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5090
Ser OPCE.TM/323
July 2, 2007

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Subject: FINAL RECORD OF DECISION FOR OPERABLE UNIT(OU)4,
SITES 1D, 1E-1, AND 30, MARINE CORPS BASE CAMP
PENDLETON

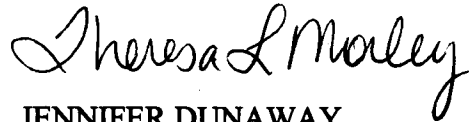
Dear Mr. McDaniel, Mr. Mahmoud, Mr. Hausladen:

It is with great pleasure that I transmit the signature page for the Final OU4 Record of Decision (ROD). This is the first ROD for Camp Pendleton in eight years. The Department of the Navy appreciates the cooperation of all the agencies in making this ROD a success.

5090
Ser OPCE.TM/323
July 2, 2007

If you have any questions, please call Theresa Morley at (619) 532-1502.

Sincerely,

A handwritten signature in black ink that reads "Theresa L. Morley". The signature is written in a cursive style with a large, stylized 'T' and 'M'.

JENNIFER DUNAWAY
Environmental Business Team Leader
By direction of the Commander

Copy to:
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FINAL
OPERABLE UNIT 4
RECORD OF DECISION
FOR SITES 1D, 1E-1, AND 30

MARINE CORPS BASE
CAMP PENDLETON, CALIFORNIA

June 27, 2007

DECLARATION

Site Name and Location

Operable Unit 4:

Installation Restoration (IR) Site 1D – Refuse Burning Ground (20 Area),
IR Site 1E-1 – Former Burn Pits (32 Area)
IR Site 30 – Small Arms Firing Range Soil (31 Area)

Marine Corps Base (MCB) Camp Pendleton, San Diego County, California 92055
United States Environmental Protection Agency Identification Number CA2170023533

Statement of Basis and Purpose

This Record of Decision (ROD) presents the selected remedial actions for soil at Sites 1D, 1E-1, and 30 at MCB Camp Pendleton, California. The selected remedies are excavation and disposal of contaminated soils at Sites 1D and 30, and no further action at Site 1E-1. Sites 1D, 1E-1, and 30 are three of several IR sites located at MCB Camp Pendleton.

This document was developed in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 as amended by the Superfund Amendments and Reauthorization Act of 1986, Title 42 *United States Code* Sections (§§) 9602 et seq., and in accordance with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), *40 Code of Federal Regulations* Part 300, et seq. This decision is based on the administrative record files for these sites. The Federal Facilities Agreement (FFA) site-specific administrative record index is included as Appendix A.

The U.S. Environmental Protection Agency (USEPA) Region 9 and the California Environmental Protection Agency (Cal/EPA), which includes the California Department of Toxic Substances Control (DTSC) and the California Regional Water Quality Control Board (RWQCB), San Diego Region, concur on the selected remedies. No comments were received from the public during the comment periods or at the public meetings.

Assessment of the Site

Actual or threatened releases of hazardous substances from soil at Sites 1D and 30, if not addressed by implementing the remedial action selected in this ROD, may present a current or potential threat to public health and welfare or to the environment. The response actions selected in this ROD for Sites 1D and 30 are necessary to protect the public health or welfare or the environment from those threats. Actual or threatened releases of hazardous substances from soil at Site 1E-1 do not present a current or potential threat to public health and welfare or to the environment. Consequently, the Department of the Navy (DON) has determined that no further action is necessary to protect public health or welfare or the environment and the USEPA and Cal/EPA agree with the determination.

Description of the Selected Remedy in Accordance with United States Environmental Protection Agency Guidance

Suspected waste sites at MCB Camp Pendleton have been grouped into several operable units (OUs) based on geographical location, type of media contaminated (soil or groundwater), and schedule. Sites 1D, 1E-1, and 30 are classified as part of *Operable Unit 4 or OU 4* and are addressed in this ROD. Site 1H is also part of OU 4, but will be addressed in a future ROD.

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Site 1D

The soil at Site 1D is contaminated with dioxins/furans and metals. This soil contamination occurred when the site was used as a refuse burning ground from 1942 through the early 1970s. The Base refuse burning areas were closed between the late 1960s and 1971. Site 1D was closed to further disposal activity, covered with native soil, and allowed to revert to natural vegetation (IT, 1998).

A human health risk assessment was conducted to evaluate the potential risk to human health from exposure to contaminants in site soil. The OU 3 Remedial Investigation/Feasibility Study (RI/FS) (IT, 1998) concluded that there is a potential threat to human health under a hypothetical residential scenario. In addition to the human health risk outlined in the OU 3 RI/FS, the site poses an additional incremental risk of 6×10^{-5} caused by the presence of dioxins/furans in site soils, which were evaluated in the OU 4 FS.

The previous ecological risk assessment conducted at Site 1D indicated that baseline conditions would not be protective of ecological receptors (SWDIV, 1996b).

The selected remedy for soil at Site 1D is soil excavation, backfill, pretreatment, and off-Base disposal. The selected remedy for soil includes:

- Excavation of impacted soil
- Confirmation sampling and analysis of excavation areas
- Import and compaction of certified clean backfill material
- Treatment of a portion of the excavated soil to incorporate chemical stabilizer (Portland cement Type I through V) by pug mill
- Temporary storage of excavated soil stockpiles
- Sampling and analysis of soil stockpiles for waste characterization
- Transportation of the excavated soil to an off-Base disposal facility
- Site restoration.

Approximately 31,300 cubic yards exceed the site remediation goals. The remediation goals were established for each chemical of concern to protect human health and the environment. Based on the data and waste classification criteria, approximately 29,400 cubic yards of the excavated soil would be classified as California-hazardous or nonhazardous waste, and approximately 1,900 cubic yards would classify as Resource Conservation and Recovery Act (RCRA)-hazardous waste prior to treatment. The California-hazardous soil will be treated on site to a nonhazardous status and the RCRA-hazardous soil would be treated chemically to a California-hazardous status. Upon completion of pretreatment, all soil would be transported to the appropriate licensed disposal facilities.

Site 1E-1

Site 1E-1 is a former refuse burning area located in 32 Area along MACS Road, approximately 3,000 feet from the Santa Margarita River. The site is a series of burn pits adjacent to Site 1E, which was addressed through soil excavation and removal, as described in the OU 3 ROD (IT, 1999a). The burn pits at Site 1E-1 were closed, covered with native soil, and allowed to revert to natural vegetation. At some point after the burn

DECLARATION

pits were closed, the area was graded for the realignment of MACS Road, which now crosses over a portion of the former burn pits.

There is little evidence of contamination at Site 1E-1 based on sampling and analysis conducted during the OU 4 Feasibility Study (FS) (Parsons, 2003). Although it is possible that localized areas of low-level dioxins/furans will be present at the site, the levels do not appear to be significantly higher than levels that are consistent with atmospheric deposition. Under current conditions, the site represents an insignificant threat to human health or the environment based on the conclusions of the human health and ecological risk assessments. Based on this evidence, further action is not warranted at Site 1E-1, and no land use restrictions are recommended.

Site 30

The soil at Site 30 is contaminated with metals. The site consists of soil fill material dumped near a dirt road that contains bullets and bullet fragments from a 31 Area small arms firing range (Kleinfelder, 1997).

The Group C RI/FS concluded that baseline conditions at the site represent a potential threat to hypothetical future residents (SWDIV, 1996b). A human health risk assessment was previously performed for the soil exposure pathway at Site 30 as part of the OU 3 RI/FS (IT, 1998). The OU 3 RI/FS concluded that there is a potential threat to human health under a hypothetical residential scenario.

The previous ecological risk assessment conducted at Site 30 indicated that current conditions would not be protective of ecological receptors (SWDIV, 1996b).

The selected remedy for soil at Site 30 is soil excavation, backfill, pretreatment, and off-Base disposal. The selected remedy for soil includes:

- Excavation of impacted soil
- Treatment of a portion of the excavated soil to incorporate chemical stabilizer
- Temporary storage of excavated soil stockpiles
- Sampling and analysis of soil stockpiles to determine chemical composition (waste characterization)
- Transportation of the excavated soil to an off-Base disposal facility
- Confirmation sampling and analysis of excavation areas
- Import and compaction of certified clean backfill material
- Site restoration.

Approximately 15,600 cubic yards exceed the site remediation goals. Based on the data and waste classification criteria, approximately 9,333 cubic yards of the excavated soil would be classified as California-hazardous or nonhazardous waste and approximately 6,267 cubic yards would classify as RCRA-hazardous waste prior to treatment. The California-hazardous soil will be treated on site to a nonhazardous status. The RCRA-hazardous soil will be treated chemically to California-hazardous status. Upon completion of pretreatment, all soil would be transported to the appropriate licensed disposal facilities.

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Statutory Determinations

The selected remedies for Sites 1D and 30 and the no further action for Site 1E-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 remedies use permanent solutions and alternative treatment (or resource recovery) technologies to the maximum extent practicable and satisfy the statutory preference for remedies employing treatment that reduces toxicity, mobility, or volume as a principal element.

If the implementation of the selected remedies exceeds five years, the effectiveness of the remedial actions selected in this ROD will be reviewed, at a minimum, at 5-year intervals to assure that the remedy continues to adequately protect human health and the environment and are achieving cleanup goals. Once cleanup goals have been achieved, the 5-year review requirement will no longer apply to these actions because hazardous substances will not remain above health-based levels.

ROD Data Certification Checklist

The following information is included in the Decision Summary of each site:

- chemicals of concern and their respective concentrations (Sections 2.5, 3.5, and 4.5)
- risk represented by the chemicals of concern (Sections 2.7, 3.7, and 4.7)
- cleanup levels established for chemicals of concern and the basis for these levels (Section 2.7, 3.7, and 4.7)
- how source materials constituting principal threats are addressed (Sections 2.7 and 4.7)
- current and reasonably anticipated future land-use assumptions used in the risk assessment (Sections 2.7, 3.7, and 4.7)
- potential land and groundwater use that will be available at the sites as a result of the selected remedy (Sections 2.11 and 4.11)
- 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 (Sections 2.11 and 4.11), and
- key factors that led to selecting the remedy (Sections 2.10, 2.11, 4.10 and 4.11).

Additional information can be found in the administrative record file for each site.

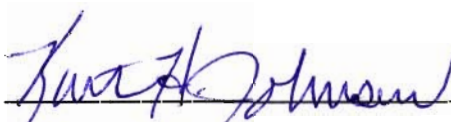
DECLARATION

Authorizing Signatures

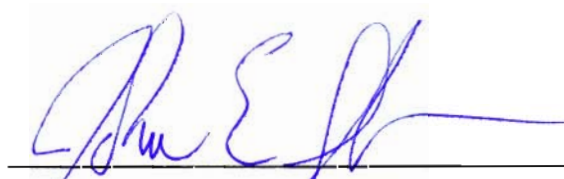
For the United States Department of the Navy, Marine Corps Base Camp Pendleton,

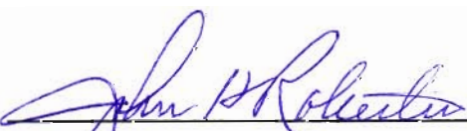
Signature:  Date: 11 June 07
J.B. Seaton, Colonel, United States Marine Corps, Commanding Officer
Marine Corps Base Camp Pendleton

For the United States Environmental Protection Agency,

Signature:  Date: June 15, 2007
Kathleen Johnson, Chief
Federal Facilities and Site Cleanup Branch, USEPA, Region 9,

For the California Environmental Protection Agency,

Signature:  Date: 6/26/07
John E. Scandura, Chief Office of Military Facilities,
Southern California Operations Branch
Department of Toxic Substances Control

Signature:  Date: 6/27/07
John H. Robertus, Executive Officer
California Regional Water Quality Control Board, San Diego Region

DECLARATION

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ABBREVIATIONS AND ACRONYMS

ABBREVIATIONS AND ACRONYMS

amsl	above mean sea level
APCD	Air Pollution Control District
ARAR	applicable or relevant and appropriate requirement
BAF	bioaccumulation factor
BAT	best available technology
BCPCT	best conventional pollutant control technology
bgs	below ground surface
BMP	best management practices
CAA	Clean Air Act
Cal/EPA	California Environmental Protection Agency
Cal/OSHA	California Occupational Safety and Health Administration
Camp Pendleton	United States Marine Corps Base, Camp Pendleton
CAMU	Corrective Action Management Unit
CCC	California Coastal Commission
CCR	California Code of Regulations
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COC	chemical of concern
COEC	chemical of ecological concern
COPC	chemical of potential concern
COPEC	chemical of potential ecological concern
CSM	conceptual site model
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
DDD	dichlorodiphenyldichloroethane
DDE	dichlorodiphenyldichloroethene
DDT	dichlorodiphenyltrichloroethane
DoD	U.S. Department of Defense
DOI	U.S. Department of the Interior
DON	U.S. Department of the Navy
DTSC	Department of Toxic Substances Control (Cal/EPA)
EE/CA	engineering evaluation/cost analysis
ERA	ecological risk assessment
ESA	Endangered Species Act
FFA	Federal Facility Agreement
FS	feasibility study
HHRA	human health risk assessment
HI	hazard index
HQ	hazard quotient
ILCR	incremental lifetime cancer risk
IR	Installation Restoration
IT	International Technology Corporation
LDR	land disposal restrictions
MCB	Marine Corps Base
MCL	maximum contaminant level
MEK	methyl ethyl ketone
mg/kg	milligram per kilogram

ABBREVIATIONS AND ACRONYMS

ABBREVIATIONS AND ACRONYMS

MIBK	methyl isobutyl ketone
MOU	memorandum of understanding
MTR	minimum technology requirements
NAAQS	National Ambient Air Quality Standards
NCP	National Contingency Plan
NEESA	Naval Energy and Environmental Support Activity
NFA	No Further Action
ng/kg	nanogram per kilogram
NHPA	National Historic Preservation Act
NPDES	National Pollutant Discharge Elimination System
NPL	National Priority List
O&M	operation and maintenance
OHM	OHM Remediation Services Corporation
OU	Operable Unit
PAH	polynuclear/polycyclic aromatic hydrocarbon
Parsons	Parsons, Inc.
PCDD	polychlorinated dibenzodioxin
PCDF	polychlorinated dibenzofuran
PEA	Preliminary Endangerment Assessment
pg/g	picograms per gram
pg/L	picograms per liter
PLE	permissible limit of exposure
PRG	preliminary remediation goal
RAO	remedial action objective
RCRA	Resource Conservation and Recovery Act
RCOC	remedial chemicals of concern
RG	remediation goal
RI	remedial investigation
RI/FS	remedial investigation/feasibility study
ROD	Record of Decision
RTV	reference toxicity values
RWQCB	Regional Water Quality Control Board
S/S	solidification/stabilization
SARA	Superfund Amendments and Reauthorization Act
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SPLP	synthetic precipitation leaching procedure
SSL	soil screening level
STLC	soluble threshold limit concentration
SVOC	semivolatile organic compound
SWDIV	Southwest Division Naval Facilities Engineering Command
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TBC	to be considered
TCDD	tetrachlorodibenzo-p-dioxin
TCLP	toxicity characteristic leaching procedure
TEF	toxicity equivalency factor
TEQ	toxicity equivalent
TTLC	total threshold limit concentration

ABBREVIATIONS AND ACRONYMS

ABBREVIATIONS AND ACRONYMS

TTU	transportable treatment unit
USC	United States Code
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
UTL	upper tolerance limit
UTS	universal treatment standards
WET	wet extraction test
WQO	water quality objective

ABBREVIATIONS AND ACRONYMS

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DECISION SUMMARY

1.0 INTRODUCTION

This Record of Decision (ROD) is issued to document the selected remedial action for soil at Installation Restoration (IR) Program Sites 1D and 30 and documents the No Further Action (NFA) decision for Site 1E-1 at Marine Corps Base Camp Pendleton, California (MCB Camp Pendleton or the Base) (Figure 1-1). The sites are among several IR sites located at MCB Camp Pendleton. The United States Environmental Protection Agency (USEPA) identification number for this Base is CA2170023533.

