONE COMMENTS NONE 00011	01-10-2006 **12-12-2005** NONE	USEPA - SAN FRANCISCO A.COOK BRAC PMO WEST T. MACCHIARELLA	REVIEW AND COMMENTS ON THE DRAFT PROPOSED PLAN	ADMIN RECORD	006 007 008 016 OU 1	SOUTHWEST DIVISION - BLDG. 1 SW061005-03 IMAGED APNT_019	
N00236 / 002189 NONE CORRESP NONE 00001	01-10-2006 **12-12-2005** NONE	USEPA - SAN FRANCISCO A. COOK BRAC PMO WEST T. MACCHIARELLA	REQUEST FOR A FOURTEEN (14) DAY EXTENSION FOR REVIEW OF THE DRAFT PROPOSED PLAN	ADMIN RECORD	006 007 008 016 OU 1	SOUTHWEST DIVISION - BLDG. 1 SW061005-03 IMAGED APNT_019	

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N00236 / 002196 TC.B012.12263 RPT N68711-03-D-5104 00250	01-26-2006 **12-23-2005** 00012	SULTECH G. FOULK BRAC PMO WEST L. OCAMPO	COMPILATION OF SOLID WASTE MANAGEMENT UNIT EVALUATION REPORTS PREVIOUSLY SUBMITTED WITH CERCLA DOCUMENTS, HAZARDOUS WASTE PERMIT EPA ID NUMBER CA 2170023236	ADMIN RECORD INFO REPOSITORY	003 004 005 006 007 008 009 010 011 012 013 016 019 021 022 023 EDC 3 EDC 5 OU 1 OU 2A OU 2B OU 2C PBC 1A	CHOICE IMAGING SOLUTIONS SW070817-03	
N00236 / 002187 NONE COMMENTS NONE 00012	01-10-2006 **12-29-2005** NONE	DTSC - BERKELEY M. LIAO BRAC PMO WEST T. MACCHIARELLA	REVIEW AND COMMENTS ON DRAFT PROPOSED PLANS	ADMIN RECORD	006 007 008 016 OU 1	SOUTHWEST DIVISION - BLDG. 1 SW061005-03 IMAGED APNT_019	
N00236 / 002214 BRAC SER BPMOW.SP\0077 CORRESP NONE 00003	02-15-2006 **01-30-2006** NONE	BRAC PMO WEST T. MACCHIARELLA VARIOUS AGENCIES	REQUEST FOR EXTENSION ON DRAFT FINAL PROPOSED PLAN (INCLUDES RESPONSE TO COMMENTS)	ADMIN RECORD	006 007 008 016 OU 1	SOUTHWEST DIVISION - BLDG. 1 SW060921-04 IMAGED APNT_006	

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N00236 / 002155 9373, 9858 AND BRAC SER BPMOW.GC\1367 RPT N62474-98-D-2076 00836	11-16-2005 **02-24-2006** 00107	SHAW ENVIRONMENTAL, INC. BRAC PMO WEST	FINAL FIELD SUMMARY REPORT, FULL-SCALE IN-SITU CHEMICAL OXIDATION REMOVAL ACTION, REVISION 0 [DOCUMENT WAS ISSUED WITHOUT A SIGNATURE PAGE, PER RPM. SEE AR #2246 FOR NAVY COVER LETTER WITH SIGNATURE]	ADMIN RECORD INFO REPOSITORY SENSITIVE	016 NORTH	SOUTHWEST DIVISION - BLDG. 1 SW061120-03 IMAGED APNT_023	
N00236 / 002162 9382, 9859 & BRAC SER BPMOW.GC\1389 RPT N62474-98-D-2076 00510	11-29-2005 **02-24-2006** 00107	SHAW ENVIRONMENTAL, INC. BRAC J. MCGUIRE	FINAL FIELD SUMMARY REPORT, FULL-SCALE IN-SITU CHEMICAL OXIDATION REMOVAL ACTION, REVISION 0 [DOCUMENT WAS ISSUED WITHOUT SIGNATURE PAGE, PER RPM. SEE AR # 2247 FOR NAVY COVER LETTER WITH SIGNATURE]	ADMIN RECORD INFO REPOSITORY SENSITIVE	016 SOUTH	SOUTHWEST DIVISION - BLDG. 1 SW061120-04 IMAGED APNT_024	
N00236 / 002246 BRAC SER BPMOW.GC\0180 CORRESP NONE 00004	03-22-2006 **02-28-2006** NONE	BRAC PMO WEST T. MACCHIARELLA VARIOUS AGENCIES	TRANSMITTAL OF FINAL FIELD SUMMARY REPORT, FULL-SCALE IN-SITU CHEMICAL OXIDATION REMOVAL ACTIONS AT SITE 16 NORTH, REVISION 0 (PORTION OF THE MAILING LIST IS SENSITIVE)	ADMIN RECORD INFO REPOSITORY SENSITIVE	016 NORTH	SOUTHWEST DIVISION - BLDG. 1 SW061120-04 IMAGED APNT_024	
N00236 / 002247 BRAC SER BPMOW.GC\0180 CORRESP NONE 00004	03-22-2006 **02-28-2006** NONE	BRAC PMO WEST T. MACCHIARELLA VARIOUS AGENCIES	TRANSMITTAL OF FINAL FIELD SUMMARY REPORT,FULL-SCALE IN-SITU CHEMICAL OXIDATION REMOVAL ACTIONS AT SITE 16 SOUTH, REVISION 0 (PORTION OF THE MAILING LIST IS SENSITIVE)	ADMIN RECORD INFO REPOSITORY SENSITIVE	016 SOUTH	SOUTHWEST DIVISION - BLDG. 1 SW061120-04 IMAGED APNT_024	
N00236 / 002299 BRAC SER BPMOW.SAP\0223 CORRESP NONE 00037	05-11-2006 **03-10-2006** NONE	BRAC PMO WEST T. MACCHIARELLA VARIOUS AGENCIES	TRANSMITTAL OF DRAFT FINAL PROPOSED PLAN (INCLUDES RESPONSES TO COMMENTS ON THE DRAFT PROPOSED PLAN) [SEE AR #2298 - DRAFT FINAL PROPOSED PLAN]	ADMIN RECORD	006 007 008 016 OU 1	SOUTHWEST DIVISION - BLDG. 1 SW060921-05 IMAGED APNT_006	

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N00236 / 002281 DS.B098.20628 RPT N68711-03-D-5104 00024	04-27-2006 **04-01-2006** 00098	SULTECH BRAC PMO WEST	PROPOSED PLAN (SEE AR #2327 - BRAC PMO WEST TRANSMITTAL LETTER BY T. MACCHIARELLA)	ADMIN RECORD INFO REPOSITORY	006 007 008 016 OU 1	SOUTHWEST DIVISION - BLDG. 1 SW060921-05 IMAGED APNT_006	
N00236 / 002298 DS.B098.20046 RPT N68711-03-D-5104 00024	05-11-2006 **04-01-2006** 00098	SULTECH BRAC PMO WEST	DRAFT FINAL PROPOSED PLAN (SEE AR #2299 - BRAC PMOW TRANSMITTAL LETTER BY T. MACCHIARELLA)	ADMIN RECORD	006 007 008 016 OU 1	SOUTHWEST DIVISION - BLDG. 1 SW060921-05 IMAGED APNT_006	
N00236 / 002327 BRAC SER BPMOW.SP/0375 CORRESP NONE 00004	06-19-2006 **04-24-2006** NONE	BRAC PMO WEST T. MACCHIARELLA VARIOUS AGENCIES	TRANSMITTAL OF FINAL PROPOSED PLAN (W/OUT ENCLOSURE) [SEE AR #2281 - FINAL PROPOSED PLAN]	ADMIN RECORD INFO REPOSITORY	006 007 008 016 OU 1	SOUTHWEST DIVISION - BLDG. 1 SW060921-05 IMAGED APNT_006	
N00236 / 002337 NONE COMMENTS NONE 00003	06-19-2006 **05-24-2006** NONE	RAB MEMBER G. HUMPHREYS BRAC PMO WEST T. MACCHIARELLA	COMMENTS ON PROPOSED PLAN (MAILING ADDRESS IS SENSITIVE)	ADMIN RECORD SENSITIVE	006 007 008 016 OU 1	SOUTHWEST DIVISION - BLDG. 1 SW061023-03 IMAGED APNT_020	
N00236 / 002854 NONE CORRESPONDENCE NONE 00004	09-20-2007 **05-26-2006** NONE	ALAMEDA REUSE AND REDEVELOPMENT AUTHORITY D. POTTER BRAC PMO WEST T. MACCHIARELLA	REVIEW AND COMMENTS ON THE APRIL 2006 NAVY ANNOUNCES PROPOSED PLAN (PP) (CD COPY IS ENCLOSED)	ADMIN RECORD INFO REPOSITORY	006 007 008 016 OU 1	SOUTHWEST DIVISION - BLDG. 1	
N00236 / 002564 DS.B098.20048 RPT N68711-03-D-5104 00453	10-13-2006 **08-01-2006** 00098	BRAC PMO WEST BRAC PMO WEST	DRAFT RECORD OF DECISION (ROD) [SEE AR #2563 - BRAC PMO WEST TRANSMITTAL LETTER BY T. MACCHIARELLA] (PORTION OF THE SIGN-IN SHEET IN ATTACHMENT B IS SENSITIVE) {SEE COMMENTS}	ADMIN RECORD INFO REPOSITORY SENSITIVE	006 007 008 016 OU 1	SOUTHWEST DIVISION - BLDG. 1 SW061227-02 IMAGED APNT_022	

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N00236 / 002563 BRAC SER BPMOW.SAP/0728 CORRESP NONE 00003	10-13-2006 **08-23-2006** NONE	BRAC PMO WEST T. MACCHIARELLAL VARIOUS AGENCIES	TRANSMITTAL OF DRAFT RECORD OF DECISION (ROD) [W/OUT ENCLOSURE] {SEE AR #2564 - DRAFT ROD}	ADMIN RECORD INFO REPOSITORY	006 007 008 016 OU 1	SOUTHWEST DIVISION - BLDG. 1 SW061227-02 IMAGED APNT_022	
N00236 / 002569 BRAC SER BPMOW.SAP\0005 CORRESP NONE 00003	10-19-2006 **10-03-2006** NONE	BRAC PMO WEST T. MACCHIARELLA VARIOUS AGENCIES	REQUEST FOR EXTENSION ON SUBMITTAL OF DRAFT DATA GAP SAMPLING WORK PLAN (WP) FOR OU-1, OU-2A, AND OU-2B	ADMIN RECORD INFO REPOSITORY	OU 1 OU 2A OU 2B	SOUTHWEST DIVISION - BLDG. 1 SW061120-04 IMAGED APNT_024	
N00236 / 002647 NONE CORRESP NONE 00001	01-11-2007 **10-19-2006** NONE	USEPA - SAN FRANCISCO A. COOK BRAC PMO WEST T. MACCHIARELLA	REQUEST FOR THIRTY (30) DAY EXTENSION FOR REVIEW OF DRAFT RECORD OF DECISION (ROD)	ADMIN RECORD INFO REPOSITORY	006 007 008 016 OU 1	SOUTHWEST DIVISION - BLDG. 110	
N00236 / 002596 BRAC SER BPMOW.SAP\0112 CORRESP NONE 00002	11-07-2006 **11-03-2006** NONE	BRAC PMO WEST T. MACCHIARELLA VARIOUS AGENCIES	TRANSMITTAL OF DRAFT WORK PLAN (WP) FOR DATA GAP SAMPLING (W/OUT ENCLOSURE) [SEE AR #2597 - DRAFT WP] {PORTION OF THE MAILING LIST IS SENSITIVE}	ADMIN RECORD INFO REPOSITORY SENSITIVE	OU 1 OU 2A OU 2B	SOUTHWEST DIVISION - BLDG. 110	
N00236 / 002597 ECSD-RACIV-06-0611 RPT N62473-06-D-2201 00600	11-07-2006 **11-03-2006** 00012	TETRA TECH EC, INC. P. EVERDS BRAC PMO WEST	DRAFT DATA GAP SAMPLING WORK PLAN (WP) [SEE AR #2596 - BRAC PMO WEST TRANSMITTAL LETTER BY T. MACCHIARELLA]	ADMIN RECORD INFO REPOSITORY	OU 1 OU 2A OU 2B	SOUTHWEST DIVISION - BLDG. 110	
N00236 / 002631 BRAC SER BPMOW.SAP/0164 CORRESP NONE 00003	12-14-2006 **11-29-2006** NONE	BRAC PMO WEST T. MACCHIARELLA VARIOUS AGENCIES	REQUEST FOR THIRTY (30) DAY EXTENSION OF AGENCY COMMENT PERIOD FOR DRAFT RECORD OF DECISION (ROD)	ADMIN RECORD INFO REPOSITORY	006 007 008 016 OU 1	SOUTHWEST DIVISION - BLDG. 110	