This 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 (SARA) of 1986, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), and the Federal Facilities Agreement (FFA). The decision for this site is based on information contained in the administrative record. A copy of the site-specific administrative record index for Sites 1D, 1E-1, and 30 is in Appendix A.

Delivery of this document is pursuant to the MCB Camp Pendleton FFA between the USEPA, the State of California, and the Department of the Navy (DON). The FFA establishes a framework for implementing appropriate environmental response actions at the Base.

The Decision Summary of this ROD is organized into five sections. Section 1 introduces information on operable unit (OU) site designations, purpose, and objectives of the ROD, general site location and description, and general environmental setting. Sections 2 through 4 provide site-specific information for each of the three OU 4 sites, including site history, local hydrogeological and ecological settings, and summary of previous investigations. These sections also summarize the activities and results of the supplemental field investigation and provide a reevaluation of the nature and extent of contamination based on the new data. These sections also document the results of the Feasibility Study (FS) for each site, including site-specific applicable or relevant and appropriate requirements (ARARs) evaluation, development of remedial action objectives (RAOs), screening of technologies and process options, and development and detailed analysis of remedial alternatives. Section 5 lists the references cited throughout the report, and Section 6 is the Responsiveness Summary.

Appendices to this document contain supporting information including the Administration Record (Appendix A); the transcript from the public meeting (Appendix B); and the remedial goals and human health screening-level evaluations (Appendix C).

1.1 Site Name, Location, and Description

This decision document addresses the following sites at OU 4, MCB Camp Pendleton:

- Site 1D - Refuse Burning Ground (20 Area)
- Site 1E-1 - Former Burn Pits (32 Area)
- Site 30 - Small Arms Firing Range Soil (31 Area)

1.1.1 Site Location

MCB Camp Pendleton is located in northern San Diego County, California (Figure 1-1). Surrounding communities include San Clemente to the northwest, Oceanside to the south, and Fallbrook to the east. The Base is bordered on the west by the Pacific Ocean and encompasses 17 miles of relatively undisturbed coastline. Rolling hills and valleys

DECISION SUMMARY

range inland an average of 10 to 12 miles. Sites 1D, 1E-1, and 30 are located in the southeastern portion of the Base (Figure 1-1).

1.1.2 Lead and Support Agencies

MCB Camp Pendleton is an active federal facility that is on the National Priorities List. Environmental investigation and remediation is being conducted under the IR Program. The lead agency for the investigation and remedial action at this facility is the Department of the Navy (DON); all clean up money is funded through the Defense Environmental Restoration Account. The support agencies are the USEPA Region 9 and the California Environmental Protection Agency (Cal/EPA), which includes the Department of Toxic Substances Control (DTSC) and the California Regional Water Quality Control Board (RWQCB), San Diego Region.

1.1.3 Site Description

The Base occupies approximately 125,000 acres of land and is the Marine Corps' primary amphibious training center. Construction of MCB Camp Pendleton began in March 1942, and President Franklin D. Roosevelt dedicated the Base in September 1942. It was designated as a permanent Base in October 1944. It supports more than 36,000 military personnel and employs approximately 4,600 civilians (Innis-Tennebaum Architects, Inc., 1990).

Land use within the perimeter of the Base consists of airfield operations, maneuver and impact areas, troop and family housing, recreation areas, and out-leased areas used by various entities (e.g., San Onofre Nuclear Generating Station, and agriculture). Most of the land within MCB Camp Pendleton is open and undeveloped and directly supports the training mission of the Base. Developed areas of the Base are isolated from one another by large areas of essentially undeveloped land used for training and maneuvers. The largest concentration of development is at the Headquarters Area in the southeast corner of the Base. The second largest concentration is the housing areas in the southwest corner of the Base, near the Oceanside Gate (Innis-Tennebaum Architects, Inc., 1990).

Additional information on land use in specific areas of the Base and expected future land use at MCB Camp Pendleton and in surrounding communities is presented in the MCB Camp Pendleton Master Plan (Innis-Tennebaum Architects, Inc., 1990).

Based on the results of the OU 4 FS (Parsons, 2003), three OU 4 sites are included in this ROD: Sites 1D, 1E-1, and 30. Contamination at Sites 1D and 30 was determined to pose a risk to human health or the environment, and therefore requires further action. Site 1E-1 was evaluated during the OU 4 FS and was recommended for No Further Action (Parsons, 2003).

1.2 Site History and Enforcement Activities

The primary mission of MCB Camp Pendleton is military training, and has been since the Base was constructed in 1942. Environmental contamination is associated with the primary and support mission functions of the Base. Sites 1D and 1E-1 were used for refuse burning, a practice that was stopped by the early 1970s. Site 30 consists of waste soil (used as fill material) from one or more small arms firing ranges, a practice that was also stopped no later than the early 1970s. The Base was placed on the National Priority List (NPL) in 1989. There are no enforcement activities at any of the three sites. The FFA between the USEPA, the State of California, and the DON was

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signed in 1990. The FFA establishes a framework for implementing appropriate environmental investigation and remediation activities at the Base.

The purpose of the Installation Restoration (IR) program is to identify, investigate, assess, and clean or control releases of hazardous substances as well as to cost-effectively reduce the risk to human health and the environment from past waste-disposal operations and hazardous material spills at Navy/Marine Corps stations. The IR program is administered in accordance with CERCLA, as amended by SARA. Investigations and cleanup actions for the Base are described in detail in the Administrative Record. A summary of the investigation and clean up actions for the three sites addressed in this ROD will be presented for each specific site in Sections 2 through 4.

1.3 Highlights of Community Participation

A Community Relations Plan was developed to document concerns identified during community interviews and to provide a detailed description of community relations activities planned in response to information received from the community. The initial plan was prepared in 2002 to update community issues and concerns and to identify information needs related to the ongoing environmental investigation and cleanup efforts at MCB Camp Pendleton. The Community Relations Plan is currently being updated.

The community relations program includes specific activities for obtaining community input and keeping the community informed. These activities include conducting interviews, holding public meetings, issuing fact sheets to provide updates on current cleanup activities, maintaining an information repository where the public can access technical documents and program information, disseminating information to local and regional media, and making presentations to local groups.

The Proposed Plan fulfills public participation requirements of CERCLA Section 117 (a), which specifies that the lead Agency (DON) must publish a plan outlining remedial alternatives evaluated for each site and identify the preferred alternative. The remedial alternatives were presented in detail in the OU 4 FS. The FS and prior documents pertaining to Sites 1D, 1E-1, and 30 are available for public review in the Administrative Record at the Information Repositories.

The public review period for the Proposed Plan was from 26 September to 25 October 2005. The Public Meeting was held on 12 October 2005 at the Stuart Mesa Community Center at MCB Camp Pendleton. All interested parties were encouraged to attend the meeting to learn more about the alternatives developed for each site, and provide an additional opportunity for the public to submit comments on the Proposed Plan to the DON.

To notify the members of the public of the public meeting for the Proposed Plan, public notices were placed in the Base newspaper, the Camp Pendleton Scout, and in the North County Times on 22 September 2005. The public notices announced the availability of the OU 4 Proposed Plan and the Public Meeting. A fact sheet was also included in all copies of the Camp Pendleton Scout on 29 September 2005 (approximately 26,000 copies).

The Proposed Plan was available at the MCB Camp Pendleton information repositories housed at the following locations:

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Administrative Record
Naval Facilities Engineering Command Southwest
1220 Pacific Highway
San Diego, CA 92132-5190
(619) 532-3676

MCB Camp Pendleton Environmental Security Office
Building 22165
MCB Camp Pendleton, CA 92055-5008
(760) 725-9744

Oceanside Public Library
330 N Coast Hwy, Oceanside, CA 92054
(760) 435-5600

No comments were received on the Proposed Plan during the public comment period or at the public meeting. The transcript from the public meeting is provided in Appendix B.

1.4 Scope and Role of Operable Unit

Suspected waste sites at MCB Camp Pendleton have been grouped into several OUs based on geographical location, type of media contaminated (soil or groundwater), and schedule. There are currently five OUs at MCB Camp Pendleton. Sites that are grouped into OUs are ultimately addressed in a Record of Decision (ROD) for cleanup and closure of all sites. Sites 1D, 1E-1, and 30 are classified as part of OU 4.

OU 4 includes Sites 1D, 1E-1, 1H, and 30. Potential alternatives for Site 1H are still under evaluation by the FFA Team. In order not to delay action on Sites 1D, 1E-1, and 30, a decision was made to present the Proposed Plan and ROD for these sites while the evaluation of Site 1H is being completed. A full discussion of the potential remedial alternatives for Site 1H, along with the preferred alternative, will be presented in a separate future Proposed Plan and ROD.

1.5 Overview of Remedial Alternatives and Nine NCP Evaluation Criteria

Remedial alternatives for OU 4 sites were developed on the basis of remedial action objectives (RAOs) and according to requirements of CERCLA, as amended by SARA, 42 United States Code (USC) § 9602 et seq., and the NCP.

Nine evaluation criteria were developed under the NCP to select a site remedy from remedial action alternatives to address the CERCLA requirements and considerations, as well as additional technical and policy considerations. The nine criteria are divided into two threshold criteria, five balancing criteria, and two modifying criteria, as summarized below. The NCP requires that a detailed evaluation of each alternative address each of the nine criteria. The nine NCP criteria are listed below and briefly described in the following paragraphs.

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NINE NCP EVALUATION CRITERIA FOR DETAILED ANALYSIS OF ALTERNATIVES

Threshold Criteria	• Overall protection of human health and the environment • Compliance with ARARs
Balancing Criteria	• Long-term effectiveness and permanence • Reduction of toxicity, mobility, or volume through treatment • Short-term effectiveness • Implementability • Cost
Modifying Criteria	• Regulatory acceptance • Community acceptance

1.5.1 Overall Protection of Human Health and the Environment

The analysis evaluates how the remedial action alternative reduces the risk to human health and the environment from potential exposure pathways using treatment, engineering, or institutional controls. This evaluation also examines whether alternatives pose any unacceptable cross-media impacts.

1.5.2 Compliance with ARARs

This analysis evaluates the ability of each alternative to attain the promulgated federal and state chemical-, action-, and location-specific ARARs. If an ARAR cannot be met, the analysis of the alternative must provide the grounds for a statutory waiver.

1.5.3 Long-Term Effectiveness and Permanence

Long-term effectiveness and permanence are evaluated with respect to the magnitude of residual risk and the adequacy and reliability of controls used to manage the remaining waste (untreated waste and treatment residuals) over the long term. Alternatives that offer the highest degree of long-term effectiveness are those that leave little or no waste on site, thus eliminating long-term maintenance and monitoring and minimizing reliance on institutional controls.

1.5.4 Reduction of Toxicity, Mobility, and Volume through Treatment

This evaluation relates to the CERCLA guidance in preferring a remedial action that reduces the toxicity, mobility, or volume of hazardous substances. The analysis addresses the expected performance of treatment technologies used by considering the amount of waste treated or destroyed, the irreversibility of the treatment process, and the type and quantity of residuals resulting from the treatment process.

1.5.5 Short-Term Effectiveness

Short-term effectiveness addresses the effectiveness of an alternative to protect human health and the environment during construction and implementation of a remedy. It considers:

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- Protection of the surrounding community during remedial actions
- Protection of workers during remedial actions
- Environmental impacts from implementing the action
- Time required to achieve cleanup goals.

1.5.6 Implementability

This evaluation examines the technical and administrative feasibility of implementing an alternative and the availability of necessary goods and services. Technical factors to be assessed include:

- Ease and reliability of initiating construction and operations
- Reliability of the technology
- Ease of undertaking additional remedial actions, if necessary
- Ability to monitor effectiveness of the remedy
- Ability to obtain approvals from other agencies
- Coordination with other agencies
- Availability of off-site treatment, storage and disposal services capacity
- Availability of necessary equipment and specialists
- Availability of prospective technologies.

Where proven technologies are proposed, an assessment of technical feasibility examines the performance history of the technologies in direct applications, or considers the expected performance for similar applications. For innovative technologies, protocols for prospective or on-going treatability studies to demonstrate performance are presented.

1.5.7 Cost

The cost estimates presented in this report are based on a variety of information, including quotes from local suppliers, generic unit costs, vendor information, conventional cost estimating guides, and previous experience. The costs were prepared using available information to provide guidance in project evaluation and implementation. Uncertainties in estimating volumes of contaminated soil could affect the estimated costs.

Capital costs include those expenditures required to implement a remedial action. Both direct and indirect costs are considered in developing capital cost estimates. Direct costs include construction costs or expenditures for equipment, labor, and materials required to implement a remedial action. Indirect costs include engineering, permitting (as required), construction management, and other services necessary to carry out a remedial action.

Annual operation and maintenance (O&M) costs, which include labor, maintenance materials, energy, and purchased services, also were estimated. The estimates also include those O&M costs that may be incurred even after the initial remedial activity is complete (e.g. long-term monitoring).

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1.5.8 Regulatory Acceptance

The USEPA's and state's preferences or concerns about the alternatives were reflected in the OU 4 Proposed Plan for these sites.

1.5.9 Community Acceptance

The community's preferences or concerns about the alternatives were evaluated during the Proposed Plan stage and are reflected in this ROD. As noted in the site-specific sections of this document, no public comments or concerns were received on the Proposed Plan.

1.6 Summary of CERCLA and NCP Requirements for ARARS

Complete discussions of ARARs are found in the OU 4 FS Report (Parsons, 2003). Section 121(d) of CERCLA, 42 USC. Section [§] 9621(d)), as amended, states that remedial actions on CERCLA sites must attain (or the decision document must justify the waiver of) any environmental standards, requirements, criteria, or limitations under federal or more stringent state that are determined to be legally applicable or relevant and appropriate.

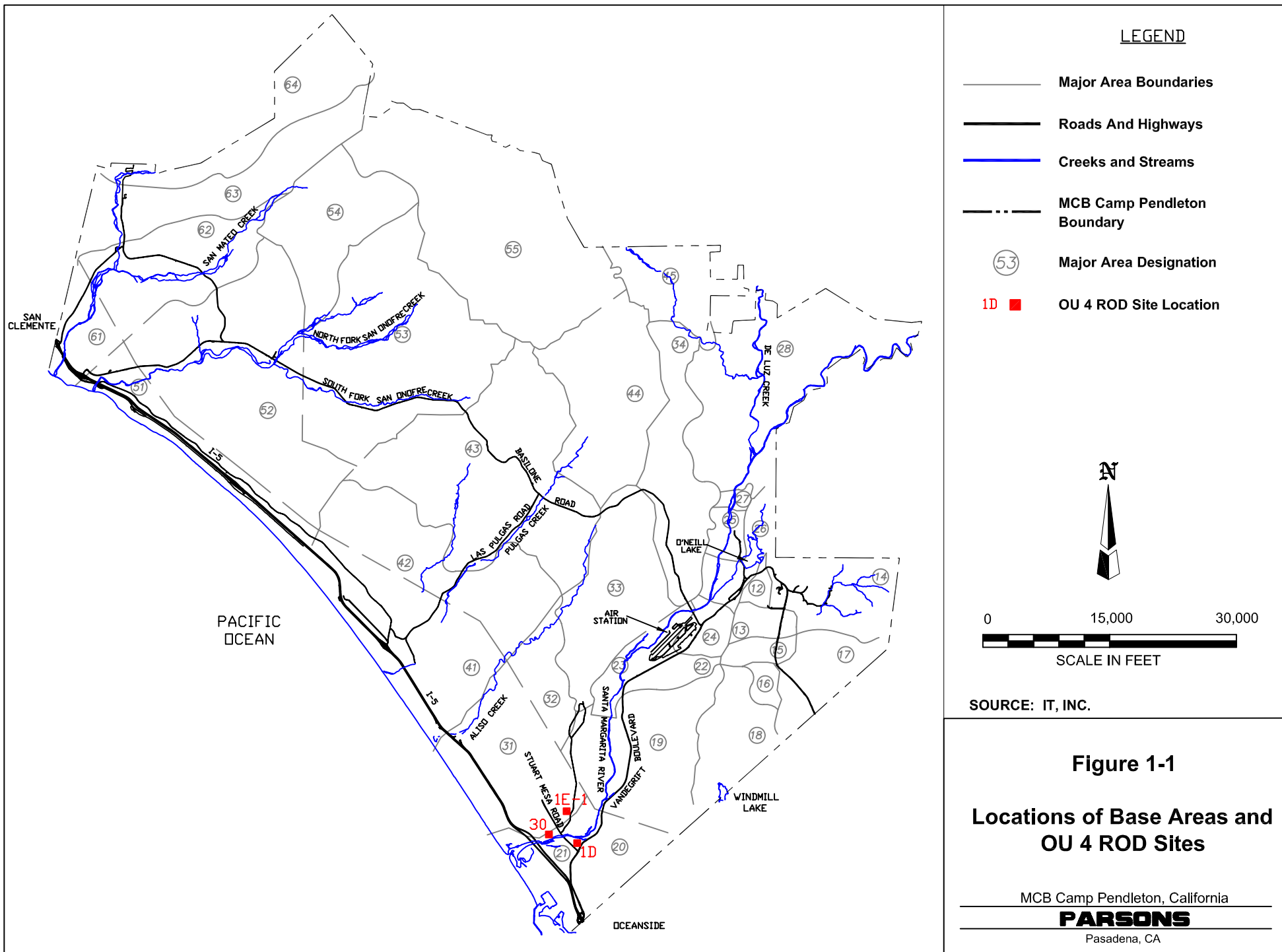
Applicable requirements are those cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under federal or state law that specifically address the situation at a CERCLA site. The requirement is applicable if the jurisdictional prerequisites of the standard show a direct correspondence when objectively compared to the conditions at the site. An applicable federal requirement is an ARAR. An applicable state requirement is an ARAR only if it is more stringent than federal ARARs.

If the requirement is not legally applicable, then the requirement is evaluated to determine whether it is relevant and appropriate. Relevant and appropriate requirements are those cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under federal or state law that, while not applicable, address problems or situations similar to the circumstances of the proposed response action and are well suited to the conditions of the site (USEPA, 1988). A requirement must be determined to be both relevant and appropriate in order to be considered an ARAR. The criteria for determining relevance and appropriateness are listed in 40 Code of Federal Regulations (CFR) § 300.400(g)(2).

Complete discussions of ARARs are found in the OU 4 FS Report (Parsons, 2003) and summarized in the site specific sections of this document.

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2.0 SITE 1D

2.1 Site Name, Location, and Brief Description

Site 1D - Refuse Burning Ground (20 Area) is located north of the intersection of Vandergrift Boulevard and Stuart Mesa Road (Figure 2-1). Box Canyon Landfill (IR Site 7) is 1,500 feet northeast of the site. The Twin Lakes Sewage Disposal Plant is southwest of the site across Stuart Mesa Road. The Santa Margarita River is approximately 150 feet north of the site.

2.2 Site History and Enforcement Activities

Site 1D is one of nine refuse burning grounds used from 1942 through the early 1970s to burn refuse generated by Base operations (IT, 1998; Kleinfelder, 1997). Until 1970, all refuse at the Base was disposed of by burning; however, no information is available on the specific years of operation or the amount of refuse disposed of at each burning ground. The Base refuse burning areas were closed between the late 1960s and 1971. Site 1D was closed, covered with native soil, and allowed to revert to natural vegetation (IT, 1998). Visual inspection in 1984 revealed no evidence of environmental contamination (NEESA, 1984). However, the cover material has since eroded, and contaminants have been exposed. Areas of stressed vegetation and stained soil have also been observed (IT, 1998).

The selected remedy for Site 1D in the OU 3 ROD (IT, 1999a) was excavation and removal of contaminated soils with on-Base disposal (to Site 7, Corrective Action Management Unit [CAMU]). After the closure of the on-Base CAMU in April 2000, a decision was made to supplement the prior characterization of the site to refine the cost estimates and reevaluate the remedial options (USEPA, 2000d and Parsons, 2000). As documented in the letter from the USEPA to Southwest Division Naval Facilities Engineering Command (SWDIV) dated September 28, 2000 (USEPA, 2000a), and in accordance with the agreement reached at the 5 October 2000 FFA Project Management meeting (Parsons, 2000), Site 1D was placed in OU 4 to facilitate an expedited schedule.

There are no enforcement activities related to Site 1D. Environmental investigation and remediation activities associated with the site are implemented under the IR Program. The purpose of this program is to identify, investigate, assess, characterize, and clean or control releases of hazardous substances as well as to cost-effectively reduce the risk to human health and the environment from past waste disposal operations and hazardous material spills at Navy/Marine Corps stations. The program is administered in accordance with CERCLA, as amended by SARA.

Although this ROD provides a summary of site conditions, it does not repeat all the information provided in previous documents regarding detailed site descriptions, histories, regional and site-specific environmental information, or results of previous investigations and risk assessments. This information is incorporated by reference as appropriate and is documented in the following reports:

- Draft Final Remedial Investigation Report for Group C Sites (SWDIV, 1996b).
- Draft Final Remedial Investigation and Feasibility Study for Operable Unit 3 (IT, 1998).
- Draft Engineering Evaluation/Cost Analysis (EE/CA) for Sites 1D/1003, 1E/1004, 30, and 35 (Kleinfelder, 1997).

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- Energy Dispersive X-Ray Fluorescence Field Investigation Report, Sites 1A, 1D, 1E, 1F, and 2A (SWDIV, 1998).
- Record of Decision, Operable Unit 3 (IT, 1999a).
- Draft Final Remedial Design and Remedial Action Work Plan for Operable Unit 3, Sites 1A, 2A, 1D, 1E, and 1F (OHM, 1999).
- Biological Assessments for Sites 1A, 1D, 1E, 1F, 2A, and 30 (IT, 1999b).
- [Archeological] Monitoring and Discovery Plan for Six Waste Remediation Areas (LSA, 2000).
- Draft Final Field Sampling Plan for OU 4 Supplemental Feasibility Study (Parsons, 2001).
- Draft Final OU 4 Feasibility Study (Parsons, 2003).

2.3 Highlights of Community Participation

Please see Section 1.2 regarding Community Participation.

2.4 Scope and Role of Operable Unit

Please see Section 1.3 regarding the scope and role of OU 4.

2.5 Site Characteristics

This section summarizes the environmental setting and the nature and extent of contamination at Site 1D.

2.5.1 Environmental Setting

This section includes a description of site topography, surface water, geology, hydrogeology, ecology, and cultural resources at Site 1D.

2.5.1.1 Size

Site 1D covers approximately 14.2 acres, of which 5.3 acres contain contaminated soil.

2.5.1.2 Topography

The site is at an average elevation of approximately 20 feet above mean sea level (amsl) and relatively flat land surrounds the site to the north and west. Plateaus to the south and east rise 150 feet above the site. The site contains uneven topography apparently resulting from past rough grading operations. The site is unpaved with no nearby surface structures. Railroad tracks and an unpaved road run along the northern side. The railroad tracks are inactive and overgrown with vegetation.

2.5.1.3 Surface Water

No perennial surface water is present at Site 1D. The area receives low annual rainfall, primarily during the winter months. Surface water runoff during significant rainfall follows site surface topography and flows generally north towards the Santa Margarita River. The site is adjacent to the Santa Margarita River, within the floodplain, which is subject to flooding during peak rainfall events (Kleinfelder, 1997).

2.5.1.4 Geology

Site 1D is on the south edge of the alluvial plain in the lower portion of the Santa Margarita Basin. The geology of the basin consists of stream-deposited younger and older Quaternary alluvium overlying bedrock of the San Mateo Formation. Site 1D is

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underlain by older alluvium consisting of interbedded, fine to coarse-grained, unconsolidated to poorly consolidated sand, silt, and gravel interspersed with clay lenses.

2.5.1.5 Hydrogeology

The regional groundwater flow direction in the valley-fill aquifer is to the west (IT, 1999a). Groundwater at Site 1D ranges from 6 to 10 feet below ground surface (bgs) and flows northwest towards the Santa Margarita River.

2.5.1.6 Ecology

Vegetative habitats at Site 1D include disturbed land and "California sagebrush series" vegetation. The disturbed habitat is mostly bare ground, sparsely covered with mustard and tree tobacco. The California sagebrush series includes black and white sages, coyote brush, and castor bean. Herbaceous species include clover and annual grass. Ice plant grows in open patches throughout the site. Surveys at Site 1D for three federal-listed endangered or threatened species were conducted in 1996 and 1997. Coastal California gnatcatchers were observed at Site 1D during the 1997 surveys. Least Bell's vireos were identified in riparian vegetation adjacent to the Santa Margarita River in 1996 surveys, but none was observed at the site. Pacific pocket mice were not observed at or near Site 1D (IT, 1998).

Coastal California gnatcatchers and least Bell's vireos were observed near Site 1D during the Biological Field Survey conducted in August 2001 (Parsons, 2003). No nests or nestlings were observed within the site boundary, and fieldwork was conducted as scheduled.

2.5.1.7 Cultural Resources

Although no cultural resources were previously recorded within Site 1D, there is one area, approximately 50 feet north of the railroad tracks, that contains prehistoric items. This site contains one mano, one hammer-stone, one hammer-scraper, at least four flakes, and pieces of marine shell (LSA, 2000).

2.5.2 Nature and Extent of Contamination

This section summarizes the nature and extent of contamination in soil. The source of contamination is refuse-burning operations conducted approximately between 1942 and 1970. Contaminants are consistent with old burning operations and include metals and dioxins/furans.

2.5.2.1 Soil

The chemicals of concern (COCs) in soil at Site 1D are antimony, arsenic, chromium, copper, iron, lead, and zinc (IT, 1998). The development of soil remedial goals (RGs) for Site 1D was based on the results of previously performed human and ecological risk assessments that were documented in the Group C Remedial Investigation/Feasibility Study (RI/FS) (SWDIV, 1996b) and the OU 3 RI/FS (IT, 1998). These RGs are included in Appendix C.

The total volume of contaminated soil above RGs at Site 1D is estimated at approximately 31,300 cubic yards based on the investigation conducted as part of the OU 4 FS (Parsons, 2003), which is approximately a 20 percent reduction compared to the OU 3 ROD estimate of 40,000 cubic yards for the site (IT, 1999a). The change in estimated volume resulted from a greater sampling density obtained during the OU 4 FS. The horizontal distribution of metals above their previously established RGs at the

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deepest depth is shown on Figure 2-2. Figure 2-3 shows vertical distribution of contaminated soil.

2.5.2.2 Groundwater

Groundwater sampling at Site 1D was documented in the Draft Final RI Report for Group C Sites (SWDIV, 1996b). Three wells were installed and sampled. The results of the groundwater sampling were summarized in the OU 3 ROD (IT, 1999a). The potential risks due to groundwater exposure were also evaluated in the OU 3 ROD (IT, 1999a). Because groundwater was determined to not require action, the OU 4 FS focused on better defining the volume of soil waste requiring remediation at Site 1D.

2.5.3 Fate and Transport

Based on the potential threat to groundwater from chemicals present in soil, a “synthetic precipitation leaching procedure” (SPLP) analysis was conducted for the full suite of metals. Selected subsets of soil samples were analyzed to determine leachability potential and any associated threat to underlying groundwater. Samples that exhibited a range of lead concentrations were chosen for SPLP analysis, rather than simply choosing the samples with the highest concentrations. This was done to evaluate the leaching potential of soils that might be left in place at the site and to determine the migration potential in highly contaminated areas (Parsons, 2003).

The results from SPLP analyses conducted during the FS investigations indicate that extractable concentrations of aluminum, antimony, cadmium, chromium, iron, lead, manganese, vanadium, and zinc are above their respective maximum contaminant levels (MCLs). Metals-contaminated soils, if left in place untreated at Site 1D, would likely pose a threat to groundwater underlying the site based on SPLP results. In the four samples (1D-C13-B, 1D-G10-B, 1D-H08-C, and 1D-L06-C) where no metals were detected above their respective RGs in the total threshold limit concentration (TTLC) analysis, the SPLP results for aluminum, iron, lead, manganese, and vanadium were still above their respective MCLs or California Action Levels. This may represent background conditions for these metals.

It is highly unlikely that either dioxins/furans or semivolatile organic compounds (SVOCs) would represent a threat to water quality. The primary SVOCs of interest, polycyclic aromatic hydrocarbons (PAHs), along with dioxins/furans, are immobile in the environment and have extremely low water solubility. Consequently, their potential to migrate and impact either surface water (through runoff) or groundwater (through leaching) appears extremely unlikely.

The human health exposure pathway of concern is potential exposure to contaminated soil by future residential populations. The impact of contaminated soil on several ecological receptors was also evaluated. These exposure risks are described in Section 2.7.

2.6 Current and Potential Future Site and Resource Uses

The Site 1D burning area is no longer in operation, and military and civilian personnel cross the site infrequently because the vegetation is relatively dense. Twin Lakes Sewage Disposal Plant is approximately 800 feet southwest of the site, across Stuart Mesa Road.

The Santa Margarita River is approximately 150 feet north of the site. No public drinking water wells are located downgradient of the site.