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N00236 / 002651 FILE NO. 2199.9285(EWS) COMMENTS NONE 00007	01-11-2007 **12-07-2006** NONE	CRWQCB - OAKLAND E. SIMON BRAC PMO WEST T. MACCHIARELLA	REVIEW AND COMMENTS ON DRAFT RECORD OF DECISION (ROD)	ADMIN RECORD INFO REPOSITORY	006 007 008 016 OU 1	SOUTHWEST DIVISION - BLDG. 110	
N00236 / 002654 NONE COMMENTS NONE 00012	01-11-2007 **12-12-2006** NONE	USEPA - SAN FRANCISCO A. COOK BRAC PMO WEST T. MACCHIARELLA	REVIEW AND COMMENTS ON DRAFT RECORD OF DECISION (ROD)	ADMIN RECORD INFO REPOSITORY	006 007 008 016 OU 1	SOUTHWEST DIVISION - BLDG. 110	
N00236 / 002847 NONE CORRESPONDENCE NONE 00004	09-17-2007 **01-11-2007** NONE	DTSC - SACRAMENTO D. LOFSTROM BRAC PMO WEST T. MACCHIARELLA	REVIEW AND COMMENTS ON THE DRAFT RECORD OF DECISION	ADMIN RECORD INFO REPOSITORY	006 007 008 016 OU 1	SOUTHWEST DIVISION - BLDG. 1	
N00236 / 002853 NONE CORRESPONDENCE NONE 00002	09-20-2007 **01-11-2007** NONE	DTSC - SACRAMENTO D. LOFSTROM BRAC PMO WEST T. MACCHIARELLA	REVIEW AND COMMENTS ON THE DRAFT RECORD OF DECISION (CD COPY IS ENCLOSED)	ADMIN RECORD INFO REPOSITORY	006 007 008 016 OU 1	SOUTHWEST DIVISION - BLDG. 1	
N00236 / 002849 2199.9285(EWS) CORRESPONDENCE NONE 00001	09-17-2007 **02-02-2007** NONE	CRWQCB - OAKLAND E. SIMON BRAC PMO WEST T. MACCHIARELLA	REVIEW AND NO COMMENTS ON THE DRAFT DATA GAP SAMPLING WORK PLAN	ADMIN RECORD INFO REPOSITORY	OU 1 OU 2A OU 2B	SOUTHWEST DIVISION - BLDG. 1	
N00236 / 002848 NONE CORRESPONDENCE NONE 00015	09-17-2007 **02-15-2007** NONE	EPA - SAN FRANCISCO A. COOK BRAC PMO WEST T. MACCHIARELLA	REVIEW AND COMMENTS ON THE DRAFT DATA GAP SAMPLING WORK PLAN	ADMIN RECORD INFO REPOSITORY	OU 1 OU 2A OU 2B	SOUTHWEST DIVISION - BLDG. 1	

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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 / 002720 BRAC SER BPMOW.SAP\0398 CORRESP NONE 00003	03-28-2007 **02-28-2007** NONE	BRAC PMO WEST T. MACCHIARELLA VARIOUS AGENCIES	NOTICE OF THIRTY (30) DAY EXTENSION ON SUBMITTAL OF THE DRAFT FINAL RECORD OF DECISION (ROD)	ADMIN RECORD INFO REPOSITORY	006 007 008 016 OU 1	SOUTHWEST DIVISION - BLDG. 110	
N00236 / 002764 DS.B098.20049 RPT N68711-03-D-5104 00500	05-22-2007 **04-01-2007** 00098	SULTECH BRAC PMO WEST	DRAFT FINAL RECORD OF DECISION (ROD) [SEE AR #2763 - BRAC PMO WEST TRANSMITTAL LETTER BY T. MACCHIARELLA]	ADMIN RECORD INFO REPOSITORY	006 007 008 016 OU 1	SOUTHWEST DIVISION - BLDG. 1	
N00236 / 002763 BRAC SER BPMOW.SAP\0518 CORRESP NONE 00002	05-22-2007 **04-26-2007** NONE	BRAC PMO WEST T. MACCHIARELLA VARIOUS AGENCIES	TRANSMITTAL OF DRAFT FINAL RECORD OF DECISION (ROD) [W/OUT ENCLOSURE] {SEE AR #2764 - DRAFT FINAL RECORD OF DECISION}	ADMIN RECORD INFO REPOSITORY	006 007 008 016 OU 1	SOUTHWEST DIVISION - BLDG. 1	
N00236 / 002766 DS.B098.21450 COMMENTS N68711-03-D-5104 00045	05-22-2007 **05-01-2007** 00098	SULTECH NAVFAC - SOUTHWEST DIVISION	RESPONSE TO REGULATORY AGENCY COMMENTS ON DRAFT RECORD OF DECISION (ROD) [***SEE COMMENTS]	ADMIN RECORD INFO REPOSITORY	006 007 008 016 OU 1	SOUTHWEST DIVISION - BLDG. 1	
N00236 / 002790 BRAC SER BPMOW.SAP/0656 CORRESP NONE 00002	07-10-2007 **06-02-2007** NONE	BRAC PMO WEST T. MACCHIARELLA VARIOUS AGENCIES	TRANSMITTAL OF DRAFT FINAL DATA GAP SAMPLING WORK PLAN (PORTION OF MAILING LIST IS SENSITIVE) [SEE AR # 2791 - DRAFT FINAL DATA GAP SAMPLING WORK PLAN]	ADMIN RECORD INFO REPOSITORY SENSITIVE	006 007 008 016 OU 1	SOUTHWEST DIVISION - BLDG. 1	
N00236 / 002791 ECSD-2201-0012-0001 RPT N62473-06-D-2201 00600	07-10-2007 **07-06-2007** 00012	TETRA TECH EC INC. P. EVERDS BRAC PMO WEST	DRAFT FINAL DATA GAP SAMPLING WORK PLAN (CD COPY IS ENCLOSED) [SEE AR # 2790 - BRAC PMO WEST TRANSMITTAL LETTER BY T. MACCHIARELLA]	ADMIN RECORD INFO REPOSITORY	006 007 008 016 OU 1	SOUTHWEST DIVISION - BLDG. 1	

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N00236 / 002840 SULT.5104.0130.004 2 REPORT N68711-03-D-5104 00025	09-17-2007 **08-08-2007** 00130	SULTECH BRAC PMO WEST	APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARS) TEMPLATE (CD COPY IS ENCLOSED)	ADMIN RECORD INFO REPOSITORY	001 005 006 008 010 011 012 014 015 017 02 020 021 024 025 026 027 028 029 032 034 035 OU 001 OU 005	SOUTHWEST DIVISION - BLDG. 1	
N00236 / 002820 ECSD-2201-0012-0003 REPORT N62473-06-D-2201 00250	09-05-2007 **08-28-2007** 00012	TETRA TECH EM INC. P. EVERDS BRAC PMO WEST	FINAL DATA SAMPLING WORK PLAN (CD COPY ENCLOSED) [SEE AR # 2819 - BRAC TRANSMITTAL LETTER BY T. MACCHIARELLA]	ADMIN RECORD INFO REPOSITORY	006 007 008 016 OU 1	SOUTHWEST DIVISION - BLDG. 1	

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N00236 / 002819 BRAC SER BPMOW.SAP/0813 CORRESPONDENC E NONE 00002	09-05-2007 **08-30-2007** NONE	BRAC PMO WEST T. MACCHIARELLA VARIOUS AGENCIES	TRANSMITTAL OF THE FINAL DATA GAP SAMPLING WORK PLAN (W/OUT ENCLOSURE) [SEE AR # 2820 - FINAL DATA GAP SAMPLING WORK PLAN] {PORTION OF THE MAILING LIST IS SENSITIVE}	ADMIN RECORD INFO REPOSITORY SENSITIVE	006 007 008 016 OU 1	SOUTHWEST DIVISION - BLDG. 1	

Total Estimated Record Page Count: 40,832

Total - Administrative Records: 342

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No Keywords

Sites=006;007;007A;007B;007C;008;016;016 NORTH;016 SOUTH;016N;016S;OU 001;OU 1

No Classification

ATTACHMENT B
TRANSCRIPT FROM PUBLIC MEETING, SIGN-IN SHEET, AND PUBLIC NOTICE

42 pages.

PROPOSED PLAN FOR

OPERABLE UNIT 1

SITES 6, 7, 8 AND 16

ALAMEDA POINT, CALIFORNIA

PUBLIC MEETING

Tuesday, May 16, 2006

Alameda City Hall West
950 W. Mall Square
Building 1
Community Conference Room 201
Alameda Point, California

Reported by: Valerie E. Jensen, CSR No. 4401

JAN BROWN & ASSOCIATES
CERTIFIED SHORTHAND REPORTERS
701 Battery Street, 3rd Floor
San Francisco, California 94111
(415) 981-3498

1 P A R T I C I P A N T S

2 PRESENTERS:

3 THOMAS MACCHIARELLA, Navy BRAC Environmental Coordinator
4 STEVEN PECK, Navy RPM

5

6 OTHER AGENCY, NAVY STAFF AND CONSULTANT REPRESENTATIVES:

7 DEREK ROBINSON, Navy
DOT LOFSTROM, Department of Toxic Substances Control
8 ANNA-MARIE COOK, U.S. Environmental Protection Agency
9 DEANNA RHOADES, SulTech
TOMMIE JEAN DAMREL, SulTech
10

11 COMMUNITY MEMBERS AND INTERESTED PARTIES:

12 KURT PETERSON, Restoration Advisory Board Member
MARILYN YORK, Alameda Naval Air Museum
13 CAROL TROTTER, Alameda Naval Air Museum
KIN ROBLES, Alameda Naval Air Museum
14 PETER RUSSELL, Russell Resources

15

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1 MAY 15, 2006 6:43 P.M.

2

3 MR. MACCHIARELLA: Hello, everybody.

4 Thank you for coming. It's about 6:45. We're

5 going to get started.

6 My name's Thomas Macchiarella. I'm

7 with the Department of the Navy. More specifically,

8 the BRAC Program Management Office West. BRAC, of

9 course, stands for Base Realignment and Closure.

10 We're here tonight to talk about the

11 Proposed Plan for the sites shown here -- Sites

12 6, 7, 8 and 16. These are listed on the screens.

13 The goal of our meeting tonight is to present the

14 public with our preferred alternative for remediating

15 these four sites.

16 Before we get started, I wanted to introduce

17 a couple people -- actually, just one person, Steve

18 Peck, who's going to be presenting in a few minutes.

19 He and I will be answering questions this evening.

20 A little bit later I'm going to introduce some of

21 the regulators involved in our process, too.