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Site 1D was closed between the late 1960s and 1971, covered with native soil, and allowed to revert to natural vegetation (IT, 1998). Visual inspection in 1984 revealed no evidence of environmental contamination (NEESA, 1984). However, the cover material has since eroded, and contaminants have been exposed. Areas of stressed vegetation and stained soil have also been observed (IT, 1998). The site is located in a floodplain, and therefore, the Base has no plans for future development.

2.7 Summary of Site Risks

Risk assessments provide an evaluation of the potential threat to human health and the environment in the absence of remedial action. They provide the basis for determining whether remedial action is necessary and the justification for such remedial actions; they also identify the contaminant and exposure pathways that need to be addressed by the remedial actions if they are necessary (USEPA, 1988 & 1991). The soil RG values represent the more stringent of the chemical-specific residential soil preliminary remedial goals (PRGs) and the ecological permissible limits of exposure (PLEs) (see Appendix C). In cases where these value are less than the upper range of naturally occurring levels, the background concentration (i.e., 95 percent upper tolerance limit [UTL]) was established as the RG (Parsons, 2003).

A human health risk assessment was previously performed for the soil exposure pathway at Site 1D as part of the OU 3 RI/FS (IT, 1998). A baseline ecological risk assessment was performed during an earlier investigation (SWDIV, 1996b). These risk assessments were updated with the data collected during the FS (Parsons, 2003), and results are summarized below.

The response action selected in this Record of Decision is necessary to protect the public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment.

2.7.1 Human Health Risk Assessment

The assessment performed for the soil exposure pathway at Site 1D as part of the OU 3 RI/FS (IT, 1998) evaluated exposure resulting from incidental ingestion of soil, dermal contact with contaminated soil, and inhalation of contaminated fugitive dust. The assessment consisted of calculating the total risk and hazard by comparing maximum detected concentrations of all analytes to residential soil PRG values. Based on this comparison, the total residential soil risk was estimated to be 2×10^{-4} and the total hazard index was estimated to be 11.6 (Appendix C). However, the calculation of the total hazard index incorrectly included lead in the summation. Excluding lead, the total hazard index is 3.1.

The risk and hazard from naturally occurring background elements was calculated separately. The difference was presented as the site-related risk and hazard. Discounting the risk contributed by background metals, the site-related incremental lifetime cancer risk (ILCR) and hazard index were estimated to be 3×10^{-5} and 10.1, respectively (IT, 1998) (1.6 without lead). Arsenic was the primary contributor to cancer risk while antimony and chromium were the primary contributors to the noncancer hazard. The assessment concluded that baseline conditions at the site represent a potential threat to hypothetical future residents if the site were to hypothetically convert to such a land use at some time in the future.

The maximum historical lead concentration (1,100 milligram per kilogram [mg/kg]) exceeded both the USEPA and Cal/EPA residential screening criteria (IT, 1998). Organic compounds were minor contributors to overall risk and hazard.

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The OU 3 RI/FS Human Health Risk Assessment (HHRA) methodology and assumptions were reviewed to determine their appropriateness for use in decision making for the OU 4 FS (Parsons, 2003). The review indicated that there have been no subsequent changes in toxicological data, calculation methodologies, exposure assumptions, or exposure point concentrations that would alter the original conclusion that the site poses a threat to a hypothetical future on-site resident. However, the review indicated that risk from chromium (2×10^{-4}) and beryllium (7×10^{-6}) was significantly overestimated in the original OU 3 risk assessment. The cancer risk from chromium was overestimated by the assumption that all detected chromium was hexavalent and by using the subsequently withdrawn CAL-modified hexavalent chromium PRG of 0.2 mg/kg. The current USEPA Region 9 (2004) PRG for hexavalent chromium is 30 mg/kg. The beryllium risk was overestimated because it was calculated using a soil beryllium USEPA toxicity value that has since changed.

Soil sampling data collected as part of the FS (Parsons, 2003) indicated the presence of dioxins/furans in site soils. These compounds had not previously been analyzed for and their presence was not assumed in the original OU 3 assessment. A screening-level assessment, based on maximum detected concentrations, indicates that dioxins/furans would pose an additional site-related risk (i.e., above the previously determined level) of approximately 6×10^{-5} to a hypothetical residential receptor (see Appendix C).

2.7.2 Ecological Risk Assessment

A baseline ecological risk assessment (ERA) for organisms potentially exposed to contaminants in Site 1D soil was conducted as part of the Group C RI Report. A full discussion of the technical approach and methodology used in the baseline ERA was included in the draft final Group C RI (SWDIV, 1996b) and summarized in the draft final RI/FS for OU 3 (IT, 1998).

Habitat at Site 1D consists primarily of California sagebrush series interspersed with areas of open, disturbed habitat (IT, 1998). The representative species selected for the ecological risk assessment were plants, terrestrial invertebrates, California mouse, California quail, and coastal California gnatcatcher (IT, 1998).

In the baseline ERA, concentrations of inorganic chemicals in soil were compared with background values for the Santa Margarita Basin (IT, 1998). Concentrations of 13 inorganic compounds that exceeded the available background values were retained for the initial ecological risk screening (IT, 1998). The risk assessment presented the PLEs for each metal of concern, which reflect concentrations of chemicals in soil that would constitute safe conditions for the ERA's representative species. The PLEs for birds and mammals were modified based on the size of the area of concern and the foraging range for each representative species (IT, 1998). The ERA concluded that five metals (antimony, copper, iron, lead, and zinc) were present at Site 1D in concentrations that could be directly toxic to ecological receptors or could bioaccumulate in the wildlife food chain (IT, 1998). Based on the results of the field data collected for the FS, the same five metals (antimony, copper, iron, lead, and zinc) were present in concentrations exceeding the PLEs. In addition to these metals, dioxins/furans likely pose an additional incremental threat to ecological receptors. Since the previously performed ERA concluded that baseline conditions pose an unacceptable threat to ecological receptors, a reevaluation to address dioxins/furans would not change the overall conclusion. Therefore, an expanded ERA was determined to be unnecessary because the results of the previous ERA, documented in the Group C RI Report (SWDIV, 1996b), are adequate to support decision making at this site.

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2.8 Remedial Action Objectives

The RAOs for the Site 1D soil contamination are defined below:

- Minimize exposure (inhalation/dermal contact/ingestion) by humans and ecological receptors to chemicals in soil at concentrations exceeding RGs.
- Protect the beneficial uses and water quality objectives of the lower Santa Margarita River Basin.

Seven metals were detected in soil samples above their respective RGs during the OU 4 FS: antimony, arsenic, chromium, copper, iron, lead, and zinc (Parsons, 2003). The OU 3 ROD RGs are included in Appendix C. All seven of these metals were classified as remedial chemicals of concern (RCOCs) in the OU 3 ROD (IT, 1999a). Dioxins and furans are also classified as RCOCs.

The development of soil RGs for Site 1D uses RGs previously established as part of human and ecological risk assessments that were documented in the OU 3 RI/FS (IT, 1998). The soil RG values represent the more stringent of the chemical-specific residential soil PRGs and the ecological PLEs. In cases where this value is less than the upper range of naturally occurring levels, the background concentration for the Santa Margarita Basin (i.e., the estimated 95th percentile background concentration) was established as the RG.

Dioxins and furans were also found to represent a potential threat to human and ecological receptors at Site 1D. Dioxins and furans at this site will be remediated to ambient levels. Based on the conceptual site model and soil analytical results, it is likely that other contaminants (e.g., lead) will serve as a good indicator compound for dioxins and furans. However, confirmation sampling will be necessary as part of remedy implementation to demonstrate the adequacy of the cleanup. Results of numerous scientific studies have shown that dioxins and furans occur at trace levels in most soils. Based on a compilation of these studies, the USEPA reported the mean background urban and rural soil concentrations for dioxins (in terms of 2,3,4,8-tetrachlorodibenzo-p-dioxin [TCDD] toxicity equivalents [TEQ] and the 1989 international toxicity equivalent factors [TEFs]) of 13.4 and 4.1 nanograms per kilogram (ng/kg), respectively (USEPA, 2000e). Based on this information, and given that the site is located in a non-urban area, the soil remediation goal for dioxins is 4.1 ng/kg (0.000004 mg/kg).

2.9 Description of Alternatives

This section describes the remedial alternatives for soil selected for detailed analysis in the OU 4 FS for Site 1D (Parsons, 2003). The evaluations of remedial alternatives for the site address different means of achieving these RAOs.

Remedial alternatives for Site 1D were developed on the basis of RAOs and according to requirements of CERCLA, as amended by SARA, 42 USC § 9602 et seq., and the NCP (see Section 1.4). The following five alternatives were developed for remediation of contaminated soil at Site 1D:

- Alternative 1D-1: No action
- Alternative 1D-2: Implementation of institutional controls (site access restrictions with Base Master Plan Amendment, periodic site inspection/monitoring)
- Alternative 1D-3: Soil excavation, backfill, ex situ solidification/stabilization (S/S), and on-Base reuse of treated soil

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- Alternative 1D-4: Soil excavation, backfill, pretreatment, and off-Base disposal
- Alternative 1D-5: Soil excavation, backfill, pretreatment, and on-Base disposal.

Each alternative is described in detail in the following sections.

2.9.1 Alternative 1D-1: No Action

The NCP (40 CFR 300.430[e][6]) requires that a no action alternative be evaluated. Under this alternative, no further action would be taken to clean up the soil contamination, prevent land use, or limit contaminant migration at Site 1D to reduce potential risks to human health and the environment. The no action alternative involves no remediation of soils and results in no disturbance to the existing environment.

2.9.2 Alternative 1D-2: Institutional Controls (site access restrictions with Base Master Plan Amendment; periodic site inspection/monitoring)

Institutional controls reduce the risk to human health by controlling and monitoring exposure pathways rather than removing or controlling the contaminated soils. The institutional actions in Alternative 1D-2 include restricting the site's future development and use, as well as periodic site inspection to prevent unauthorized use.

Future use of Site 1D would be controlled by restricting land use to limit exposure to buried materials. This would be accomplished by use of administrative land use controls. The site would be inspected periodically during the rainy season for erosion. Alternative 1D-2 requires minimal administrative actions and physical measures to restrict site access to reduce exposure risks, but it does not involve any remediation of the contaminated soil to eliminate exposure risk. Therefore, this alternative would not protect the ecological receptors that may be exposed to the soil. This alternative also would not protect human health and the environment downstream of the site from exposure to potential contaminants eroded from the site during a flood event. Monitoring is expected to continue as long as wastes remain at the site.

2.9.3 Alternative 1D-3: Soil Excavation, Backfill, Ex Situ Solidification/Stabilization, and On-Base Reuse of Treated Soil

This alternative involves excavating the contaminated soil and treating it on site by incorporating cold-mix asphalt to solidify and stabilize it. The solid, stable material is used in road building and maintenance, or other construction projects on Base. A treatability study would be necessary to determine the suitability of specific stabilizing reagents for the site conditions, including formulation of emulsion and stabilizing reagents, appropriate mix ratios, quantities of aggregate needed, ability of the resultant asphalt to meet pavement specifications, and the effectiveness of the process in reducing the mobility of chemicals in soils. The reduction in mobility of chemicals of concern is key in the viability of this alternative.

For Site 1D, this remedial alternative includes excavation of an estimated 31,300 cubic yards of soil containing chemicals that exceed established remediation goals. The soil could be excavated with conventional equipment such as backhoes, excavators, and loaders. Appropriate mitigation measures and coordination with the U.S. Fish and Wildlife Service (USFWS) would be required to minimize and avoid habitat disruptions during all activities. An area north of Site 1D contains items of archeological significance. Therefore, cultural resource monitoring will be required during any site remediation. Additional coordination with the State Historic Preservation Officer (SHPO) and appropriate Native American groups would be needed to comply with the Archeological and Historic Preservation Act.

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2.9.4 Alternative 1D-4: Soil Excavation, Backfill, Pretreatment, and Off-Base Disposal

Alternative 1D-4 is the preferred alternative for Site 1D. This alternative addresses remediation of contaminated soils exceeding the RGs through excavation, on-Base chemical stabilization, and off-Base disposal. Alternative 1D-4 includes:

- Excavation of impacted soil
- Treatment of a portion of the excavated soil to incorporate chemical stabilizer
- Temporary storage of excavated soil stockpiles
- Sampling and analysis of soil stockpiles to determine chemical composition (waste characterization)
- Transportation of the excavated soil to an off-Base disposal facility
- Confirmation sampling and analysis of excavation areas
- Import and compaction of certified clean backfill material
- Site restoration.

Approximately 31,300 cubic yards exceed the remediation goals. Based on the data and waste classification, approximately 29,400 cubic yards of the excavated soil would be classified as California-hazardous or nonhazardous waste, and approximately 1,900 cubic yards would classify as RCRA-hazardous waste prior to treatment. The California-hazardous soil will be treated on site to a nonhazardous status and the RCRA-hazardous soil would be treated chemically to a California-hazardous status. Upon completion of pretreatment, all soil would be transported to the appropriate licensed disposal facilities.

2.9.5 Alternative 1D-5: Soil Excavation, Backfill, Pretreatment, and On-Base Disposal

Alternative 1D-5 is similar to Alternative 1D-4, except that contaminated soils would be disposed of at a new on-Base disposal facility instead of disposal off Base.

Soil excavation, pretreatment of excavated soil, temporary storage, waste characterization, confirmation sampling, backfilling, and site restoration would be conducted exactly as for Alternative 1D-4. Except upon completion of pretreatment, all contaminated soil would be transported to an appropriate on-Base facility for disposal.

Currently an appropriate on-Base facility has not been identified at MCB Camp Pendleton. This alternative would be contingent upon the identification of an appropriate facility that would be able to accept waste from Site 1D.

2.10 Summary of the Comparative Analysis of Alternatives

This section presents the results of the comparative analysis conducted to evaluate the relative advantages and disadvantages of each remedial alternative in relation to the nine evaluation criteria outlined in CERCLA Section 121(b), as amended. A comprehensive analysis of each alternative with respect to the nine criteria is presented in the OU 4 FS Report (Parsons, 2003). Table 2-1 summarizes the results of the comparative analysis conducted to evaluate the relative advantages and disadvantages of Alternatives 1D-1 through 1D-5 relative to the NCP criteria.

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2.10.1 Threshold Criteria

Threshold criteria include overall protection of human health and the environment and compliance with ARARs. An alternative must meet both threshold criteria to be eligible for selection.

2.10.1.1 Overall Protection of Human Health and the Environment

Alternative 1D-1 would leave contamination in place that poses a potential threat for future human health and ecological exposure. Alternative 1D-2 provides control of exposure pathways and is protective of human health but is only partially effective for ecological receptors. Alternatives 1D-1 and 1D-2 also would not protect human health and the environment downstream of the site from exposure to potential contaminants eroded from the site during a flood event. Alternatives 1D-3, 1D-4, and 1D-5 would provide protection of human health and ecological receptors through removal of impacted soils.

2.10.1.2 Compliance With ARARs

Based on the previously performed screening-level ERA, Alternatives 1D-1 and 1D-2 would not comply with location-specific requirements of the Endangered Species Act. It is likely that Alternatives 1D-3, 1D-4, and 1D-5 would comply with action- and location-specific requirements of the Endangered Species Act, although coordination with the USFWS, and SHPO would be required. Pilot testing of Alternative 1D-3 would be necessary to ensure compliance with ARARs governing disposal/reuse of stabilized materials.

2.10.2 Primary Balancing Criteria

Primary balancing criteria include long-term effectiveness and permanence; reduction of toxicity, mobility, or volume; short-term effectiveness; implementability; and cost. These are used to weigh trade-offs among alternatives and identify the most favorable.

2.10.2.1 Long-Term Effectiveness and Permanence

Alternative 1D-1 is rated low for long-term effectiveness and permanence because no measures or controls are associated with this alternative. Alternative 1D-2 would require long-term maintenance and would provide a degree of long-term effectiveness through limiting exposure and site uses, but it provides minimal long-term effectiveness and permanence for ecological receptors. For Alternatives 1D-3, 1D-4, and 1D-5, the measures and controls implemented would reduce the potential for future human health and ecological exposure, and no future actions would be necessary. Alternatives 1D-4 and 1D-5 would provide a high degree of long-term effectiveness and permanence because they involve removal of the contaminated soils from the Base and disposal at either an off-Base or an on-Base facility. This leaves little residual risk and provides no long-term maintenance requirement.

2.10.2.2 Reduction of Mobility, Toxicity, or Volume Through Treatment

Alternatives 1D-1 and 1D-2 are rated low for this evaluation criterion. Alternative 1D-3 includes on-site treatment. This alternative is rated highly effective because all of the waste material would be treated via asphalt mixing, resulting in a net reduction of toxicity of the waste soil. This effectiveness has been demonstrated at a wide range of remediation sites with metal leachability reductions of three or four orders of magnitude, although the required reduction in leachability would need to be demonstrated prior to implementation. Alternatives 1D-4 and 1D-5 include on-Base stabilization pretreatment prior to disposal to limit the leachability of contaminants. Stabilization reduces the

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mobility and toxicity of contaminants but increases the overall volume of resulting treated soil; therefore, this criterion is rated moderate for Alternatives 1D-4 and 1D-5.

2.10.2.3 Short-Term Effectiveness

This criterion is not rated for Alternative 1D-1 because it does not involve any actions that would disturb the site. The short-term effectiveness of Alternative 1D-2 is expected to be the greatest of the four alternatives, because minimal site activities would occur, and there would be no environmental impacts from implementing the action. For Alternatives 1D-3, 1D-4, and 1D-5, the potential for short-term dust exposure and possible short-term disruptions of ecological habitats exists during excavation, transportation, and hauling and disposal. The potential for short-term impacts associated with traffic and dust would be somewhat greater with Alternatives 1D-3 and 1D-5 due to the presence of the on-Base stabilization and the increased amount of on-Base truck traffic compared to Alternative 1D-4.

2.10.2.4 Implementability

This criterion is not rated for Alternative 1D-1 because no activities would be conducted under this alternative. Alternative 1D-2 is readily implementable and involves commonly performed operations, such as administrative restrictions on development that can occur at the site. However, given that the Base mission is to support training, any area with a land use restriction would limit that function and this potential loss of land use causes Alternative 1D-2 to be rated moderate.

Alternative 1D-4 is ranked high for implementability because all aspects of excavation and disposal are readily implementable. Equipment, materials, and labor for Alternatives 1D-3, 1D-4, and 1D-5 are easily available, and all three alternatives involve commonly performed remedial operations. Excavation and treatment for Alternatives 1D-3, 1D-4, and 1D-5 uses standard equipment and labor skills and is readily implementable. Stabilizing reagents range from widely available off the shelf reagents, such as fly ash, cement, etc., to less common, more specialized proprietary reagents.

Alternative 1D-3 is ranked moderate because it is not as readily implementable as Alternative 1D-2 and 1D-4. Implementation of Alternative 1D-3 involves pilot testing and associated regulatory coordination, as well as the on-Base coordination required to use the treated soil as part of Base construction projects. Alternative 1D-5 is ranked moderate to implement because it would require identification of an appropriate on-Base facility; compliance with the disposal requirements; and regulatory coordination.

2.10.2.5 Cost

No cost is associated with Alternative 1D-1. Alternative 1D-2 is less expensive than Alternatives 1D-3, 1D-4, and 1D-5, with an estimated cost of \$355,000. Alternatives 1D-3 and 1D-5 provide medium cost alternatives of \$9,065,000 and between \$6,667,000 and \$7,943,000. Alternative 1D-4 is the most expensive remedial alternative, with an estimated cost of \$11,190,000.

2.10.3 Modifying Criteria

Modifying criteria include regulatory and community acceptance. Regulatory acceptance is taken into account during development of the proposed plan and ROD. Public acceptance is considered through comments received during the public comment period.

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2.10.3.1 Regulatory Acceptance

The USEPA, Cal/EPA DTSC, and the San Diego RWQCB concur with the preferred alternative.

2.10.3.2 Community Acceptance

The proposed plan was issued for public review 26 September to 25 October 2005 and discussed at a public meeting on 12 October 2005. No public comments or concerns were received.

2.11 Selected Remedy

The DON has selected Alternative 1D-4, Soil Excavation, Backfill, Pretreatment, and Off-Base Disposal, as the preferred alternative at Site 1D because it effectively prevents potential human and ecological exposure to site chemicals of concern. Based on current information, the DON believes Alternative 1D-4 meets the threshold criteria and provides the best balance of tradeoffs with respect to the balancing and modifying criteria.

2.11.1 Rationale for Remedy Selection

The selected alternative provides the best balance with respect to the NCP evaluation criteria.

2.11.1.1 Threshold Criteria

Alternative 1D-4 meets the threshold criteria of overall protection of human health and the environment and complies with ARARs (see Section 2.12.2).

All contaminated soil exceeding chemical-specific RGs would be removed, treated for stabilization, and transported off Base for disposal. The site would then be backfilled with clean import soil, and site vegetation would be restored. Residual contamination would meet RGs and would be protective of human health and the environment.

The clean closure requirements in California Code of Regulations (CCR) Title 22 66264.111 (a) and (b) are met by excavating soils exceeding chemical-specific RGs. The RG chemical-specific cleanup levels for this action were determined to be risk-based levels that are the lowest achievable levels that are technologically and economically feasible under CCR Title 22, § 66264.94(a)(1), (a)(3), (c), (d), and (e). Coordination with the USFWS would be required. Additional coordination with the SHPO and appropriate Native American groups would be needed to comply with the Archeological and Historic Preservation Act.

2.11.1.2 Primary Balancing Criteria

Alternative 1D-4 is rated high for long-term effectiveness and permanence, and implementability. This alternative provides a high degree of long-term effectiveness and permanence because contaminants are removed from the site and the contaminated soil is replaced with clean import soil. Excavation, pretreatment, and disposal of contaminated soil at an off-Base disposal facility are readily implementable. Several firms can provide the necessary equipment, materials, and labor to excavate and dispose of the contaminated soil. Licensed disposal facilities capable of accepting the contaminated soil currently exist within California. Because the majority of the impacted soil would be permanently removed from the site, future soil remedial activities are not expected to be necessary. Collecting and screening confirmation samples during excavation would be used to evaluate the effectiveness of soil excavation.

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This alternative is ranked moderate for a reduction in toxicity, mobility, or volume through treatment, and short-term effectiveness. Although an increase in volume of soil is realized during treatment prior to disposal, there is a moderate reduction in toxicity and mobility observed with this alternative. Potential short-term risks to site workers would include inhalation of fugitive dust, dermal contact, and ingestion of impacted site soil during excavation and pretreatment. Potential exposure and protection procedures for workers would be addressed in the health and safety plan. Heavy equipment operated at the site would conform to California Occupational Safety and Health Administration (Cal/OSHA) specifications and would be operated only by trained personnel. Some short-term impacts to ecological receptors and habitat could occur, but adverse effects would be minimized through close coordination with the appropriate regulatory agencies (i.e., USFWS).

The cost for Alternative 1D-4 is estimated at \$11,190,000. This cost includes the required equipment, materials, and labor to perform site preparation, including construction of the soil stockpile area; excavation, backfilling with clean soil, and stockpiling; on-Base pretreatment of all excavated soil to incorporate chemical stabilizer; confirmation sampling and laboratory analysis; waste characterization; transportation and disposal of contaminated soil at a California hazardous waste disposal facility; surveying; and site restoration.

2.11.1.3 Modifying Criteria

The USEPA, Cal/EPA DTSC, and the San Diego RWQCB concur with the preferred alternative.

The community concurs with the preferred alternative. No comments were received on the Proposed Plan or the Public Meeting held 12 October 2005.

2.11.2 Detailed Description of Selected Remedy

Alternative 1D-4 addresses remediation of contaminated soils exceeding the RGs through excavation, on-Base chemical stabilization, and off-Base disposal. The logistics associated with the implementation of Alternative 1D-4 including utilities would be addressed in a Remedial Action Work Plan for the site. The siting, location, and excavation for utilities are therefore not discussed in detail in this document. The following elements are associated with Alternative 1D-4:

- Excavation of impacted soil
- Confirmation sampling and analysis of excavation areas
- Import and compaction of certified clean backfill material
- Treatment of a portion of the excavated soil to incorporate chemical stabilizer
- Temporary storage of excavated soil stockpiles
- Sampling and analysis of soil stockpiles for waste characterization
- Transportation of the excavated soil to an off-Base disposal facility
- Site restoration.

Based on the volume of material (approximately 31,300 cubic yards) exceeding the RGs, approximately 46,950 tons would require excavation from Site ID. The excavation area is an irregularly shaped area measuring roughly 800 by 600 feet (Figure 2-2). Within this area, approximately 231,000 square feet (5.3 acres) is impacted with COCs above site

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RGs. Based on the data and waste classification, approximately 29,400 cubic yards (44,000 tons) of the excavated soil would be classified as California-hazardous or nonhazardous waste, and approximately 1,900 cubic yards (2,800 tons) would classify as RCRA-hazardous waste prior to treatment.

Heavy earthmoving equipment, such as a track-mounted excavator and track- or wheeled-loaders would be used to excavate the impacted soil within the lateral limits.

Following excavation of individual grids to the assumed lateral limits and target depth, confirmation samples would be collected for laboratory analysis. Based on the analytical results from the confirmation samples, the excavation would be backfilled or extended laterally and/or vertically until the cleanup goals are achieved.

A licensed land surveyor would survey the final spatial limits of the excavation after confirmation sampling and analysis and prior to placement and compaction of backfill. The excavation would be backfilled to the original surface contours, surveyed, and revegetated to restore habitat and to minimize erosion.

For cost estimating purposes, it is assumed that the California-hazardous soil would be treated to nonhazardous status and the RCRA-hazardous soil chemically to California-hazardous prior to off-Base transport and disposal. None of the material would be classified or manifested as RCRA waste (i.e., would not be "D008-listed" for lead) and would not be subject to the universal treatment standards (UTSs) of the land disposal restrictions (LDRs).

During the remedial action, the excavation and the stockpile areas would be restricted from unauthorized access. Potential exposure and protection procedures for site workers would be addressed in a site-specific health and safety plan.

Prior to transport, the stockpile samples would be collected and the analytical results would be used to characterize and classify the waste. Based on topographic maps of the area immediately surrounding the site, sufficient open space is available near the excavations to serve as a staging area for the treated stockpiles.

Stockpile samples would be analyzed for soluble lead by the following two test procedures: the toxicity characteristic leaching procedure (TCLP) (SW1311), as described in USEPA Publication SW 846, and the California wet extraction test (WET) analysis (CCR Title 22 Chapter 11). The results for the WET analyses would be compared to the soluble threshold limit concentrations (STLCs) to determine if the waste classifies as California hazardous. Likewise, the results from the TCLP tests would be compared to the TCLP criteria to determine if the waste classifies as RCRA hazardous. Using these results and appropriate regulations governing classification of hazardous waste, each 500-ton soil stockpile would be classified as RCRA-hazardous, California-hazardous, or nonhazardous waste.

Upon excavation and treatment, all soil would be transported to appropriate facilities for disposal.

2.11.3 Cost Estimate for the Selected Remedy

Table 2-2 summarizes the cost estimate for the selected alternative. Because the costs would be incurred over a relatively short time frame (approximately one year) and O&M is not anticipated, a net present worth was not calculated for this alternative. The capital costs include: equipment, materials, and labor to perform site preparation, including construction of the soil stockpile area; excavation, backfilling with clean soil, and stockpiling; on-Base pretreatment of all excavated soil to incorporate chemical stabilizer;

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confirmation sampling and laboratory analysis; waste characterization; transportation and disposal of contaminated soil at a California hazardous waste disposal facility; surveying; and site restoration. The estimated cost for the selected remedy is \$11,190,000.

2.11.4 Estimated Outcomes of the Selected Remedy

The site will be suitable for unrestricted land use as a result of the selected remedy. However, the site is located in a floodplain, which may limit future development. In addition, the selected remedy will reduce the threat to the environment by eliminating the threat of releasing contaminants during a flood event.

2.12 Statutory Determinations

CERCLA requires the DON to undertake remedial actions that achieve adequate protection of human health and the environment. Section 121 of CERCLA establishes several statutory requirements and preferences specifying that, when complete, the selected remedial action 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. The statute also includes a preference for remedies that, as their principal element, permanently and significantly reduce the volume, toxicity, or mobility of hazardous waste.

Complete discussions of or statutory requirements are found in the OU 4 FS Report (Parsons, 2003). This section discusses how the selected remedy meets the statutory requirements and preferences.

2.12.1 Protection of Human Health and the Environment

RAOs for Site 1D address minimizing exposure (inhalation/dermal contact/ingestion) by humans and ecological receptors to chemicals in soil at concentrations exceeding RGs and protecting the beneficial uses and water quality objectives of the lower Santa Margarita River Basin. The selected remedy protects human health and the environment by physically removing all contaminated soil exceeding chemical-specific RGs, transporting that soil off Base, and backfilling the site with clean imported soil. Residual contamination would meet RGs and would therefore be protective of human health and the environment. There are no short-term threats associated with the selected remedy that cannot be controlled. In addition, no adverse cross-media impacts are expected from the remedy.

2.12.2 Compliance with ARARs

The selected remedy complies with ARARs. A complete discussion of ARARs is presented in the OU 4 FS Report (Parsons, 2003). The following sections discuss chemical-, location-, and action-specific ARARs for the selected remedy.

2.12.2.1 Chemical-Specific ARARs

Chemical-specific ARARs are generally health- or risk-based numerical values or methodologies applied to site-specific conditions that result in the establishment of a cleanup level. If a chemical has more than one remediation goal, the most stringent level has been identified as an ARAR for this remedial action. The selected remedy can be implemented to comply with chemical-specific ARARs.

This section presents a summary of chemical-specific ARARs for the selected remedy at Site 1D. Contaminants in soil at Site 1D were detected at concentrations that could

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potentially threaten human health and the environment. The soil may be classified as a federal hazardous waste as defined by RCRA and the state-authorized program, or as non-RCRA, state-regulated hazardous waste. If the soil is determined to be hazardous waste, appropriate handling requirements are identified.