22 The agenda for this evening is shown here

23 on the screen. We just ended our posterboard viewing

24 session and discussion. And then I'm going to give you

25 an introduction to the Navy's Installation Restoration

1 Program. And then we will have a presentation specific
2 to the Operable Unit 1 Proposed Plan.
3 And then I'd like to answer, with Steve,
4 any clarifying questions you may have. Then, after
5 that, we'll go into listening mode and receive your
6 public comments, if any.
7 I should point out that our meeting is being
8 recorded tonight, and the record will show up in our
9 administrative record for this site.
10 So, first, let me give you an overview of
11 the Navy's Installation Restoration Program.
12 Tonight we're focused on Operable Unit 1,
13 the four sites within it. But in order to give you
14 a perspective of how the process works, I think we
15 should back up and go through the general Installation
16 Restoration Program.
17 The Installation Restoration Program is
18 managed by the Base Realignment and Closure Program
19 Management Office West with support from our comrades
20 at the Southwest Division Naval Facilities Engineering
21 Command. The Program Management Office West reports
22 to the Deputy Assistant Secretary of the Navy for
23 Installations and Environment.
24 I am the BRAC environmental coordinator for
25 Alameda Point, and I'm a representative on the BRAC

1 Cleanup Team, which I'm going to go through in more
2 detail.
3 And the BRAC cleanup team members are
4 here tonight. I'd like to introduce those who are
5 here -- Ms. Anna-Marie Cook, from the United States
6 Environmental Protection Agency, and Ms. Dot Lofstrom,
7 from the California Department of Toxic Substances
8 Control.
9 The purpose of the Navy's Installation
10 Restoration Program is listed here. I'd like to focus
11 on the second bullet, which, in my view, is the chief
12 purpose; and that is, to reduce the risk to human health
13 and the environment from past waste disposal operations
14 and hazardous material spills that occurred at the
15 facility here.
16 Some you may have heard of CERCLA, or
17 SuperFund. That is, essentially, this program.
18 CERCLA stands for the Comprehensive Environmental
19 Response Compensation and Liability Act, as shown here
20 on the figure. It's a stepwise approach. Right now,
21 for Operable Unit 1, we're in the Proposed Plan/Remedy
22 Selection stage.
23
24 I'd like to talk briefly about each of
25 the steps. First, the Preliminary Assessment/Site

1 Inspection, or PA/SI. That's, essentially, an
2 information-gathering event or site-discovery phase
3 where we look at available information and interviews,
4 aerial photos, that type of thing, and take some
5 environmental samples from the soil or groundwater.
6 If we discover something that needs further
7 investigation, we graduate to a Remedial Investigation
8 and Feasibility Study. This includes a detailed
9 investigation, a characterization of the site, as
10 well as an analysis of cleanup alternatives.
11 That's the important part that we just
12 completed for these sites. We just finished the
13 Feasibility Study, or an analysis of the cleanup
14 alternatives, and now we're here tonight presenting
15 the public with our preferred alternative of those
16 alternatives.
17 After the RI/FS comes the Proposed Plan,
18 where we are now. After that comes the Record of
19 Decision.
20 Once we receive public comments, whether
21 it's in this meeting tonight or in writing through
22 the end of the comment period, the Navy will analyze
23 each of those comments and adjust the Record of
24 Decision as necessary. Before the ROD is finalized,
25 the Navy will consider all public comments and work

1 with the regulatory agencies on determining the
2 selected alternative.
3 The BRAC cleanup team, which I alluded
4 to earlier, is composed of the United States
5 Environmental Protection Agency, the Navy, and state
6 regulatory agencies. There are 35 specific sites in
7 our Installation Restoration Program. We're talking
8 about four of them tonight.
9 The NAS Alameda, or Alameda Point, as it
10 is now known, is listed on the National Priorities
11 List, and therefore, the United States EPA is the
12 lead regulatory agency. We also have a Federal
13 Facilities Agreement which exists between the Navy
14 and the regulatory agencies I mentioned. The FFA,
15 together with the BCT, are two concepts which
16 streamline the cleanup process by ensuring timely
17 and thorough coordination among the Navy and the
18 regulatory participants.
19 Every year we update what's called our Site
20 Management Plan, or our schedule, for all of the sites
21 at the base. The input that goes into these updates
22 are input from the regulatory agencies, the community,
23 the Navy and available resources.
24 Each month we hold a Restoration Advisory
25 Board meeting. The Restoration Advisory Board, or

1 RAB, consists of community members who serve in an
2 advisory capacity to the Navy. Those meetings are
3 open to the public the first Thursday of each month.
4 The current phase for Operable Unit 1
5 is the Proposed Plan. This provides for community
6 involvement in the decision making process, summarizes
7 all the environmental efforts to date, such as
8 investigations and interim cleanup actions. It
9 proposes a decision called the Preferred Alternative,
10 and it leads to the ROD, where we will have the
11 selected alternative. I'd like to emphasize that
12 all public comments will be considered before the
13 Navy finalizes its decision in coordination with the
14 regulatory agencies.
15 After the ROD, the Navy will prepare a
16 Remedial Design and conduct the Remedial Action or
17 cleanup work. The comment period for this Proposed
18 Plan is April 27 to May 26. We're here at the public
19 meeting between those dates tonight.
20 If you would like to submit comments in
21 writing, my address is clearly shown in the Proposed
22 Plan. You may also provide verbal comments tonight
23 towards the end of the meeting.
24 Before we move on to the specific presentation
25 on this Proposed Plan, are there any questions on the

1 general process?

2 Okay. Mr. Peck?

3 MR. PECK: We've got four sites to run through

4 tonight, so I'll try not to make too much of a marathon

5 of them, if you will.

6 Essentially, Operable Unit 1 consists of

7 Sites 6, 7, 8 and 16. What I intend to do is briefly

8 go over general information that concerns this entire

9 operable unit, and then we'll go into discussions --

10 I'll discuss Sites 7 and 8, then followed by Sites

11 6 and 16. I've kind of grouped them as such. I'll

12 explain a bit.

13 7 and 8 are somewhat similar in nature in

14 how we're approaching it, as well as Sites 6 and 16

15 have their similarities. That's why I've broken it

16 as such.

17 In between -- I think I'll stop at a

18 point, maybe, after Site 8. If there are some

19 questions, feel free to ask those questions at that

20 point. However, I'd ask you to hold off on submitting

21 comments until the end. Then I'll go through. By

22 the time I get down to 16 after the summary, again

23 I'll open it up for questions and then follow that

24 with comments.

25 Operable Unit 1, again, has these four

1 sites. They're somewhat scattered.

2 This might be easier to see than up there.

3 They're a bit scattered across Alameda.

4 They were pulled together as an operable unit; namely,

5 because these were, historically, light industrial

6 sites. As you can see here, they're located somewhat

7 in the central southeastern area of Alameda Point

8 proper.

9 There was some succession of investigations

10 conducted with Operable Unit 1. I won't go through

11 each of these but, as presented here, we had the

12 initial assessment study, we've had the environmental

13 baseline surveys, storm drain investigation, PAH's --

14 which are polynuclear aromatic hydrocarbons. The

15 basewide groundwater monitoring program is an ongoing

16 program.

17 The RI -- Remedial Investigation -- was

18 conducted in 2004. And Thomas kind of went through

19 the process of CERCLA, what these entailed. The

20 Feasibility Study was finalized in 2005.

21 Of course, this was performed in conjunction

22 with the regulatory agencies, who had the opportunity

23 to review and comment on these documents as we went

24 through the process. And we went through and evaluated

25 risk to human health and whether it was acceptable or

1 unacceptable, and we evaluated, also, the risk to the
2 environmental receptors -- the plants, the fish, et
3 cetera.
4 In terms of the environmental receptors --
5 we'll discuss the human health aspect. But in terms
6 of environmental receptors -- because a lot of this
7 was paved areas of buildings -- there was deemed
8 little or no risk to terrestrial receptors and,
9 again, a limited habitat for these receptors --
10 animals.
11 These are the proper names for each of the
12 sites. I'll mention that as we approach each of the
13 sites.
14 So, what I intend to do as I go through --
15 I'm going to present one site at a time. I'm going
16 to briefly summarize the Remedial Investigation, Risk
17 Assessment and Feasibility Study, and then I'm going to
18 present this evening what we intend to do, what is our
19 remedial alternative we propose to do at each of these
20 sites.
21 So, Site 7 was the former Naval Exchange
22 Service Station. This is about 5.6 acres. It's
23 covered primarily by asphalt and concrete. Its
24 past uses -- initially, one of the historical uses
25 was an incinerator here on the site. Later they

took out that incinerator, and the site was used for essentially -- it was a fueling station. They had an auto hobby shop. They had an auto repair facility there.

I'm going to mention as well, too, for each of the sites that, as part of the process that we're moving forward with Alameda Point, we have what's called Solid Waste Management Units. These are designated under the RCRA process. We're pulling in these SWMUs in through our process of investigation and determination of cleanup to sort of streamline things. So, you'll see me mention in each of these sites these Solid Waste Management Units and how we're going to address those.

Likewise, there's also areas that are, historically, just petroleum sites, gasoline stations, as Site 7 is. These are handled through the Total Petroleum Program, which is the Regional Water Quality Control Board. Areas where it's just petroleum and it's not interfacing or mixing, if you will, with some of the solvents or other uses, possibly, at the site, those are being handled by the Total Petroleum Program. So, I'm not going to be discussing what's being handled by that program tonight, but it is being addressed.

Okay. Site 7 -- do we have that other

1 pointer?

2 MR. MACCHIARELLA: (indicating.)

3 MR. PECK: Okay. It's got a better beam,

4 too, I think.

5 Right in here was the UST -- I'm sorry.

6 Not that. Right in here was the incinerator I had

7 previously mentioned. This is no longer there.

8 This T-shaped building -- Building 459 --

9 this was the auto repair facility. Building 158 --

10 this was, I believe, the auto hobby shop, or 506

11 the auto hobby shop.

12 These ones that are outlined or shaded

13 with white, those buildings are no longer there.

14 So, this building is here. Well, this is filled in.

15 This T-shaped building is still there, but it's not

16 being used anymore as an auto repair facility.

17 During the investigation, I think,

18 initially, they went to look at some of the petroleum

19 aspects. As they were excavating, they came across

20 this debris layer down in here. Essentially, it was

21 deemed that debris layer may have been associated with

22 past incinerator activities. So, that represents some

23 potential contamination at that site that is going

24 to be evaluated here. What they found at this point

25 is arsenic, cadmium and lead associated with the debris

1 layer.

2 I mentioned the incinerator.

3 The anticipated future land use for Site 7,

4 as well for Site 8, is deemed right now -- currently,

5 Alameda intends to use this for residential use. So,

6 we looked at and considered what the future use was

7 in determining and defining goals to set for the

8 area. So, as we looked at this debris layer -- and

9 I'll mention the SWMUs as well, too -- we're evaluating

10 against the constituents here and looking at setting

11 the remedial goals at these levels here, which are,

12 namely, based on Environmental Protection Agency

13 Region IX PRGs for residential use.

14 So, as we looked at those goals as to what

15 to do with the debris layer, we, essentially, looked at

16 no action as an alternative. This is kind of a baseline

17 alternative that's always evaluated during this process.

18 And we looked at the soil sampling and excavation and

19 then disposing off site of that area that's been

20 excavated.

21 And then, as we formulate these alternatives,

22 essentially, we evaluate it against nine criteria.

23 The nine criteria are essentially as posted here --

24 overall protection of human health, compliance

25 with what we call ARARs, analysis of the long-term

1 effectiveness and permanence, the reduction of toxicity,
2 mobility and volume through treatment, the short-term
3 effectiveness, implementability, cost. And then we
4 look at, finally, the state acceptance and community
5 acceptance during the remedial -- I'm sorry -- during
6 the ROD stage. So, part of this participation here is
7 steps 8 and 9.
8 So, I present this here. And just keep in
9 mind these are the nine criteria. We're going to look
10 at all these different alternatives throughout the
11 night.
12 So, as we analyzed against these nine
13 criteria, we decided that excavation with off-site
14 disposal was the preferred alternative. So, our
15 preferred alternative consists -- again, I mentioned
16 these Solid Waste Management Units, these SWMUs, which
17 also consist of oil-water separators. Those have been
18 in place. We're going to go ahead and sample around
19 those things and determine whether there's constituents
20 that exceed those goals we mentioned, the residential
21 PRGs. If so, we'll go ahead and excavate that soil
22 and haul it off site, dispose of it in a proper
23 landfill.
24 Likewise, too, I had mentioned this area,
25 this debris area. This is the other area we're going

1 to go ahead and look at and compare against those goals
2 and excavate and remove off site, if deemed necessary.
3 Now, here is the groundwater at Site 7.
4 Again, because of the petroleum or the gasoline
5 activities repair stuff, this site is being handled
6 by the Total Petroleum Hydrocarbon Program, primarily.
7 We don't see any constituents at this point that would
8 concern us in terms of pulling it through the CERCLA
9 process. So, the water will be addressed but as part
10 of the Total Petroleum Hydrocarbon Program.
11 So, moving on to Site 8. Site 8 was the
12 former pesticide storage area. It consisted -- again,
13 I'll just mention here some Solid Waste Management
14 Units. There's also a fuel line. The fuel line is
15 being handled under the Petroleum Corrective Action
16 Program.
17 Looking at the site here, there's pesticide
18 stored in here. These buildings were used as some
19 of the public works storage areas. There was some
20 washdown activity in this area within here. And
21 this is that former fuel line I just mentioned.
22 In the investigation process, it was
23 found that there were elevated concentrations of
24 lead, pesticides and PCBs, primarily in that
25 northeast corner. The presence of these elevated

1 concentrations seemed to be historically related to
2 the use of paint or spent oil used for weed control.
3 The PCBs were in the spent oil that was used for weed
4 control. Again, I mentioned where those concentrations
5 seemed high.
6 So, I'll quickly go through.
7 It's the same kind of process I just
8 discussed for Site 7. This land -- the future use
9 for this site is -- Alameda is looking at it for
10 residential usage.
11 These are the chemicals of concern here.
12 These aerochlors (ph) are PCBs, that being the
13 chemical term for them. Dieldrin was pesticide.
14 And there's lead. These are the residential PRGs.
15 They're being set as the goals for this site.
16 On this site, we looked at three alternatives.
17 This was no action. Alternative two is sampling and
18 institutional controls, and alternative three is soil
19 sampling. And then, if it comes across up, we'll
20 excavate it and dispose of off site. The sampling
21 and institutional controls would be, essentially,
22 leaving the soil in place but designating it as areas
23 that could not be used for residential in that part of
24 the area that's concerned.
25 As we took this through the process and

1 looked at, again, the nine criteria I had mentioned,
2 we decided that alternative three, the excavation
3 and removal and disposing of it off site, was the
4 alternative the Navy prefers to go with. Again, this
5 is a similar nature to Site 7, where we're looking at
6 the RCRA units, SWM units and investigating to see if
7 those soils exceed the criteria and then disposing off
8 the site, as well as that area I mentioned right in
9 here that would be excavated.
10 Groundwater.
11 Again, I mentioned about the former fuel
12 line. This is being handled by the Total Petroleum
13 Hydrocarbon Program. We did see some benzene and TCE
14 levels. However, they've been decreasing historically
15 since 1995. So, at this point, we'll continue to be
16 sampling in this area. However, we don't anticipate
17 that there will be action taken through the CERCLA
18 process. This just would be the stuff handled by
19 the total petroleum process.
20 So, this is the point where, since it's a
21 mouthful, I want to ask if people have any questions
22 regarding 7 or 8 at this point.
23 Okay.
24 I know from the audience that 6 and 16 are
25 the ones that are more interesting.

1 MS. YORK: Yes.

2 MR. PECK: Okay. Site 6. Let me start off

3 over here.

4 Site 6, this is one of the big hangars,

5 Building 41. This was used to house the seaplanes

6 and, later, repair aircraft. This is the one that

7 says "Pan Am" on the side.

8 And Kin and --

9 MS. YORK: I'm sorry. My name is Marilyn

10 York.

11 MR. PECK: Thanks.

12 They're both from the Naval Air Museum, and

13 they happen to actually be located in Building 77 here

14 and, I guess, historically, at least, some of Building

15 41 as well, too.

16 And Kin pointed out to me -- and I think I

17 remember this in a former discussion, too -- that,

18 actually, the Pan Am stuff was up here, although some

19 people, I guess, get this hangar confused with Pan Am

20 activities.

21 MS. YORK: That sign was only put there

22 because they had a big Pan Am celebration there.

23 They painted the floor, and they had all the original

24 founders.

25 MR. PECK: Hanging out in the hangar there?

1 MS. YORK: Yes. This had a big celebration.
2 It was an anniversary. I think now they're up to 64.
3 Go ahead. I'm sorry.
4 MR. PECK: There you go. So, that's the
5 trivia on the Pan Am part of it.
6 This also has a few of the Solid Waste
7 Management Units -- our acronym, we call it "SWMUs" --
8 that we'll be looking at as well. Let's see.
9 In addition to this hangar, these areas
10 here -- these green areas, those were the areas where
11 they would wash down the planes or parts, et cetera.
12 So, these were part of the contributions, as it were,
13 to the groundwater plume, which we'll be describing
14 in a little bit here.
15 Actually, those activities themselves,
16 the solvents related to them, such as TCE, we found
17 those in the groundwater plume. We also have found
18 PCE, which is also solvent, and the breakdown products
19 over time, such as DCE -- dichloroethene -- and vinyl
20 chloride. So, these, in essence, are drivers for us
21 in terms of looking at the groundwater.
22 Now, for Sites 6 and 16, both of these
23 are deemed currently as commercial and industrial use
24 in the future, not, at this point, residential. And
25 so we looked -- in terms of soil, essentially, all

1 we look at, again, is these oil-water separators in
2 deciding whether they have any contamination that's
3 exceeding PRGs. If so, then we're going to essentially
4 excavate those and take the stuff off site. That's kind
5 of what we decided when we went through this process,
6 similar to what I just described for 6 and 7.
7 For the groundwater, in this case here, we
8 set removal objectives to protect the beneficial use
9 of the aquifer. And, also, just in case there are
10 any volatiles that can come off the groundwater and
11 into the structures, we'll look to make sure, as these
12 things are occupied by commercial or industrial workers,
13 that there's not an inhalation risk.
14 Now, at Site 6, the groundwater is currently
15 not used for potable water. At this aspect here, the
16 Navy hasn't obtained the concurrence from the water
17 board and agencies that this portion of the aquifer
18 would be exempt from the larger, basin-wide plan. So,
19 at this point, from a PRG standpoint, we're proposing
20 the MCLs -- that's maximum contamination limits.
21 These are the ones that are set for, basically,
22 potable water, drinking water, that you would have
23 at the tap. And the constituents of concern here
24 are these solvents that were conceivably used in the
25 washdown areas here.

1 These are the MCLs set by the federal and
2 state agencies.
3 So, for groundwater, we looked at four
4 alternatives for Site 6. You're going to see these
5 same four alternatives as I speak about Site 16 in
6 a moment, too. The first, again, is the no action,
7 where we just look at a baseline as if we just
8 left stuff in place. The second alternative is to,
9 essentially, watch, as the plume naturally attenuates
10 over time, to see if it's going to achieve these MCLs
11 on its own and set institutional controls on the
12 limitation of use as that's happening.
13 Alternative three. We're looking at doing
14 something more active here. In this case, treating
15 the water. We're looking at -- for alternative
16 three, anyway -- treating it to make sure that the
17 volatilization risk is taken care of and then letting
18 the plume attenuate and biodegrade and naturally
19 attenuate over time to, again, those goals. The
20 way we're proposing for alternative three to do that
21 is a process of in-situ chemical oxidation.
22 I won't belabor the point here. However,
23 there are some posters in the back on that. And
24 I'll also entice you to pick up some literature here
25 to describe the technology. It's described in the

1 Proposed Plan and Feasibility Study.

2 And then we'll follow that with

3 bioremediation. Again, the info is available to

4 you here.

5 For alternative four, we're looking at

6 even a more-active component where we would implement

7 again this in-situ chemical oxidation and accelerate

8 the bioremediation to a point towards these MCLs with

9 monitoring natural attenuation, picking up along

10 the outskirts of the plume to bring us to the final

11 remedial goal.

12 So, we set these four alternatives

13 against the nine criteria, our seven aspects of it.

14 We decided that the Navy presents alternative four,

15 the more-active component, as the preferred alternative.

16 And the agencies concur.

17 In this process, we're looking at also doing

18 some further delineation of the groundwater plume that's

19 depicted as we know it here. And I described to you the

20 technologies that would be involved to meet the cleanup

21 goals.

22 I want to move on to our last site for the

23 evening, Site 16.

24 Again, this area, like the other sites, is

25 primarily covered by asphalt, concrete and buildings.

1 Past uses at this site were -- let me get to that
2 figure.
3 Past uses at this site. There was a
4 scrapyard out here, and airplanes were parked,
5 historically, at one point in this area. Then, later
6 on, the Navy brought in the larger containers. That's
7 what you see. All these demarcated as individual units
8 and stuff are storage containers -- big, white storage
9 containers.
10 We also have Building 608, as pictured here.
11 This down in here was historically, I believe, an auto
12 hobby shop in there. A couple washdown areas. And we
13 have again some of these Solid Waste Management Units
14 we're going to look at. And there's areas here that are
15 also being covered by the Total Petroleum Hydrocarbon
16 Program.
17 So, during our investigation, we found metals
18 and PCBs in soil. We actually had performed a removal
19 action to excavate and remove this contaminated soil
20 with the PCBs and metals. And that's shown here in
21 these brown areas.
22 We found in the groundwater that we've
23 got elevated concentrations of chlorinated solvents
24 similar to Site 6, again from the degreasing of the
25 aircraft engines and the washdown activities. And

1 so, in 2004, we went in and did some of the in-situ
2 chemical oxidation, injecting oxidants to break apart
3 the compound. We did that within this area, and we
4 did that within this area as well, too. This was kind
5 of an initial removal action to deal with some of the
6 stuff.
7 We're going to be doing some further remedial
8 action on these groundwater plumes.
9 So, again, the future site use is commercial
10 and industrial.
11 The remedial action objectives for the soil
12 are similar to the other sites we discussed, where
13 we're going to look at what's going on with these
14 different Solid Waste Management Unit areas, and
15 we're going to look at checking the soil and excavating
16 if it exceeds PRGs.
17 We're also going to look again at the areas
18 there that were previously excavated and ensure that
19 the PCB removal is consistent with our goals to date.
20 And, also, too, we're going to look -- we're going
21 to implement, as part of our design or -- our collection
22 activity under some of these containers as well, too.
23 So, we have our alternatives for soil.
24 I won't belabor this point. It's the same thing I
25 described for the other sites. Again, we picked

1 the excavation with disposal in landfill.

2 So, our remedial action objective here for

3 the groundwater at Site 16 is, again, to protect the

4 beneficial use of the aquifer and minimize potential

5 inhalation to commercial workers. So, in achieving

6 that, we're looking at again the maximum contaminant

7 levels, MCLs. Those are listed here for the

8 constituents we had found of primary concern within

9 these couple groundwater plumes.

10 We have presented four alternatives.

11 These are the four I described for Site 6, the same

12 type of alternatives here for Site 16. Again, no

13 action, monitored natural attenuation with institutional

14 controls, some active treatment, and then even more

15 vigorous treatment, or longer treatment, if you will,

16 for alternative four.

17 We also chose, for Site 16, to proceed

18 with alternative four. Or that's what we're presenting

19 tonight, I should say. The regulatory agencies concur.