2.12.2.1.1 Soil ARARs

The key threshold question for soil ARARs is whether or not the soil located at Site 1D would be classified as hazardous waste if excavated. The data indicate concentrations in soil that exceed the hazardous waste levels for RCRA and non-RCRA hazardous waste. When the soil is excavated, at least a portion would likely be hazardous waste.

Federal

RCRA Hazardous Waste and Groundwater Protection Standards

The federal RCRA requirements identified in 40 CFR pt. 261 do not apply in California because the state RCRA program is authorized. The authorized state RCRA requirements are therefore considered potential federal ARARs. The applicability of RCRA requirements depends on whether the waste is a RCRA hazardous waste, whether the waste was initially treated, stored, or disposed of after the effective date of the particular RCRA requirement, and whether the activity at the site constitutes treatment, storage, or disposal as defined by RCRA. However, RCRA requirements may be relevant and appropriate even if they are not applicable. Examples include activities that are similar to the definition of RCRA treatment, storage, or disposal for waste that is similar to RCRA hazardous waste.

The determination of whether a waste is a RCRA hazardous waste can be made by comparing the site waste to the definition of RCRA hazardous waste. The RCRA requirements identified in CCR Title 22, § 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100 are applicable ARARs because they define RCRA hazardous waste. A waste can meet the definition of hazardous waste if it has the toxicity characteristic of hazardous waste. This determination is made by using the TCLP. The maximum concentrations allowable for the TCLP listed in § 66261.24(a)(1)(B) are applicable federal ARARs for determining whether the site has hazardous waste. If the site soil has concentrations exceeding these values, it would be determined to be a characteristic RCRA hazardous waste if excavated. Based on sampling results, the concentrations of metals in the soil indicate that excavated soil could exceed characteristic hazardous waste levels.

Concentration Limits

The requirements in CCR Title 22, § 66264.94(a)(1), (a)(3), (c), (d), and (e) are relevant and appropriate federal ARARs for the vadose zone (i.e., the unsaturated zone contamination). These sections set concentration limits for the unsaturated zone. These requirements are relevant and appropriate for cleanup of soil at Site 1D for this remedial action. It has been determined that cleanup to background is not technologically and economically feasible. The lowest achievable levels that are technologically and economically feasible are risk-based levels that assure protection of human health and the environment including groundwater. However, the selected remedy could result in levels lower than risk-based levels and could even result in meeting background over time. However, it has been determined that additional work to meet levels lower than risk-based levels is not economically feasible since risk levels will already be acceptable. These requirements are considered federal ARARs because they are part of the approved state RCRA program.

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State

RCRA Requirements

State RCRA requirements included within the USEPA-authorized RCRA program for California are considered potential federal ARARs and are discussed above. When state regulations are broader in scope than their federal counterparts, they are considered potential state ARARs. State requirements such as the non-RCRA, state-regulated hazardous waste requirements may be potential state ARARs because they are not within the scope of the federal ARARs (57 Federal Register 60848). The CCR Title 22, division 4.5 requirements that are part of the state-approved RCRA program would be potential state ARARs for non-RCRA, state-regulated hazardous wastes.

The site waste characteristics need to be compared to the definition of non-RCRA, state-regulated hazardous waste. The non-RCRA, state-regulated waste definition requirements in CCR Title 22, § 66261.24(a)(2) are applicable state ARARs for determining whether other requirements are ARARs. This section lists the TTLCs and STLCs. The site waste may be compared to these thresholds to determine whether it meets the characteristics for a non-RCRA, state-regulated hazardous waste. Based on sampling results at Site 1D, the concentrations of metals in the soil indicate that excavated soil could exceed these levels and, therefore, the waste may be a non-RCRA California hazardous waste.

Water Quality Control Plan for the San Diego Basin (9) (Basin Plan)

The Basin Plan was evaluated for potential state ARAR status for the OU 4 sites. The Basin Plan was prepared and implemented to protect and enhance the quality of the waters in the San Diego Basin. The Basin Plan establishes beneficial uses and water quality objectives (WQOs) for the surface water and groundwater of the region and is the basis of the San Diego RWQCB regulatory programs. The Basin Plan includes both numeric and narrative WQOs for specific groundwater subbasins. The WQOs are intended to protect the beneficial uses of the waters of the region. Beneficial use and reuse of water are key aspects of the Basin Plan. The OU 4 sites at MCB Camp Pendleton are located in the Santa Margarita River basin, which has the following beneficial use designations (RWQCB, 1994):

- Municipal and domestic supply
- Agricultural supply
- Industrial service supply
- Industrial process supply.

The DON accepts the substantive provisions in Chapters 2 and 3 of the Basin Plan for the San Diego RWQCB (1994), including beneficial use and WQOs, as applicable ARARs for cleaning up the soil to remedial goals.

State Water Resources Control Board Resolutions 92-49 and 68-16.

State Water Resources Control Board (SWRCB) Resolutions (Res.) 92-49 (as Amended on 21 April 1994 and 02 October 1996) is titled Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under California (Cal.) Water Code § 13304. This resolution contains policies and procedures for the regional boards that apply to all investigations and cleanup and abatement activities for all types of discharges subject to Cal. Water Code § 13304.

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SWRCB Resolutions 68-16, Statement of Policy With Respect to Maintaining High Quality of Waters in California, establishes the policy that high-quality waters of the state "shall be maintained to the maximum extent possible" consistent with the "maximum benefit to the people of the state." It provides that whenever the existing quality of water is better than the required applicable water quality policies, such existing high-quality water will be maintained until it has been demonstrated to the state that any change will be consistent with maximum benefit to the people of the state, will not unreasonably affect present and anticipated beneficial use of such water, and will not result in water quality less than that prescribed in the policies. It also states that any activity that produces or may produce a waste or increased volume or concentration of waste and that discharges or proposes to discharge to existing high-quality waters will be required to meet waste-discharge requirements that will result in the best practicable treatment or control of the discharge necessary to assure that a) pollution or a nuisance will not occur and b) the highest water quality consistent with maximum benefit to the people of the state will be maintained (SWRCB, 1968).

Cleanup to below background water quality conditions is not required by the SWRCB under the Porter-Cologne Act. SWRCB Resolutions 92-49 II.F.1 (SWRCB, 1992) provides that regional boards may require cleanup and abatement to "conform to the provisions of Resolution No. 68-16 of the State Water Board, and the Water Quality Control Plans of the State and Regional Water Quality Control Boards, provided that under no circumstances shall these provisions be interpreted to require cleanup and abatement that achieves water quality conditions that are better than background conditions."

DON's Position Regarding SWRCB Resolutions. 92-49 and 68-16.

The DON recognizes that the key substantive requirements of CCR Title 22, § 66264.94 (and the identical requirements of CCR Title 23, § 2550.4 and Section III.G of SWRCB Resolutions 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 DON 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 DON has also determined that SWRCB Resolutions 68-16 is not a chemical-specific ARAR for determining response action goals. SWRCB Resolutions 68-16 is an action-specific ARAR for regulating new discharges such as discharged treated groundwater into the aquifer. However, no new discharges are proposed by the remedial action alternatives. The DON has determined that further migration of already contaminated groundwater and soil is not a discharge governed by the language in Resolutions 68-16. More specifically, the language of SWRCB Resolutions 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 DON's position is that SWRCB Resolutions 68-16 and 92-49 and CCR Title 23, § 2550.4 do not constitute chemical-specific ARARs for this remedial action because they are state requirements and are not more stringent than federal ARAR provisions of CCR Title 22, § 66264.94. The NCP set forth in 40 CFR § 300.400(g)(4) provides that

DECISION SUMMARY

only state standards more stringent than federal standards may be ARARs (see also CERCLA Section 121(d)(2)(A)(ii) [42 U.S.C. § 9621(d)(2)(A)(ii)]).

The substantive technical standard in the equivalent state requirements (i.e., CCR Title 23, division 3, chapter 15 and SWRCB Resolutions 92-49 and 68-16) is identical to the substantive technical standard in CCR Title 22, § 66264.94. This section of CCR Title 22 will likely be applied in a manner consistent with equivalent provisions of other regulations, including SWRCB Resolutions 92-49 and 68-16.

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

The state does not agree with the DON's determination that SWRCB Resolutions 92 49 and 68-16 and certain provisions of CCR Title 23, division 3, chapter 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 Resolutions 92 49 and 68-16, and compliance with the CCR Title 22 provisions should result in compliance with the CCR Title 23 provisions. The state does not intend to dispute the ROD, but reserves its rights if implementation of the CCR Title 22 provisions is not as stringent as state implementation of CCR Title 23 provisions. Because CCR Title 22 regulation is part of the state's authorized hazardous waste control program, it is also the state's position that CCR Title 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 DON and the state of California have not agreed on whether SWRCB Resolutions 92 49 and 68-16 and CCR Title 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.

2.12.2.1.2 Air ARARs

The soil excavation or moving activities proposed for Site 1D have the potential for dust particle emissions.

Federal

Clean Air Act

The Clean Air Act (CAA) establishes the National Ambient Air Quality Standards (NAAQS) in 40 CFR § 50.4–50.12. NAAQS are not enforceable in and of themselves; they are translated into source-specific emissions limitations by the state (USEPA, 1990a). Substantive requirements of the San Diego Air Pollution Control District (APCD) rules that have been approved by USEPA as part of the State Implementation Plan (SIP) under the CAA are potential federal ARARs for air emissions (CAA Section 110).

The SIP includes rules for emissions restrictions for particulates under San Diego APCD. APCD Rule 50(d)(1) addresses discharge of any air contaminant and is considered an applicable federal ARAR for the discharge of particulate matter via fugitive dust emissions from soil excavation. Rule 50(d)(1) prohibits discharge of any air contaminant from any single source of emissions that is darker than number 1 on the Ringlemann Chart for more than 3 minutes in any 60-minute period.

State

No State ARARs were identified for air emissions for the selected remedy.

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2.12.2.2 Location-Specific ARARs

Location-specific ARARs are restrictions on the concentration of hazardous substances or the conduct of activities solely because they occur in special locations such as floodplains, wetlands, historic places, and sensitive ecosystems or habitats. The selected remedy action will be implemented to comply with location-specific ARARs.

Site 1D is located in 20 Area, immediately north of the intersection of Vandergrift Boulevard and Stuart Mesa Road. The site is approximately 500 feet south of the Santa Margarita River and is subject to flooding during peak rainfall events. The site is one of nine closed refuse burning grounds that served as principal trash disposal areas on the base prior to the 1970s. The site is covered with native soil. Natural vegetation in and around the area is primarily undisturbed, with coastal scrub and riparian habitat. The site is located approximately 4,000 feet from the ocean (SWDIV, 1996b). No Base production wells are located downgradient of Site 1D.

The resource categories relating to location-specific requirements potentially affected by the Site 1D selected remedy include cultural resources, floodplains, biological resources, and coastal zone resources. The substantive provisions of the following requirements were identified as the most stringent of the federal and state location-specific ARARs for the remedial actions at Site 1D:

- Archaeological and Historic Preservation Act (16 USC § 469–469c-1, 40 CFR § 6.301[c]);
- Archaeological Resources Protection Act of 1979, as amended (Public Law 96-95, 16 USC § 470aa–470mm).
- Executive Order No. 11988, Floodplain Management (40 CFR § 6.302[b]);
- RCRA (33 USC §§ 6901–6991[i]), CCR Title 22, § 66264.18(b).]
- Endangered Species Act of 1973 (substantive provisions of 16 USC §§ 1531–1543),
- Migratory Bird Treaty Act of 1972 (substantive provisions of 16 USC §§ 703–712),
- Coastal Zone Management Act (substantive provisions of 16 USC §§ 1451–1464, 15 CFR § 930), and/or
- California Coastal Act of 1976 (California Public Resources Code §§ 30000–30900; CCR Title 14, §§ 13001–13666.4).

2.12.2.2.1 Cultural Resources ARARs

The following cultural resources requirements were determined to be ARARs for the Site 1D remedial action:

Archaeological and Historic Preservation Act

The Archaeological and Historic Preservation Act, 16 USC § 469–469c-1, codified in regulations at 40 CFR § 6.301(c), provides for the preservation of historical and archaeological data that might otherwise be lost as a result of dam construction or alterations of the terrain. If activities in connection with any federal construction project or federally approved project may cause irreparable loss to significant scientific, prehistorical, or archaeological data, the act requires the agency undertaking that project to preserve the data or request the Department of the Interior (DOI) to do so. This act

DECISION SUMMARY

differs from the National Historic Preservation Act (NHPA) in that it encompasses a broader range of resources than those listed on the National Register and mandates only the preservation of the data (including analysis and publication).

While no cultural resources were previously recorded within Site 1D, one area contains prehistoric items located north of the site (approximately 50 feet north of the railroad tracks), as described in Section 2.5.1.7. Substantive provisions of 16 USC § 469–469c-1 and 40 CFR § 6.301(c) are relevant and appropriate for the Site 1D remedial action. Excavation activities would be monitored for potential identification of unknown cultural resources.

Archaeological Resources Protection Act of 1979

Public Law (Public Law No.) 96-95 (16 USC § 470aa–470mm), codified at 32 CFR §229.1 et seq, was enacted in 1979 and amended in 1988 and applies to all lands to which the fee title is held by the United States. The purpose of this statute is to provide for the protection of archaeological resources on federal and Indian lands. The act prohibits unauthorized excavation, removal, damage, alteration, or defacement of archaeological resources located on public lands unless such activity is pursuant to a permit issued under Section 470cc.

No archeological resources have been identified at Site 1D. Substantive provisions of the Archaeological Resources Protection Act of 1979, set forth in 32 CFR §229.4, for the protection of archaeological resources on federal lands are relevant and appropriate federal ARARs for Site 1D since prehistoric items were found near the site. These requirements will be applicable to on-site excavation if previously unidentified archaeological resources are identified during excavation, or if excavation of Site 1D could impact a site listed on the National Register. Excavation activities would be monitored for potential identification of unknown cultural resources.

2.12.2.2.2 Floodplains Management ARARs

The following floodplains management requirements were determined to be ARARs for the Site 1D remedial action:

Federal

Floodplain Management, Executive Order No. 11988

Under 40 CFR § 6.302(b), USEPA administrative actions are required to evaluate the potential effects of action they may take in a floodplain to avoid, to the extent possible, adverse effects associated with direct and indirect development of a floodplain. Site 1D is located within areas susceptible to flooding during a statistical 100-year flood event. This remedial action is not an USEPA administrative action so these requirements are not applicable. However, the requirements were determined to be relevant and appropriate since the DON is a federal agency taking an action that may affect the floodplain. Therefore, 40 CFR § 6.302(b) is relevant and appropriate for the remedial action at Site 1D.

Resource Conservation and Recovery Act (33 USC §§ 6901–6991[i])

Under CCR Title 22, § 66264.18(b), any hazardous waste facility located in a 100-year floodplain or within the maximum high tide must be designed, constructed, operated, and maintained to prevent washout of any hazardous waste by a 100-year flood or maximum high tide, unless the owner or operator can demonstrate that procedures are in effect that will cause the waste to be removed safely, before flood or tidewater can reach the facility.

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Site 1D is located within areas susceptible to flooding during a statistical 100-year flood event. The substantive provisions of CCR Title 22, § 66264.18[b] require that a hazardous waste facility within a 100-year floodplain be designed, constructed, operated, and maintained to avoid washout and subsequent releases of hazardous materials. This requirement is applicable for the construction of any new soil treatment facilities to be used as part of the remedial actions for Site 1D because portions of contaminated soils at this site meet the definition of hazardous waste.

2.12.2.2.3 Biological Resources ARARs

The following biological resources requirements were determined to be ARARs for the Site 1D remedial action:

Federal

Endangered Species Act of 1973

The Endangered Species Act (ESA) of 1973 (16 USC §§ 1531–1543) provides a means for conserving various species of fish, wildlife, and plants that are threatened with extinction. The ESA defines an endangered species and provides for the designation of critical habitats. Federal agencies may not jeopardize the continued existence of any listed species or cause the destruction or adverse modification of critical habitat. Under Section 7(a) of the ESA, federal agencies must carry out conservation programs for listed species. The Endangered Species Committee may grant an exemption for agency action if reasonable mitigation and enhancement measures such as propagation, transplantation, and habitat acquisition and improvement are implemented. Consultation regulations at 50 CFR § 402 are administrative in nature and are therefore not ARARs. However, they are guidance to comply with the substantive provisions of the ESA.

Endangered species have been observed in the vicinity of Site 1D during several biological surveys conducted in 1996, 1997, 1998, and 2001. Species of potential concern identified at the sites include coastal California gnatcatcher (federal threatened species list), least Bell's vireo (State endangered species list), southwestern willow flycatcher (federal endangered species list) tidewater goby (federal endangered species list), and arroyo southwestern toad. Therefore, substantive requirements pertaining to the protection of endangered species or their habitats are considered applicable because some of the proposed alternatives for these sites involve facility construction and soil excavation that would disturb the sites.

Migratory Bird Treaty Act of 1972

The Migratory Bird Treaty Act (16 USC §§ 703–712) prohibits at any time using any means or manner, the pursuit, hunting, capturing, and killing or attempting to take, capture, or kill any migratory bird. This act also prohibits the possession, sale, export, and import of any migratory bird or any part of a migratory bird, as well as nests and eggs. A list of migratory birds for which this requirement applies is found at 50 CFR § 10.13. It is the DON's position that this act is not legally applicable to DON actions; however, Executive Order No. 13186 (dated 10 January 2001) requires each federal agency taking actions that have or are likely to have a measurable effect on migratory bird populations to develop and implement, within 2 years, a memorandum of understanding (MOU) with the USFWS to promote the conservation of such populations. The U.S. Department of Defense (DoD) and the USFWS are in the process of negotiating this MOU. In the meantime, the Migratory Bird Treaty Act will continue to be evaluated as a potentially relevant and appropriate requirement for DON's CERCLA response actions.

DECISION SUMMARY

Migratory birds have been observed near Site 1D. The substantive provisions of 16 USC §§ 703 are relevant and appropriate federal ARARs.

2.12.2.2.4 Coastal Resources ARARs

The following coastal resources requirements were determined to be ARARs for the Site 1D remedial action:

Federal

Coastal Zone Management Act

The Coastal Zone Management Act (CZMA) (16 USC §§ 1451–1464) specifically excludes federal lands from the coastal zone (16 USC § 1453[1]). Therefore, the CZMA is not potentially applicable to Site 1D. The CZMA will be evaluated as a potentially relevant and appropriate requirement. Section 1456(a)(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. A state coastal zone management program is developed under state law guided by the CZMA and its accompanying implementing regulations in 15 CFR § 930. A state program sets forth objectives, policies, and standards to guide public and private uses of lands and water in the coastal zone.

Site 1D is located within the designated boundary of the coastal zone, as indicated in California Coastal Commission (CCC) maps that delineate the extent of the coastal zone maps (CCC, 1993). Therefore, the CZMA and implementing regulations at 15 CFR § 930 are relevant and appropriate federal ARARs. Activities directly affecting the coastal zone at this site will be conducted in a manner consistent with the substantive provisions of the CZMA.

State

California Coastal Act of 1976

The California Coastal Act is codified at Public Resources Code (California Public Resources Code) §§ 30000–30900 and CCR Title 14, §§ 13001–13666.4. These sections regulate activities associated with development to control direct significant impacts on coastal waters and to protect state and national interests in California coastal resources. Since federal lands are specifically excluded from the definition of coastal zone, the California Coastal Act is not potentially applicable to Site 1D, but is evaluated further as a potentially relevant and appropriate requirement. The California Coastal Act policies set forth in the act constitute the standards used by the California Coastal Commission in its coastal development permit decisions and for the review of local coastal programs. These policies contain the following substantive requirements: protection and expansion of public access to the shoreline and recreation opportunities (California Public Resources Code §§ 30210–30224); protection, enhancement, and restoration of environmentally sensitive habitats including intertidal and near shore waters, wetlands, bays and estuaries, riparian habitat, grasslands, streams, lakes, and habitat for rare or endangered plants or animals (California Public Resources Code §§ 30230–30240), protection of productive agricultural lands, commercial fisheries, and archaeological resources

Site 1D is located within the designated boundary of the coastal zone, as indicated in CCC maps that delineate the extent of the coastal zone maps (CCC, 1993). Therefore, the coastal zone requirements at California Public Resources Code §§ 30000–30900)

DECISION SUMMARY

and CCR Title 14, §§ 13001–13666.4 were identified as relevant and appropriate state ARARs for the selected remedy at Site 1D.

2.12.2.3 Action-Specific ARARs

Action-specific ARARs are technology- or activity-based requirements or limitations for remedial activities and apply to particular remediation activities. The selected remedy can be implemented to comply with action-specific ARARs.

This section presents a summary of action-specific ARARs for the selected remedy at Site 1D. ARARs for excavation are typically state-promulgated regulations pertaining to fugitive emissions, temporary storage (of wastes for treatment or disposal), or protection of species and habitat during remedial construction activities.

Excavated soil would be subject to RCRA requirements in CCR Title 22, § 66262.10(a), 66262.11 and § 66264.13(a) and (b) to determine whether such wastes should be classified as hazardous. This characterization will be made prior to offsite disposal.

Staging Piles (40 CFR § 264.554)

Although the state of California has not promulgated its own regulation for staging piles, it has obtained interim authorization by rule under 40 CFR § 271.27(a)(2). In a letter dated 18 March 2002, Cal/EPA Department of Toxic Substances Control notified USEPA that California intended to adopt the 22 January 2002 amended corrective action management unit (CAMU) standards rule. California was authorized under RCRA for the 16 February 1993 CAMU rule as required under 40 CFR § 271.27(a)(1) to gain interim authorization for the 2002 amended rule. Therefore, the amended federal regulations at 40 CFR § 264.554 are state regulations. However, since they are federally enforceable as are the other authorized state RCRA requirements (see Section A1.3.1), they are potential federal ARARs.

Regulations at 40 CFR § 264.554 allow relief from land disposal restrictions (LDRs) for temporary storage (less than 2 years) of remediation waste on contiguous property. Placing hazardous remediation wastes in a staging pile does not trigger LDRs or minimum technology requirements (MTRs). In addition, physical operations such as mixing, sizing, blending, etc. that are intended to prepare wastes for subsequent management or treatment are allowed to occur in staging piles regardless of whether they technically meet the RCRA definition of “treatment.” The substantive provisions of § 264.554(d)(1)(i–ii), (d)(2), (h), (i), (j), and (k) are ARARs for design, operating, and closure criteria for the staging pile.

The staging pile regulations also require that the unit facilitate a remedy that is reliable, effective, and protective (§ 264.554[d][1][i]); and be designed using appropriate measures (e.g., liners, covers, run-on/runoff controls, groundwater monitoring system) to prevent or minimize releases and cross-media transfers of hazardous wastes and constituents (§ 264.554[d][1][ii]). For units located in a previously contaminated area of the facility, all remediation wastes, contaminated containment system components, structures, and equipment that are contaminated with waste or leachate must be removed or decontaminated within 180 days after the operating term of the staging pile expires (§ 264.554[j]). In addition, contaminated subsoils must be decontaminated. For units located on uncontaminated areas of the facility, within 180 days following expiration of the operating term, the staging pile must be closed in accordance with waste pile closure requirements in CCR Title 22, § 66264.258(a) and the closure performance standards in CCR Title 22, § 66264.111 for permitted facilities (§ 264.554[k]).

DECISION SUMMARY

Construction Activities Stormwater Pollution Prevention Requirements

On 16 November 1990, USEPA final regulations implementing Section 402(p) of the Clean Water Act (CWA) setting forth the requirements for the Phase I Stormwater National Pollutant Discharge Elimination System (NPDES) permit requirements were promulgated (55 Federal Register 47990). USEPA's Phase I Stormwater NPDES regulations require that owner/operators of construction activities obtain permit coverage and comply with discharge standards. The Phase II Stormwater Rule was promulgated on 08 December 1999. On 10 March 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 disturbing 5 acres or more (Phase I) to 1 acre or more (Phase II). USEPA is looking to states with delegated NPDES programs such as California to take the lead in issuing permits that implement the new regulations.

Section 121(e) of CERCLA exempts on-site CERCLA response actions from permit requirements. CERCLA on-site response actions must comply with federal and state ARARs, the promulgated substantive requirements of the federal and state laws and regulations that are typically implemented via environmental permit processes. The DON follows the CERCLA process instead of these permitting processes when making CERCLA decisions, but in all cases the DON implements substantive provisions of the law.

Substantive provisions of USEPA's Stormwater NPDES regulations for construction activities as well as the CWA provisions that they implement are applicable federal ARARs for IR sites that involve construction after the effective date of the regulations.

CWA statutory effluent treatment requirements for stormwater discharges from small construction activity are potential federal ARARs. They are specified in Section 402(p)(3)(A) of the CWA (42 USC § 1342[p][3][A]) to include all standards set forth in Section 402 of the CWA. As for most other discharge categories, those standards are the long-standing best available technology economically achievable (BAT) requirement for toxic pollutants and best conventional pollutant control technology (BCPCT) requirement for conventional pollutants, as well as state water quality standards.

The substantive part of USEPA's CWA/NPDES stormwater program is the requirement to develop and implement best management practices (BMPs) to manage stormwater discharges. Although BMPs have been designated by USEPA as a form of "effluent limitation," they are prescribed management practices rather than more traditional "end-of-pipe" numeric effluent limitations. A stormwater plan is a required procedural mechanism for developing BMPs and obtaining regulatory approval of BMPs in the CWA context. The substantive provisions of the general requirements for stormwater plans and BMPs set forth in 40 CFR § 122.44(k)(2) and (4) are applicable federal ARARs for construction activities where 1 acre or more of soil will be disturbed.

The Navy has determined that Section 121 (e)(1) of CERCLA and the corresponding provision in the NCP (40 CFR Section 300.400[e][1]) apply to the discharge of storm water from OU 4 MCB Camp Pendleton. These sections are clear that no permits are required for on-site response actions under CERCLA. Therefore, an NPDES permit (either general or individual) is not required for a discharge of storm water during the on-site response action proposed for OU 4. However, the Navy will comply with the substantive provisions of the NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (SWRCB Order No. 99-08) identified by the State of California as "to be considered" (TBC) guidance for compliance with the federal CWA and state of California water quality requirements identified as potential water

DECISION SUMMARY

quality ARARs. Associated reporting and record keeping are considered procedural and are, therefore, not substantive. Although the Navy has determined that the permit does not qualify as an ARAR, the permit has been identified as TBC guidance. The guidance is clear that USEPA intends that implementation of remedial actions should comply with ARARs (and TBC guidance as appropriate) to protect public health and the environment. By identifying the substantive NPDES permit requirements as TBC guidance, the Navy has agreed to comply with them.

The Navy will comply with the following substantive provisions of the General Permit: substantive requirements for development and implementation of BMPs, substantive requirements for the content of a Stormwater Pollution Prevention Plan (SWPPP), and substantive technical monitoring and analytical requirements (location and frequency of sample collection, parameters to be tested, and analytical methodologies). Compliance with these substantive requirements will be documented and implemented during the removal action. This plan will include descriptions of the BMPs to be implemented during the removal action and address substantive SWPPP and monitoring program requirements.

2.12.3 Cost-Effectiveness

The selected remedy has been determined to provide overall effectiveness proportional to its costs; it is therefore considered cost-effective. The estimated cost for this remedial action is approximately \$11,190,000. This cost includes the required equipment, materials, and labor to perform site preparation, including construction of the soil stockpile area; excavation, backfilling with clean soil, and stockpiling; on-Base pretreatment of all excavated soil to incorporate chemical stabilizer; confirmation sampling and laboratory analysis; waste characterization; transportation and disposal of contaminated soil at a California hazardous waste disposal facility; surveying; and site restoration. Although the cost of the selected remedy is higher than the cost of the other alternatives, the selected remedy provides a high degree of long-term effectiveness and permanence by removing contaminated soils from the site and disposing contaminated soils at an off-Base facility. For this reason, Alternative 1D-4 is considered to represent a low-cost, effective, permanent solution for soil remediation.

2.12.4 Utilization of Permanent Solutions and Alternative Treatment Technologies (or Resource Recovery Technologies) to the Maximum Extent Practicable

Alternative 1D-4 provides a high degree of long-term effectiveness and permanence by removing contaminated soils from the site and disposing contaminated soils at an off-Base facility. Alternative treatment technologies were evaluated for Site 1D, but it was decided that none of them were as permanently effective or met the NCP criteria as well as Alternative 1D-4.

2.12.5 Preference for Treatment as a Principal Element

Alternative 1D-4 involves treatment of the excavated soil to incorporate a chemical stabilizer on Base prior to off-Base transport and disposal. Although an increase in volume of soil is realized, there is a moderate reduction in mobility observed with this alternative.

2.12.6 Five-Year Review Requirements

Because this remedy will not result in hazardous substances, pollutants, or contaminants remaining on-site above levels that allow for unlimited use and unrestricted exposure, a five-year review will not be required for this remedial action.