20 And we're looking for your guys' input on this and the

21 other sites.

22 I can take questions, if you have questions,

23 on the technologies. Or as I mentioned, there's some

24 stuff -- info on the posterboards and some literature

25 here from the EPA on these different technologies.

1 And so these are the areas we're looking
2 to treat for the groundwater at Site 16.
3 This is a wrapup, essentially, of the four
4 sites and what we've chosen to do for each of these.
5 I'll leave this slide on there during
6 questions.
7 Essentially, the next step in this process is
8 we're soliciting public comments. As Thomas mentioned,
9 you can offer comments tonight or you can put them on
10 the comment forms. I see there are some comment forms
11 on the table next to where you signed in.
12 And as part of the CERCLA process, we have
13 to respond to these comments. And those responses
14 are attached to the back of the Record of Decision,
15 and they're also incorporated into the nine criteria
16 and the final choice as to what we're going to do.
17 And so, as we go through in the Record of
18 Decision, as it's been signed off by the agencies,
19 there will be an announcement in the paper that it's
20 available here and other places to review. Then we
21 move on, essentially, to the remedial design and the
22 cleanup in the end.
23 MR. MACCHIARELLA: Okay. So, now we're at the
24 point in the agenda where we can answer any clarifying
25 questions you have before we move on to soliciting your

1 public comments.

2 MS. YORK: (Indicating.)

3 MR. MACCHIARELLA: Yes, ma'am?

4 MS. YORK: I'd like a time frame on the

5 cleanup for area 6, mainly around 41.

6 MR. PECK: Okay. Let me make sure I

7 understand the question.

8 Would you be interested in primarily --

9 I know what you're interested in because you're in

10 that location.

11 Are you interested in primarily the soil

12 aspect or the groundwater aspect or both?

13 MR. ROBLES: Both.

14 MR. PECK: Okay. The soil stuff here --

15 if it's all right to work off of this? I don't want

16 to go back on the slide.

17 We're looking at -- there's a couple

18 oil----water separators in here and, also, one

19 collection point, which may not be an issue. So,

20 actually, we're going to be going and looking at

21 the soil investigation fairly soon -- within the

22 next -- within this year or so, I would say.

23 Then, at that point -- let's see. In terms

24 of actual implementation, that's going to be -- what

25 did we say? About two years? It may be two years

1 off. But the actual implementation, if it's deemed
2 to actually clean up soil, that would not take too
3 long at all. We're talking, probably, for each of
4 these things -- probably a week or so.
5 It may be longer. That might be a little
6 optimistic.
7 Now, for the groundwater aspect of it,
8 this will be somewhat long a process. To actually --
9 I think -- your concern is probably actually how long
10 the implementation would be. Right?
11 MS. YORK: I can tell you why I asked the
12 question.
13 MR. PECK: Sure.
14 MS. YORK: At some point, we would like to
15 lease the building. And in order to do that, if we
16 had some kind of a time frame as to how long the
17 cleanup would take, we would then know how much time
18 we have to get funding.
19 MR. PECK: Excellent question. Or excellent
20 "clarification," I should say.
21 Now, are we speaking of 41?
22 MS. YORK: Yes.
23 MR. PECK: 77 is outside of the site. Right?
24 MS. YORK: Yes.
25 MR. PECK: 41... The technique, essentially,

1 we're looking at, we're preferring, would be to go in --
2 you take drill rigs; and you go in, and you would push
3 down the constituents into the ground.
4 MS. YORK: A core sample?
5 MR. PECK: They would collect some core
6 samples. But to actually implement remediation, it
7 would be to put some points across in this thing and
8 outside here.
9 So, what it is, it's kind of -- you go and
10 do that, and then you remove the equipment. You see
11 what happens. Then you go back and do it again with
12 the drill rigs and remove the equipment. So, that span
13 of time could be, you know -- as we do ISCO for a year
14 or two, then we may do the bio, say, like, three years
15 or so.
16 MS. YORK: A good estimate may be, possibly,
17 five years?
18 MR. PECK: I bring up this table because
19 this will be similar. Let me see.
20 Let me go back to Site 6 here. It's in
21 the table here. I think this will be more pointed.
22 So, what we're looking at -- we estimate
23 the duration itself may be about six years. Now, it's
24 still further out to get to that point of actually
25 implementing it, so we're still maybe two years plus

1 to actually get to that point, so -- we haven't gone
2 in the design standpoint, so this is kind of a best
3 guess, if you will.
4 MR. ROBLES: Following up on that, if I
5 may, Marilyn?
6 MS. YORK: Sure. Please.
7 MR. ROBLES: Having some knowledge of
8 plumes and their migration, we're very close to where
9 the plume is deemed to be right now in our existing
10 building, 77.
11 MR. PECK: Right.
12 MR. ROBLES: Does the plume migrate more
13 rapidly in any particular direction? Is it coming
14 towards us?
15 MS. YORK: Is it toward the lagoon?
16 MR. ROBLES: Do you have any sense?
17 I'm assuming plumes don't move equally in
18 different directions.
19 If you don't have any answer tonight,
20 that's fine. It's something we would be interested
21 in knowing if you have a sense of where that plume is
22 moving.
23 MR. PECK: This is the harbor down below
24 here.
25 Unfortunately, the person that would know

that is not here tonight, although I may ask if Anna-Marie wants to chime in.

I believe there might be a couple components to the flow. I believe they're away from 77, as it were. Essentially, there was some -- let's see.

MR. ROBLES: It would be very --

MR. PECK: Historically, I think some of it came from here. I think it's flowing in this direction, essentially.

MR. MACCHIARELLA: What's interesting about the groundwater flow at Alameda Point is that the groundwater surface is relatively flat, so it doesn't move rapidly in any direction. It's actually pretty hard to tell, in a very specific spot in Alameda Point, which way the groundwater is going, it's so flat, and we have water surrounding nearly all of the facility. And so it's just an awkward flow direction map, if you will. In some places, it's flowing north and, others, south or west.

MS. YORK: We're trying to develop a five-year plan because -- the Navy teaches proper prior planning prevents poor performance.

MR. MACCHIARELLA: Right.

MS. YORK: We're trying to raise funding to

1 accomplish this. We have -- maybe you don't care about
2 this but -- an architect who has done a drawing for us
3 with 77 and 41, VB & Associates, Braun Steiner (ph).
4 He did it pro bono, no cost.
5 This is the direction we're working for.
6 So, that's why I'm asking these questions.
7 And thank you.
8 MR. ROBLES: If the plume is moving our
9 way and some of the in situ has to take place at our
10 facility, then, of course, that's going to have an
11 impact on us.
12 So, that's the question.
13 MR. MACCHIARELLA: We can get you more
14 information. We can look into it further.
15 MS. RHOADES: The groundwater is flowing
16 southwest from the site, according to the Feasibility
17 Study.
18 MR. PECK: Southwest would be in this aspect.
19 MS. RHOADES: Right.
20 MR. PECK: Now, plumes don't have a straight
21 line like this.
22 So, I think the question you're looking for
23 is what's in wells -- there's no pictures here. It's
24 what's in wells here.
25 And perhaps Deanna can help answer that

1 realtime, or we can come back to that, I mean.

2 So, I think that's probably -- the info is

3 what have we historically seen here. This is kind of

4 a truncation based on some clean point over here versus

5 some elevated concentration on this side. So, I think

6 that would be the aspect. That's, I think, what Thomas

7 is alluding to to help provide that answer.

8 MR. ROBLES: That would be good.

9 MR. PECK: It's a valid concern. Obviously,

10 we wouldn't be here describing it tonight if you guys

11 weren't here asking the stuff. So, I'm glad you guys

12 are here.

13 MS. YORK: We're very interested.

14 MR. MACCHIARELLA: Any other questions?

15 Okay.

16 MR. ROBLES: If I can follow up a little

17 more?

18 MR. MACCHIARELLA: Sure.

19 MR. ROBLES: So, site closure is at the end

20 of your chain of events.

21 What does that mean? Does that mean that --

22 MR. MACCHIARELLA: Sure. At some --

23 MR. ROBLES: -- the wells that are going

24 down are going to be closed off? Does it mean the

25 entire area is going to be closed off? Does it mean

1 that 77 could be closed off during soil excavation?

2 MR. MACCHIARELLA: "Site closure" means we

3 completed the process, and the site is cleaned up to

4 the standards we've set.

5 So, we'll go through this process. We'll

6 select an alternative. We'll initiate the cleanup.

7 And then, once the cleanup is finished and the

8 groundwater has been cleaned up to the standards

9 we've selected, then we will go through a site

10 closure process, which involves the regulatory

11 agencies buying off that it's complete.

12 During the actual implementation, there

13 will be some fieldwork, obviously. So, there might be

14 some short-term interruptions to traffic and, perhaps,

15 building activities, but we try and limit that when

16 there are tenants. But I don't expect any long-term

17 interruptions in the buildings.

18 So, you know, during construction, you can

19 expect some activities nearby.

20 MR. ROBLES: Okay.

21 MS. TROTTER: Is there any tie-in, then, to

22 when the Navy might turn it over to the city in that

23 time frame?

24 MR. MACCHIARELLA: The process that we're

25 engaging in with the city actually does not depend on

1 when the sites are cleaned up. So, the transfer to the
2 city can occur at any point.
3 MS. TROTTER: Okay.
4 MR. MACCHIARELLA: Any other questions?
5 Okay. How about public comments? Do we have
6 any public comments on any of the sites we've mentioned
7 tonight with regard to the Proposed Plan?
8 Mr. Peterson?
9 MR. PETERSON: Okay. My concern, as I
10 mentioned as far as -- at the RAB meeting on -- what
11 was that? The 6th? Whatever.
12 MR. MACCHIARELLA: Last week or so.
13 MR. PETERSON: Yeah, last week -- was --
14 my concern, as far as Site 16, is to make sure that
15 it is cleaned up to the ultimate standard, based on
16 the fact that it's adjacent to the neighboring high
17 school that's right across one small road from it.
18 The prevailing winds usually blow from the site
19 towards the high school.
20 But besides the high school, I'm very
21 concerned as far as the residential area, which
22 is approximately less than a block away from the
23 northeast corner of the site. As I mentioned,
24 though, I was very concerned when they had the
25 cleanup of -- it was approximately -- what? -- seven

1 years, or whatever, the excavation. Could have been
2 longer -- with the PCBs that were excavated. Some
3 of it is actually between -- as far as some of the
4 containers that are on the site, some of the excavation
5 site was between them, making me wonder how clean the
6 soil is underneath the containers.
7 I've been told just recently that that's
8 going to be looked into and sampling will be done
9 as far as under those containers because, again,
10 there are stored several different items, as far
11 as machinery and all, underneath that site in the
12 containers. And any kind of spills could actually
13 have resulted in something easily being found under
14 them in the soil.
15 I'm sure that the plans for the city will
16 be sooner rather than later to remove those containers,
17 because I don't see that being in the city's plan to
18 redevelop the area. So, I'd like to make sure that
19 anything along the eastern side, specifically, of Site
20 16 is taken care of and looked at extremely carefully
21 because, again, we have students that would be exposed
22 to any kind of possible chemicals.
23 MR. MACCHIARELLA: Thank you for your comment.
24 Any others?
25 Okay.

1 Of course, our comment period is open through
2 May 26. If anybody changes their mind or knows anybody
3 else who would like to provide comments, please do.
4 With that, we're all done tonight.
5 Thank you very much for coming and taking
6 time out of your day. I appreciate it.
7 Have a great night.
8 This meeting is adjourned.
9 (Off the record at 7:38 p.m.)
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STATE OF CALIFORNIA) SS.

I do hereby certify that the hearing was held at the time and place therein stated; that the statements made were reported by me, a certified shorthand reporter and disinterested person, and were, under my supervision, thereafter transcribed into typewriting.

And I further certify that I am not of counsel or attorney for either or any of the participants in said hearing nor in any way personally interested or involved in the matters therein discussed.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my seal of office this ____ day of June, 2006.

VALERIE E. JENSEN

Certified Shorthand Reporter

Sign-In Sheet, Public Meeting for Operable Unit 1, Sites 6, 7, 8, 16
Alameda Point, California – May 16, 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: Tommie Jean Damrel SulTech	Street: 135 Main St. Ste 1800 City, State and Zip: SF, CA 94105					Navy Contractor
Name: Steve Peck Navy	Street: 1455 Frazee Rd City, State and Zip: San Diego, CA 92108					
Name: DEREK ROBINSON NAVY	Street: 1455 FRAZEE RD City, State and Zip: S.D., CA 92108					
Name: Deanna Rhoades SulTech	Street: 409 Camino Del Rio South City, State and Zip: San Diego CA 91941					
Name: Thomas Macchiarella Navy	Street: 1455 Frazee Rd City, State and Zip: SD, CA 92108					
Name: KIN ROBLES ALAMEDA NAVAL AIR MUSEUM	Street: 5 LUCIA LN. City, State and Zip: MORAGA, CA 94556				✓	
Name: James Bauer Sustainable Technologies	Street: 1800 Orion st City, State and Zip: Alameda, CA	✓				
Name: Dot Lofstrom DTSC	Street: City, State and Zip:					

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PORTIONS OF THIS RECORD ARE CONSIDERED SENSITIVE AND ARE NOT FOR PUBLIC VIEWING

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RECORDS MANAGEMENT SPECIALIST
NAVAL FACILITIES ENGINEERING COMMAND SOUTHWEST
1220 PACIFIC HIGHWAY
SAN DIEGO, CA 92132

TELEPHONE: (619) 532-3676

Sign-In Sheet, Public Meeting for Operable Unit 1, Sites 6, 7, 8, 16
Alameda Point, California – May 16, 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 Anna-Marie Cook U.S. EPA	Street City, State and Zip					
Name CAROL TROTTER Alameda NAV Air Museum	Street City, State and Zip					
Name MARILYN YORK ALAMEDA NAVAL AIR MUSEUM	Street City, State and Zip					
Name Kurt Peterson RAB member	S C				✓	RAB meeting
Name PETER RUSSELL RRI for ARRA	440 NOVA ALBION WAY, SUITE City, State and Zip SAN RAFAEL, CA 94903					
Name	Street City, State and Zip					
Name	Street City, State and Zip					
Name	Street City, State and Zip					

NOTICE OF PROPOSED PLAN AND PUBLIC COMMENT PERIOD

BRAC PMO

Proposal of Remediation of Soil and Remediation of Groundwater at Selected Portions of Operable Unit 1, Installation Restoration Sites 6, 7, 8, and 16, Alameda Point, Alameda, California

The U.S. Department of the Navy (Navy), in coordination with state and environmental regulatory agencies, invites the public to comment on its Proposal of Remediation of Soil and Remediation of Groundwater at Selected Portions of Operable Unit 1 (OU-1), Installation Restoration (IR) Sites 6, 7, 8, and 16, at the former Alameda Naval Air Station, now referred to as Alameda Point, in Alameda, California. The Proposed Plan provides a summary of investigations performed within OU-1, including a remedial investigation, human health and ecological risk assessments and a feasibility study; and presents the preferred remedial alternatives for soil and groundwater at each site.

IR Sites 6, 7, 8, and 16 were designated as OU-1 sites because they are relatively small and have low levels of contamination related to historical use of the sites. The sites are located in the central portion of Alameda Point.

Site 6 – Action is proposed to treat groundwater impacted with volatile organic compounds (VOCs). In addition, an action is proposed for soil to excavate and dispose of existing oil water separators and potentially impacted soil.

Site 7 – No action is proposed for groundwater because the remediation activities being conducted under the Navy's Total Petroleum Hydrocarbons program will reduce contaminant concentrations in groundwater. Action is proposed for soil to excavate and dispose of existing oil water separators and potentially impacted soil.

Site 8 – No action is proposed for groundwater because the concentrations of VOCs in groundwater have diminished over time, reducing the risk from exposures to below levels that would impact human health. Action is proposed for soil to excavate and dispose of existing oil water separators and potentially impacted soil.

Site 16 – Action is proposed to treat groundwater impacted with VOCs. In addition, an action is proposed to excavate and dispose of existing oil water separators and potentially impacted soil.

PUBLIC COMMENT PERIOD

The Navy invites interested members of the public to review and comment on the Proposed Plan during a 30-day Public Comment Period, from April 27, 2006 to May 26, 2006. Public comments must be submitted in writing and must be postmarked or e-mailed no later than May 26, 2006. Alternatively, members of the public are invited to attend a Public Meeting on May 16, 2006, from 6:30 p.m. to 8:00 p.m. If you have any questions or wish to comment on this project, please contact Mr. Thomas Macchiarella, Base Realignment and Closure (BRAC) Environmental Coordinator, BRAC Program Management Office West, 1455 Frazee Road, Suite 900, San Diego, California 92108-4310 (Thomas.macchiarella@navy.mil; (619) 532-0907 phone; (619) 532-0983 fax).

PUBLIC MEETING

The Navy will host a Public Meeting to discuss the Proposed Plan, answer questions, and accept public comments.

Date: May 16, 2006
Time: 6:30 p.m. to 8:00 p.m.

Location: 950 West Mall Square, Building 1, Room 201
Alameda Point, CA

FOR MORE INFORMATION

Copies of the Proposed Plan, the Remedial Investigation report, the Human Health and Ecological Risk Assessments reports, the Feasibility Study report, and other site documents are available for review at:

Alameda Point
950 West Mall Square, Building 1, Rooms 240-241
Alameda, California
(510) 749-5800

Alameda Public Library
2200 A Central Avenue
Alameda, California
(510) 747-7777

ATTACHMENT C
RESPONSIVENESS SUMMARY

18 pages.

C.1 STAKEHOLDER COMMENTS AND LEAD AGENCY RESPONSES

ALAMEDA POINT – ALAMEDA, CALIFORNIA		
PROPOSED PLAN, OPERABLE UNIT 1		
Letters Received During Public Comment Period on May 24, 2006		
Comments by: Patrick Lynch		
Number	**Comments**	**Responses**
1	The description of the CERCLA process contained in the Proposed Plan indicates that the Navy requested DTSC to defer corrective actions on RCRA solid waste management units to CERCLA response actions in June 2004. Is it correct to conclude that 11 years after the Navy failed to comply with the Corrective Action Schedule of Compliance contained in the Alameda Naval Air Station's 1993 RCRA permit, that the Navy requested DTSC not enforce the schedule of compliance? Has the RCRA permit been modified since June 2004 to note this significant change in permit conditions?	The U.S. Department of the Navy (Navy) discontinued operations at Naval Air Station (NAS) Alameda in 1997. The Resource Conservation and Recovery Act (RCRA) permit expired in July 2003. Consistent with Section 8 of the Federal Facility Agreement (FFA), the Navy and the California's Environmental Protection Agency's Department of Toxic Substances Control (DTSC) agree that activities to achieve compliance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) will also satisfy the corrective action requirements of the RCRA permit. Prior to the DTSC signing the FFA in November 2005, the Navy had issued a letter to DTSC in June 2004 (referred to in the comment) requesting integration of the CERCLA and RCRA programs.
2	The description of "Site Background" contained in the Proposed Plan states that groundwater beneath the central portion of Alameda Point is not currently being used as a source of drinking, irrigation, or industrial supply. The "Army Well" is located in the central portion of Alameda Point. Has the "Army Well" been closed in accordance with State standards for well abandonment? When was the last time the Army Well was used for irrigation supply at Alameda Point? Does this period of well pumping correspond to periods when toxic chemicals were released by the Navy at Sites 6, 7, 8, and 16? When was the last time the Army Well was sampled to determine if this water supply at Alameda Point has been impacted by Navy releases of toxic substances? What prevents the Army Well from being used in the future?	The "Army Well" is located at Building 176 within Parcel 97 of Economic Development Conveyance (EDC)-5/Site 35. The well is far outside the boundaries of Operable Unit 1 (OU-1) Sites 6, 7, 8, and 16 and is not affected by CERCLA contaminant groundwater plumes. In addition the well is screened deeper than the shallow aquifer. The "Army Well" is currently being used by the City of Alameda for irrigation water. The last time the Navy had sampled the well was in 1998 prior to the city taking over management of the well. Sampling within the area is currently being addressed under the Site 35 Remedial Investigation (RI).

ALAMEDA POINT – ALAMEDA, CALIFORNIA ***PROPOSED PLAN, OPERABLE UNIT 1***		
3	The Proposed Plan like others prepared by the US Navy for Alameda Point fails to reference documents (and the document's information repository index numbers) that support the Proposed Plan. The unwillingness of the Navy to provide this information to facilitate public input is responsible for the lack of public input and undermines public participation rather than encourages it.	The Navy appreciates public participation in the cleanup decisions and attempted to provide the public with clear descriptions of all environmental investigations at OU-1 in the Proposed Plan (Navy 2006). Proposed plans are designed to be relatively short, concise documents that present the lead agency's proposed plan for remedial action concerning how best to address contamination at sites(s), present alternatives that were evaluated, and explain the reasons the lead agency recommends the proposed plan. In addition, all documents that support the recommended alternative are contained in the publicly-available CERCLA administrative record, as noted in the Proposed Plan. Unlike the Record of Decision (ROD) document, references are typically not included as part of proposed plans. However, the Navy intends to provide a document index in its upcoming Alameda Point proposed plans.
4	What is the proximity of Site 16 groundwater contamination to Encinal High School? Does Encinal High School operate a preschool child-care facility adjacent to Site 16?	Encinal High School operates a daycare facility on the high school campus for students that are parents. The western edge of the Encinal High School campus is approximately 500 to 1000 feet from the contaminated groundwater. The Navy would like to point out that a successful removal action has been completed at Site 16 for chlorinated volatile organic compounds. Although additional work still remains, the groundwater monitoring program shows that groundwater flows west and southwest away from Encinal High School.

5	The Proposed Plan does not address chlordane contamination at Site 16 or at sites where Site 16 contamination has come to be located. Two soil confirmation samples collected from Site 16 during removal of an underground storage tank showed up to 850 ppm of chlordane at the soil/groundwater interface. California regulates soils containing over 2.5 ppm chlordane as hazardous waste. (a) The Proposed Plan does not address chlordane in soil at Site 16. (b) Soils excavated during underground storage tank removal were not properly stored on base. For example, a parking lot at Pacific Avenue and Central Avenue was used as a storage area for contaminated soil excavated during the removal of underground storage tanks. Ten years later soil eroded by wind and rain from these soil piles remains accumulated against the fence forming the boundary between Alameda Naval Air Station and the surrounding residential neighborhoods. Did this soil originate in part from Site 16? (c) The contaminated soil was stockpiled for over a year in this parking lot in violation of BAAQMD regulations and the Naval Air Stations RCRA permit. The soil was later disposed of on-base in two former above-ground water tanks, and was also used to fill seasonal wetlands located near the water tanks. (d) The Proposed Plan does not address this chlordane-contaminated soil that was excavated during the underground storage tank removal and later released on base.	(a) The site-specific human health risk assessment conducted at Site 16 concluded that chlordane is not a chemical of concern in soil. For additional information, see the Final RI Report for OU-1 (Tetra Tech 2004). Appendix G of that document provides the complete baseline human health risk assessment methodology and results. (b) The soils referred to were excavated during the removal of numerous underground storage tanks at NAS Alameda. The excavation, storage, and ultimate disposal of the soil were carried out under the oversight of State and County regulatory officials. It is impossible to ascertain the origin of any soil along the fence line. However, it is known that soil excavated during the removal of Tank 608-1 was transported to what was known as Area 547 (parking lot of the former gas station located at the corner of Pacific and Central Avenues). (c) The Navy did not receive any official notification from either the Bay Area Air Quality Management District (BAAQMD) or the State of California that its actions at the time were in violation of rules or permits. (d) As noted in part (a) above, exposure to the concentrations of chlordane in soil does not pose a risk to human health. There is no need for the OU-1 Proposed Plan to address chlordane in soil.

ALAMEDA POINT – ALAMEDA, CALIFORNIA ***PROPOSED PLAN, OPERABLE UNIT 1***		
6	Site 16 has been used as a residence since the base closed and this home is located immediately above the groundwater contamination plume. What is the risk to the current Site 16 resident? Will this exposure risk increase or decrease during active groundwater remediation?	There is no residence at Site 16. The trailer at Site 16 is used by on-duty security guards that work for the current sublessee (CSI Mini Storage). The risk assessment for commercial industrial workers was 1×10^{-5}. The risk to commercial/industrial workers from exposure to groundwater contaminants would likely decrease during active groundwater remediation.
7	To accommodate residential use at Site 16, soil excavations were performed to install utilities. Please document the disposal method used for contaminated soil removed during this utility installation at Site 16 in the Responsiveness Summary.	There is no residence at Site 16.

ALAMEDA POINT – ALAMEDA, CALIFORNIA		
PROPOSED PLAN, OPERABLE UNIT 1		
Letters Received During Public Comment Period on May 26, 2006		
Comments by: Alameda Reuse and Redevelopment Authority		
General Comments Number	**Comments**	**Responses**
1	The ROD (Record of Decision) for these OU-1 sites must specify the scope of any future investigation to address data gaps. This information should have been provided in the PP. Instead the PP defers this issue until after the primary regulatory decision making (the ROD) has occurred. "The Final RI Report summarizes additional data gaps which were identified by the Navy and the regulatory agencies. These data gaps will be addressed in the remedial design." (p.3, right, bottom). The PP should have clarified the nature of the data gaps and spelled out the scope of an investigation the environmental regulatory agencies will find acceptable. Customarily investigation to resolve data gaps occurs before decision making about the remedy, but sometimes it is more practical to postpone closing minor data gaps until the remedial design. However, the objective and scope of deferred investigation tasks must be detailed in the ROD, if not sooner.	The objectives of future investigation activities to address data gaps will be provided in the OU-1 Sites 6, 7, 8, and 16 ROD. However, the Navy and the regulatory agencies have agreed that detailed information regarding the data gap investigations will be provided in the remedial design phase of the CERCLA process.

2	By approving the ROD, the DTSC (California Environmental Protection Agency, Department of Toxic Substances Control) must confirm that successful implementation of the ROD will be sufficient remediation to justify closure of the linked RCRA SWMUs (Resource Conservation and Recovery Act solid waste management units). Many SWMUs are located within OU-1 sites, and the sites themselves are SWMUs. As a matter of regulatory efficiency, remedies should be selected in the ROD that will provide a level of cleanup that is acceptable to the DTSC for closure of the coincident SWMUs. The ROD should specifically recognize DTSC's intention in this regard.	The OU-1 ROD describes how each solid waste management unit (SWMU) within the OU-1 sites is being addressed. For Site 6, the Navy and DTSC have agreed that no further corrective action will be required at NAS generator accumulation point (GAP) 25. Further corrective action will be required at SWMUs oil-water separators (OWS) 040A, 040B, and 041, and washdown areas (WD) 040 and 041A. The selected soil remedy presented in the OU-1 ROD for Site 6 includes the additional actions required to obtain "corrective action complete" status for each of these SWMUs. For Site 7, the Navy and DTSC have agreed that no further corrective action will be required at NAS GAP 30. SWMUs underground storage tank (UST)(R)-15/NAS GAP 16 and UST(R)-16 have been deferred to the Alameda Point total petroleum hydrocarbons (TPH) program. Further corrective action will be required at OWS 459. The selected soil remedy presented in the OU-1 ROD for Site 7 includes the additional actions required to obtain "corrective action complete" status for this SWMU. For Site 8, the Navy and DTSC have agreed that no further corrective action will be required at NAS GAP 03. Further corrective action will be required at SWMUs OWS 114 and WD 114. The selected soil remedy presented in the OU-1 ROD for Site 8 includes the additional actions required to obtain "corrective action complete" status for each of these SWMUs. For Site 16, the Navy and DTSC have agreed that no further corrective action will be required at aboveground storage tanks (AST) 338-A1 and 608, and WD 608. AST 338-D4 has been deferred to the Alameda Point TPH program. Further corrective action will be required at SWMUs OWSs 608A and 608B, and UST(R)-18/NAS GAP 17. The selected soil remedy presented in the OU-1 ROD for Site 16 includes the additional actions required to obtain "corrective action complete" status for each of these SWMUs. Additional information regarding the status of each SWMU in Sites 6, 7, 8, and 16 is presented in Sections 2.2.2.2, 3.2.2.2, 4.2.2.2, and 5.2.2.2, respectively of the OU-1 ROD.

ALAMEDA POINT – ALAMEDA, CALIFORNIA ***PROPOSED PLAN, OPERABLE UNIT 1***		
3	For Sites 7 and 16, the ROD must specify the issues to be addressed to achieve closure of the RCRA SWMUs. This specification would include discussion of the scope of any further investigation and remediation.	Please see response to General Comment 2.

ALAMEDA POINT – ALAMEDA, CALIFORNIA		
PROPOSED PLAN, OPERABLE UNIT 1		
Letters Received During Public Comment Period on May 26, 2006		
Comments by: Alameda Reuse and Redevelopment Authority		
Specific Comments Number	**Comments**	**Responses**
1	Site 6 Remedial Investigation and Feasibility Study Summary The ROD must specify the objective and scope of the investigation that will be conducted for Site 6 groundwater during remedial design. The PP text is unclear about the nature of future groundwater investigation that will be required at Site 6: "Based on the results of the RI, further evaluation in an FS was recommended to delineate the chemicals that were detected in groundwater." (p. 5, right, bottom) It is even unclear whether the groundwater data gap involves only the lateral extent of the plume, or also its vertical extent. The PP should have specified the nature of the data gap and the goal of the future groundwater investigation. For example, the PP could have said, "The northwest boundary of the groundwater plume has not been defined yet. Additional investigation will be conducted in the remedial design to delineate the lateral extent of constituents of concern in the northwest quadrant of the plume."	The objectives of the investigation conducted for Site 6 groundwater during remedial design will be provided in the OU-1 ROD. However, the Navy and regulatory agencies have agreed that detailed information regarding the investigation will be provided in the remedial design phase of the CERCLA process.

ALAMEDA POINT – ALAMEDA, CALIFORNIA ***PROPOSED PLAN, OPERABLE UNIT 1***		
2	Site 6 Remedial Investigation and Feasibility Study Summary The ROD must specify the objective and scope of the investigation that will be conducted for the Site 6 OWSs (oil-water separators) during remedial design. The PP text is unclear about the nature of any future investigation of OWS that will be required at Site 6: "...[N]o remedial action for soil is necessary at Site 6 to protect human health, except for additional investigation of potential contamination at the OWSs." (p.6, left, bottom) It is even unclear whether the OWS data gap involves only soil, or also groundwater. The PP should have specified the nature of the data gap and the goal of the future OWS investigation. For example, the PP could have said, "Additional characterization of the soil and groundwater beneath and directly adjacent to the OWSs will be conducted in the remedial design to identify the nature and extent of constituents of concern that may have been released from the OWSs."	The objectives of the investigation conducted for the Site 6 OWSs during remedial design will be provided in the OU-1 ROD. However, the Navy and regulatory agencies have agreed that detailed information regarding the investigation will be provided in the remedial design phase of the CERCLA process.
3	Site 6 Groundwater The ROD must confirm that the selected remedy for Site 6 groundwater will be acceptable to the DTSC for closure of the SWMUs. The PP states this intention: "The planned groundwater remedial action is also intended to close the RCRA SWMUs at Site 6." (p. 7, right, middle) The PP should have disclosed whether the DTSC concurs with this statement. Even though the DTSC reviews and comments on draft proposed plans, it is unclear whether this is an instance where the Navy and the environmental regulatory agency agree to disagree.	Based on evaluations conducted by the Navy using requirements stipulated in the final hazardous waste facility permit for Alameda Point, the Navy has recommended no further corrective action for NAS GAP 25 (SulTech 2004). DTSC also concurred with the no further corrective action recommendation for NAS GAP 25. The selected remedy within this ROD is intended to address the additional actions required to obtain "corrective action complete" status for OWSs 040A, 040B, and 041, and WDs 040 and 041A. The selected remedy within this ROD is intended to address the additional actions necessary to obtain "corrective action complete" status of the SWMUs.

4	Site 7 Remedial Investigation and Feasibility Study Summary The ROD must specify the objectives and scopes of the investigations that will be conducted for the Site 7 debris layer and OWS during the remedial design. The PP text is unclear about the nature of any future investigations of the debris layer and of the OWS that will be required at Site 7: "The RI report recommended further evaluation of soil in the debris layer and near OWS 459." (p.9, left, bottom and right, top) The PP should have specified the nature of the debris layer data gap and the goal of the future investigation. For example, the PP could have said, "Additional characterization of the soil in the X and Y direction and beneath Building 459 will be conducted in the remedial design to identify the nature and extent of constituents of concern in the debris layer." The ARRA's comment regarding the future investigation needed for OWS 459 is the same as Specific Comment 2, above. Specifically, the PP should have specified the nature of the data gap and the goal of the future OWS investigation. For example, the PP could have said, "Additional characterization of the soil and groundwater beneath and directly adjacent to the OWSs will be conducted in the remedial design to identify the nature and extent of constituents of concern that may have been released from the OWSs."	The objectives of the investigations conducted for the Site 7 debris layer and OWS 459 during remedial design will be provided in the OU-1 ROD. The Navy and regulatory agencies have agreed that detailed information regarding the investigations will be provided in the remedial design phase of the CERCLA process.

ALAMEDA POINT – ALAMEDA, CALIFORNIA ***PROPOSED PLAN, OPERABLE UNIT 1***		
5	Site 7, Remedial Alternative 2: Sampling and Excavation with Off-Site Disposal of Soil The ROD must specify the nature of additional actions needed to close RCRA SWMUs at Site 7. The PP's recommended alternative for Site 7 includes the following: "Additional actions necessary to close the RCRA SWMUs will be identified and addressed in the remedial design." (p. 10, left, bottom) The PP should have disclosed what remaining issues exist and the steps that will be required by the environmental regulatory agencies in the remedial design to facilitate closure of the RCRA SWMUs at Site 7.	Based on evaluations conducted by the Navy using requirements stipulated in the final hazardous waste facility permit for Alameda Point, the Navy recommended no further corrective action for NAS GAP 30 and OWS 459 (SulTech 2004). During the June 19, 2006, site walk, DTSC concurred with the no further corrective action recommendation for NAS GAP 30 and UST(R)-16. UST(R)-15/NAS GAP 16 and UST(R)-16 have been deferred to the Alameda Point TPH program. The selected soil remedy within this ROD is intended to address the additional actions necessary to obtain closure of OWS 459.
6	Site 8 Remedial Investigation and Feasibility Study Summary The ROD must confirm that the selected remedy for Site 8 soil will be acceptable to the DTSC for closure of the SWMUs. The PP states this intention: "Furthermore, the sampling effort and any subsequent remediation activities, at OWS-114 are expected to result in the closure of SWMUs OWS-114 and WD-114." (*sic*) (p. 12, left, top) The PP should have disclosed whether the DTSC concurs with this statement. Even though the DTSC reviews and comments on draft proposed plans, it is unclear whether this is an instance where the Navy and the environmental regulatory agency agree to disagree.	Based on evaluations conducted by the Navy using requirements stipulated in the final hazardous waste facility permit for Alameda Point, the Navy has recommended no further corrective action for NAS GAP 03 and further corrective action for OWS 114 and WD 114 (SulTech 2004). In a letter dated December 29, 2005 (DTSC 2005), DTSC concurred with the no further corrective action recommendation for NAS GAP 03. The selected soil remedy within this ROD is intended to address the additional actions necessary to obtain "corrective action complete" status for the SWMUs.

7	Site 16 Remedial Investigation and Feasibility Study Summary The ROD must specify the objective and scope of the investigations that will be conducted during remedial design for the site 16 OWSs and for PCBs (polychlorinated biphenyls) in Site 16 soil. The PP text is unclear about the nature of any future investigations of the OWSs and PCBs in soil that will be required at site 16: "...[n]o remedial action for soil is necessary at Site 16 to protect human health; however, additional information is required at the locations of the OWSs. The agencies have requested additional sampling to further characterize PCBs in soil." (p. 14, left, bottom) The PP should have specified the nature of the soil PCBs data gap and the goal of the future investigation. For example, the PP could have made a statement such as "Additional characterization of the soil at X and Y locations will be conducted to evaluate the nature and extent of PCBs in soil." The ARRA's comment regarding the future investigation needed for the OWSs at Site 16 is the same as Specific comment 2, above, specifically, the PP should have specified the nature of the data gap and the goal of the future OWS investigation. For example, the PP could have said "Additional characterization of the soil and groundwater beneath and directly adjacent to the OWSs will be conducted in the remedial design to identify the nature and extent of constituents of concern that may have been released for the OWSs."	The objectives of the investigation conducted for the Site 16 OWSs and the former container area during remedial design will be provided in the OU-1 ROD. However, the Navy and regulatory agencies have agreed that detailed information regarding the investigation will be provided in the remedial design phase of the CERCLA process.

ALAMEDA POINT – ALAMEDA, CALIFORNIA ***PROPOSED PLAN, OPERABLE UNIT 1***		
8	Site 16 Groundwater, Remedial Alternative 4: Treatment to Remediation Goals with ISCO and Accelerated Bioremediation, MNA, and ICs The ROD must specify the objective and scope of the groundwater investigation that will be conducted for Site 16 during remedial design. The PP text is unclear about the nature of any future groundwater investigation that will be required at Site 16: "Additional plume delineation would be performed in the remedial design." (p. 15, right, bottom) The ARRA's comment regarding future groundwater investigation at Site 16 is the same as Specific comment 1, above.	The objectives of the selected groundwater remedy for Site 16 will be provided in the OU-1 ROD. However, the Navy and regulatory agencies have agreed that detailed information regarding the investigation will be provided in the remedial design phase of the CERCLA process.
9	Site 16 Soil, Remedial Alternative 3: Soil Sampling and Excavation with Off-Site Disposal of Soil The ROD must specify the nature of additional actions needed to close RCRA SWMUs at Site 16. The PP's recommended alternative for Site 16 includes the following: "Additional actions necessary to close the RCRA SWMUs would be identified and addressed in the remedial design." (p. 10, left, bottom) The PP should have disclosed what remaining issues exist and what steps will be required by the environmental regulatory agencies in the remedial design to facilitate closure of the RCRA SWMUs at Site 16.	Based on evaluations conducted by the Navy using requirements stipulated in the final hazardous waste facility permit for Alameda Point, the Navy has recommended no further corrective action for ASTs 338-A1, 608, and 338-D4, and WD 608 (SulTech 2004). In a letter dated December 29, 2005 (DTSC 2005), DTSC concurred with the no further corrective action recommendation for ASTs 338-A1 and 608, and WD 608. AST 338-D4 has been deferred to the Alameda Point TPH program. The selected soil remedies within this ROD are intended to address the additional actions necessary to obtain "corrective action complete" status of OWSs 608A and 608B, and UST(R)-18/NAS GAP 17.

ALAMEDA POINT – ALAMEDA, CALIFORNIA		
PROPOSED PLAN, OPERABLE UNIT 1		
Letters Received During Public Comment Period on May 24, 2006		
Comments by: Community Restoration Advisory Board Members		
Number	**Comments**	**Responses**
1	General. The risks to ecological receptors have been consistently overlooked and the species chosen for investigation have not been appropriate. Canada Geese and ground squirrels will readily colonize the residential sites and Site 16. Soil cleanup should consider this possibility.	A modified ecological risk assessment (ERA) was conducted as part of the RI at OU-1. Exposure pathways for terrestrial receptors were considered potentially complete to provide a conservative estimate of potential risk, even though the habitat is urban in nature. In addition, the ERA used the California Ground Squirrel as a surrogate to represent the small mammal population associated with each of the sites. The ERA approach and results are contained in Section 3 and Appendix H of the RI. The methods used to conduct the modified ERA are consistent with U.S. Environmental Protection Agency (EPA) guidance for screening-level and baseline ERAs.
2	Site 7 – Former Navy Exchange. It was pointed out by Mrs. Jean Sweeney that she had taken an auto-repair class in a portion of the site which was then unpaved. That area was subject to spillage of oils, solvents, petroleum products, antifreeze, and battery contents. The area has since been paved over. In view of the fact that Site 7 is planned for future residential development, it would be prudent for soil borings to be made throughout Site 7 in areas which are presently paved or occupied by buildings. It can reasonably be anticipated that any buildings and paving will eventually be demolished or removed for future residential development. It is obviously undesirable to leave "undiscovered" contamination in place which could eventually result in future public exposure and/or costly removal actions.	Building 158 served as the laundry facility and craft-hobby shop following its construction in 1945. Building 506 served as a maintenance shed and automobile hobby shop following its construction in 1966. The area surrounding Building 158 was paved sometime between 1957 and 1966, prior to that the area surrounding Building 158 was unpaved, although the area where Building 506 was later constructed was a concrete pad. Because the area around Building 506 was paved shortly after its construction, it is unlikely there is extensive soil contamination as a consequence of its use for auto-repair classes. Building 506 was likely the location of auto-repair classes prior to the construction of Building 158. The soil and groundwater surrounding Building 158 was thoroughly investigated through numerous samples collected through the Environmental Baseline Survey program (Environmental Resources Management Resources-West, Inc. 1994; International Technology Corporation 2001a) and the Installation Restoration program (as reported in the RI Report, Tetra Tech EM Inc. 2004). The analytical data for samples collected near Building 158 do not support the hypothesis that there was a significant release of oils, solvents, petroleum products, antifreeze, or battery contents as a consequence of auto repair classes at either Building 158 or Building 506.

ALAMEDA POINT – ALAMEDA, CALIFORNIA ***PROPOSED PLAN, OPERABLE UNIT 1***		
3	Site 16 – Former Container Storage Area. During the May 4, 2006 RAB meeting, Mr. Kurt Peterson voiced his concerns about soil contamination between and possibly under the large storage containers. He said that the proximity of the site to Encinal High School and students makes this concern more critical. During the May 4th RAB meeting, the Navy reported that they had performed a removal action to excavate and remove contaminated soil in 1997. However, neither the Navy nor its contractor was able to satisfactorily answer whether soil under the containers has ever been sampled or tested for contamination. It appears unlikely that these large storage containers will remain in place as permanent structures. Whether the containers are removed by the Navy or someone else, the soil under these containers should be sampled and tested, by slant drilling, by drilling through the floors of the containers, or by moving the containers and then sampling the exposed soil. Because contaminated soil was found between the containers and removed in the 1997 removal action, it appears credible that there is some contamination under the containers.	The selected remedy for Site 16 soil now includes sampling under the large storage containers.

4	Site 6, Former Aircraft Maintenance Area. Although the preliminary remediation goals for soil and groundwater are stated to be residential levels, page 5 of the Proposed Plan states that the expected future use of Site 6 is commercial/industrial. Last year, I attended a series of workshops presented by the City's planning department. Among the alternatives being considered was the building of condominiums, apartments, or live/work units between and among the hangers on the north side of the seaplane lagoon. Thus it is possible that the site will, in the future, be used for residential purposes. Also, consideration is being given to moving the Hornet to the northeast corner of the seaplane lagoon to free up space for the Maritime Administration ships at the docks in the seaplane lagoon. This part of the lagoon is immediately adjacent to Site 6 and the Naval Air Museum. There could be live-on-board staff on the Hornet, plus periodic occupancy by Sea Scouts, Sea Cadets and other groups. Therefore, it is important that cleanup levels be maintained at residential levels, and not relaxed to commercial/industrial levels. The magnitude and direction of the vertical component of groundwater flow between the first water bearing zone (FWBZ) and the second water bearing zone (SWBZ) at Site 6 could not be estimated since no wells are screened in the SWBZ. There does not appear to have been any investigation of the SWBZ since the feasibility study (FS). An investigation of the impact of contaminants on the SWBZ needs to be conducted. The community RAB recommends that the soil in Site 6 be remediated as the high PAH levels attributed to background soils are unacceptable.	Consistent with the U.S. Department of Defense, Navy, and EPA policy, the Navy uses community reuse plans as a basis of likely future use. The 1996 NAS Alameda Community Reuse Plan, General Plan Amendment (City of Alameda 2003) and the 2006 Alameda Point Preliminary Development Concept Report point toward commercial/industrial use for Site 6 (Alameda Reuse and Redevelopment Authority and Roma Design Group 2006). Nonetheless, the Navy's preferred alternatives incorporate the remediation goal of maximum contaminant levels (MCL) for groundwater and residential preliminary remediation goals (PRG) for soil around the OWSs. The Navy's selected remedy for groundwater at Site 6 includes additional plume delineation in the remedial design phase of the CERCLA process. As part of that effort, the Navy will evaluate whether investigation of the second water-bearing zone (SWBZ) at Site 6 is appropriate. Information obtained from the OU-1 RI indicates that the Bay Sediment Unit layer separating the First water-bearing zone (FWBZ) and SWBZ is continuous throughout Site 6. As indicated in the Proposed Plan, potential cancer risks to a resident and commercial/industrial worker from Site 6 soil are within the risk management range and the noncancer Hazard Index is below 1. Seven polycyclic aromatic hydrocarbons (PAH) were detected in soil at concentrations exceeding residential PRGs (see Table 2-6). Although PAHs were detected in soil, the risk assessment did not identify them as chemicals of concern. The sporadic horizontal and vertical spatial pattern of detections of PAH semivolatile organic compounds (SVOC) was not indicative of a release at Site 6. Consequently further action to address PAH will not be conducted.

ALAMEDA POINT – ALAMEDA, CALIFORNIA		
PROPOSED PLAN, OPERABLE UNIT 1		
Comments Received During Public Meeting on May 16, 2006		
Comment by Mr. Peterson		
Number	**Comments**	**Responses**
1	When the PCBs were excavated at Site 16, some of the excavation took place between the containers, making me wonder how clean the soil is underneath the containers. I'd like to make sure that anything along the eastern side of Site 16 is taken care of and looked at extremely carefully	The selected remedy for Site 16 soil includes sampling under the large storage containers (CANs area).

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TRANSMITTAL/DELIVERABLE RECEIPT

Contract No. N68711-03-D-5104 Document Control No. SULT.5104.0098.0002

TO: Contracting Officer
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DATE: 09/26/07
CTO: 0098
LOCATION:
Alameda Point, Alameda, California

FROM:

Steven Bradley, Contract Manager

DOCUMENT TITLE AND DATE:

Final Record of Decision for Operable Unit 1, Installation Restoration Sites 6, 7, 8, and 16
Alameda Point, Alameda, California September 2007

TYPE: ☐ Contractual Deliverable ☒ Technical Deliverable (DS) ☐ Other (TC)

VERSION: Final (e.g., Draft, Draft Final, Final) REVISION #: NA

ADMIN RECORD: Yes ☒ No ☐ CATEGORY: Confidential ☐

SCHEDULED DELIVERY DATE: 10/10/07 ACTUAL DELIVERY DATE: 10/10/07

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