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2.13 Documentation of Significant Changes

No comments were received on the Proposed Plan or the Public Meeting held 12 October 2005. Therefore, there are no significant changes from the Preferred Alternative as presented in the Proposed Plan

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Table 2-1
Site 1D
Summary of Comparative Analysis
MCB Camp Pendleton, California

Criterion	Alternative				
	1D-1 ^a	1D-2 ^b	1D-3 ^c	1D-4 ^d	1D-5 ^e
Threshold Criteria					
Overall Protection of Human Health and the Environment	No	No ^f	Yes	Yes	Yes
Compliance with ARARs	No	No	Yes	Yes	Yes
Primary Balancing Criteria					
Long-Term Effectiveness and Permanence	Low	Low	High	High	High
Reduction of Toxicity, Mobility, or Volume by Treatment	Low	Low	High	Moderate	Moderate
Short-Term Effectiveness	Not Rated	High	Moderate	Moderate	Moderate
Implementability	Not Rated	Moderate	Moderate	High	Moderate
Cost (\$ million)	0	0.36	9.06	11.19	6.67-7.94 ^g

^aNo Action

^bInstitutional Controls

^cSoil Excavation, Backfill, Ex Situ Solidification/Stabilization, and On-Base Reuse of Treated Soil

^dSoil Excavation, Backfill, Pretreatment, and Off-Base Disposal

^eSoil Excavation, Backfill, Pretreatment, and On-Base Disposal

^fInstitutional controls would be protective of human health but not protective of ecological receptors

^gRange based on 25 percent pretreatment to 75 percent pretreatment

Table 2-2
Site 1D
Cost Estimate Summary for Selected Remedy
MCB Camp Pendleton, California

Description	Cost
Direct Capital Costs	
Planning, Direction, Oversight, Scheduling, Meetings, and Scope Preparation	\$ 109,000
Mobilization	\$ 51,000
Excavation/Stockpiling of Impacted Soil	\$ 1,539,000
Soil Pretreatment, Loading, Transport and Disposal of Soil	\$ 6,583,000
In-Situ Confirmation Sampling	\$ 88,000
Backfill and Compaction	\$ 1,906,000
Reporting	\$ 380,000
Total Direct Capital Costs	\$ 10,656,000
Indirect Costs (overhead, profit)	\$ 534,000
TOTAL COST	\$ 11,190,000

**Table 2-3
Site 1D
Chemical-Specific ^a ARARs for Selected Remedy**

Requirement	Prerequisite	Citation ^b	ARAR Determination	Comments
SOIL				
Federal - Resource Conservation and Recovery Act (42 USC, Chapter 82, §§ 6901–6991[i]) ^c				
Defines RCRA hazardous waste. A solid waste is characterized as toxic, based on the TCLP, if the waste exceeds the TCLP maximum concentrations.	Waste.	CCR Title 22, § 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100	Applicable	Substantive provisions are applicable for determining whether waste soil, if generated, is hazardous.
Groundwater Protection Standards: requirements to ensure that hazardous constituents entering the groundwater from a regulated unit do not exceed the concentration limits for contaminants of concern in the uppermost aquifer underlying the waste management area of concern at the POC.	A regulated unit that receives or has received hazardous waste before 26 July 1982 or regulated units that ceased receiving hazardous waste prior to 26 July 1982 where constituents in or derived from the waste may pose a threat to human health or the environment.	CCR Title 22, § 66264.94(a)(1) and (3), (c), (d), and (e)	Relevant and appropriate	Substantive provisions are relevant and appropriate for setting soil cleanup levels. Cleanup to background has been determined to be NOT technologically and economically feasible. The lowest economically achievable concentrations are risk-based. See Appendix A, Section A2.2.1.1 of the OU 4 FS (Parsons, 2003)
State - Cal/EPA Department of Toxic Substances Control ^c				
Definition of “non-RCRA hazardous waste.”	Waste.	CCR Title 22, § 66261.22(a)(3) and (4), § 66261.24(a)(2)–(a)(8), § 66261.101, § 66261.3(a)(2)(C) or § 66261.3(a)(2)(F)	Applicable	Substantive provisions are applicable for determining whether a waste is a non-RCRA hazardous waste.

(table continues)

**Table 2-3
Site 1D
Chemical-Specific ^a ARARs for Selected Remedy**

Requirement	Prerequisite	Citation ^b	ARAR Determination	Comments
SOIL (CONTINUED)				
State - Cal/EPA Regional Water Quality Control Board ^c				
Describes the water basins in the San Diego County region, establishes beneficial uses of groundwater and surface water, establishes WQOs, including narrative and numerical standards, establishes implementation plans to meet WQOs and protect beneficial uses.		Water Quality Control Plan for the San Diego Basin (9) (Basin Plan) (Cal. Water Code § 13240)	Applicable	Substantive requirements pertaining to beneficial uses and WQOs are applicable state ARARs for determining soil cleanup levels that are protective of water quality.
AIR				
Federal - Clean Air Act (42 USC, Chapter 85, §§ 7401–7671) ^c				
Provisions of SIP approved by U.S. EPA under Section 110 of CAA.	Major sources of air pollutants.	42 USC § 7401; portions of 40 C.F.R. § 52.220 applicable to San Diego APCD	Applicable	See pertinent specific provisions of the SIP below.
No person shall discharge into the atmosphere from any single source of emissions, for more than 3 minutes in any 60-minute period, any air contaminant that is darker than number 1 on the Ringlemann chart.	Discharge of any air contaminant other than uncombined water vapor.	APCD Rule 50(d)(1)	Applicable	Substantive provisions are applicable to emissions that may be caused by soil movement and storage for Site 1D.

(table continues)

Table 2-3
Site 1D
Chemical-Specific ^a ARARs for Selected Remedy

Notes:

- ^a many potential action-specific ARARs contain chemical-specific limitations and are addressed in the action-specific ARAR tables
- ^b only the substantive provisions of the requirements cited in this table are potential ARARs
- ^c 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 DON accepts the entire statutes or policies as potential ARARs; specific potential ARARs are addressed in the table below each general heading; only pertinent substantive requirements of the specific citations are considered potential ARARs

Acronyms/Abbreviations:

ACL – alternative concentration limit
APCD – Air Pollution Control District
ARAR – applicable or relevant and appropriate requirement
BAT – best available technology
BCPCT – best conventional pollution control technology
CAA – Clean Air Act
CCR – *California Code of Regulations*
CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act
CFR – *Code of Federal Regulations*
ch. – chapter
COC – chemical of concern
CWA – Clean Water Act
DoD – Department of Defense
DON – Department of the Navy
Fed. Reg. – *Federal Register*
LDR – land disposal restriction
MCL – maximum contaminant level
MCLG – maximum contaminant level goal
NAAQS – National Ambient Air Quality Standards (primary and secondary)
NCP – National Oil and Hazardous Substances Pollution Contingency Plan

NPDES – National Pollutant Discharge Elimination System
OU – operable unit
PCB – polychlorinated biphenyl
POC – point of compliance
ppm – parts per million
ppm_w – parts per million by weight
pt. – part
R3M – Range Rule Risk Methodology
RAO – remedial action objective
RCRA – Resource Conservation and Recovery Act
RWQCB – (California) Regional Water Quality Control Board
San Diego Region
§ – section
SIP – State Implementation Plan
SMCL – secondary maximum contaminant level
subpt. – subpart
TBC – to be considered
TCLP – toxicity characteristic leaching procedure
USC – *United States Code*
USEPA – United States Environmental Protection Agency
UXO – unexploded ordnance
VOC – volatile organic compound

Table 2-4
Site 1D
Location-Specific ^a ARARs for Selected Remedy

Location	Requirement	Prerequisite	Citation ^a	ARAR Determination	Comments
Federal - Archaeological and Historic Preservation Act (16 U.S.C. § 469–469c-1) ^b					
Within area where action may cause irreparable harm, loss, or destruction of significant artifacts	Construction on previously undisturbed land would require an archaeological survey of the area. Data recovery and preservation would be required if significant archaeological or historical data were found on-site. The responsible official or Secretary of the Interior is authorized to undertake data recovery and preservation.	Regulated alteration of terrain caused as a result of a federal construction project or federally licensed activity or program where action may cause irreparable harm, loss, or destruction of significant artifacts.	16 USC § 469–469c-1 40 CFR § 6.301(c)	Relevant and appropriate	Substantive provisions are relevant and appropriate for excavation in areas where archaeological and historical resources may be found. While no cultural resources were previously recorded within Site 1D, there is one area that contains prehistoric items located north of the site (approximately 50 feet north of the railroad tracks).
Federal - Archaeological Resources Protection Act of 1979, as Amended (16 U.S.C. § 470aa–470mm) ^b					
Archaeological resources on federal land	Prohibits unauthorized excavation, removal, damage, alteration, or defacement of archaeological resources located on public lands unless such action is conducted pursuant to a permit.	Archaeological resources on federal land.	Pub. L. No. 96-95 16 USC § 470aa–470mm 32 CFR § 229.4	Relevant and appropriate	Substantive provisions are relevant and appropriate for excavation at areas containing archaeological resources. While no cultural resources were previously recorded within Site 1D, there is one area that contains prehistoric items located north of the site (approximately 50 feet north of the railroad tracks).

(table continues)

Table 2-4
Site 1D
Location-Specific ^a ARARs for Selected Remedy

Location	Requirement	Prerequisite	Citation ^a	ARAR Determination	Comments
Federal - Exec. Order No. 11988, Floodplain Management ^b					
Within floodplain	Actions taken should avoid adverse effects	Action that will occur in a floodplain (i.e., lowlands) and relatively flat areas adjoining inland and coastal waters and other flood-prone areas.	40 CFR § 6.302(b), 40 CFR pt. 6, app. A, excluding § 6(a)(2), 6(a)(4), and 6(a)(6)	Relevant and appropriate	Site 1D is located within a 100-year floodplain. Substantive provisions are relevant and appropriate for excavations within a 100-year floodplain.
Federal - Resource Conservation and Recovery Act (42 U.S.C. §§ 6901–6991[i]) ^b					
Within 100-year floodplain	Facility must be designed, constructed, operated, and maintained to avoid washout.	RCRA hazardous waste; treatment, storage, or disposal of hazardous waste.	CCR Title 22, § 66264.18(b)	Applicable	Site 1D is located within a 100-year floodplain. Substantive provisions are ARARs for response actions within a 100-year floodplain.
Federal - Endangered Species Act of 1973 (16 U.S.C. §§ 1531–1543) ^b					
Habitat upon which endangered species or threatened species depend	Federal agencies may not jeopardize the continued existence of any listed species or cause the destruction or adverse modification of critical habitat. The Endangered Species Committee may grant an exemption for agency action if reasonable mitigation and enhancement measures such as propagation, transplantation, and habitat acquisition and improvement are implemented.	Determination of effect upon endangered or threatened species or its habitat. Critical habitat upon which endangered species or threatened species depend.	16 USC. § 1536(a), (h)(1)(B)	Applicable	Listed endangered and threatened species have been observed at Site 1D. Substantive provisions are applicable for excavation at or near threatened or endangered species habitats.

(table continues)

Table 2-4
Site 1D
Location-Specific ^a ARARs for Selected Remedy

Location	Requirement	Prerequisite	Citation ^a	ARAR Determination	Comments
Federal - Migratory Bird Treaty Act of 1972 (16 U.S.C. §§ 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 USC § 703	Relevant and appropriate	Migratory birds have been observed in the vicinity of Site 1D.
Federal - Coastal Zone Management Act (16 U.S.C. §§ 1451–1464) ^b					
Within coastal zone	Conduct activities in a manner consistent with approved state management programs.	Activities affecting the coastal zone including lands there under and adjacent shore land.	16 USC § 1456(c) 15 CFR § 930	Relevant and appropriate	Site 1D is located within the designated boundary of the coastal zone on California Coastal Commission maps (CCC 1993)

(table continues)

Table 2-4
Site 1D
Location-Specific ^a ARARs for Selected Remedy

Location	Requirement	Prerequisite	Citation ^a	ARAR Determination	Comments
State - California Coastal Act of 1976 ^b					
Coast	Regulates activities associated with development to control direct significant impacts on coastal waters and to protect state and national interests in California coastal resources.	Any activity which could impact coastal waters and resources.	Cal. Pub. Res. Code §§ 30000–30900; CCR Title 14, §§ 13001–13666.4	Relevant and appropriate	Site 1D is located within the designated boundary of the coastal zone on California Coastal Commission maps (CCC 1993)

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 DON 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

Acronyms/Abbreviations:

app. – appendix
ARAR – applicable or relevant and appropriate requirement
CCC – California Coastal Commission
CCR. – *California Code of Regulations*
CFR – *Code of Federal Regulations*
DON – Department of the Navy
Exec. Order No. – executive order number
FEMA – Federal Emergency Management Agency
pt. – part
Pub. L. No. – public law number
RCRA – Resource Conservation and Recovery Act
§ – section
US – United States
USC – *United States Code*

**Table 2-5
Site 1D
Action-Specific ARARs for Selected Remedy**

Action	Requirement	Prerequisite	Citation ^a	ARAR Determination	Comments
FEDERAL					
Resource Conservation and Recovery Act (42 U.S.C. §§ 6901–6991[i])*					
On-site waste generation	Person who generates waste shall determine if that waste is a hazardous waste.	Generator of waste.	CCR Title 22, § 66262.10(a), 66262.11	Applicable	Substantive provisions are applicable for operations where waste soil or groundwater is generated. The determination of whether groundwater and/or wastes generated during remedial activities are hazardous will be made.
	Requirements for analyzing waste for determining whether waste is hazardous.	Generator of waste.	CCR Title 22, § 66264.13(a) and (b)	Applicable	Substantive provisions are applicable for characterizing generated waste soil.
Clean Closure	Operator shall close the facility in a manner that minimizes the need for further maintenance controls, and minimizes or eliminates, to the extent necessary to protect human health and the environment, post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated rainfall or run-off, or waste decomposition products to the ground or surface waters or to the atmosphere.	Permitted hazardous waste facility.	22 CCR 66264.111 (a) and (b)	Applicable and Relevant and appropriate	Substantive provisions are applicable for the closure of the staging piles. The same provisions are relevant and appropriate for the site cleanup. All hazardous waste levels of contamination in soil will be removed.

(table continues)

**Table 2-5
Site 1D
Action-Specific ARARs for Selected Remedy**

Action	Requirement	Prerequisite	Citation ^a	ARAR Determination	Comments
Staging Pile Closure	At closure, the owner or operator shall remove or decontaminate all waste residues, contaminated containment system components (liners, etc.), contaminated subsoils, and structures and equipment contaminated with waste and leachate, and manage them as hazardous waste	Hazardous waste staging pile	22 CCR 66264.258 (a) and (b)	Applicable	Substantive provisions are applicable for the closure of the staging piles.
Staging Pile	Allows generators to accumulate solid remediation waste in a U.S. EPA-designated pile for storage only, up to 2 years, during remedial operations without triggering LDRs.	Hazardous remediation waste temporarily stored in piles.	40 CFR § 264.554(d)(1)(i-ii) and (d)(2), (h), (i), (j), and (k)	Applicable	Substantive provisions are applicable for soil excavated and staged prior to characterization and off-site disposal.

(table continues)

**Table 2-5
Site 1D
Action-Specific ARARs for Selected Remedy**

Action	Requirement	Prerequisite	Citation ^a	ARAR Determination	Comments
Discharge to Surface Water	Owners and operators of construction activities must be in compliance with discharge standards.	Construction disturbing 1 or more acres.	CWA Section 402 (33 U.S.C. ch. 26, § 1342); 40 CFR § 122.44(k)(2) and (4)	Applicable	Substantive provisions for BMPs and the storm water management plan to implement them are applicable.
	Implement BMPs to minimize discharges to surface water, develop and implement a stormwater pollution prevention plan, and monitor stormwater discharges.	Construction disturbing 1 or more acres.	SWRCB Order No. 99-08-DWQ (General Construction Activity Storm Water Permit)	TBC	Substantive provisions of BMPs, SWPPP and monitoring are TBC guidance for complying with federal and State water quality ARARs.

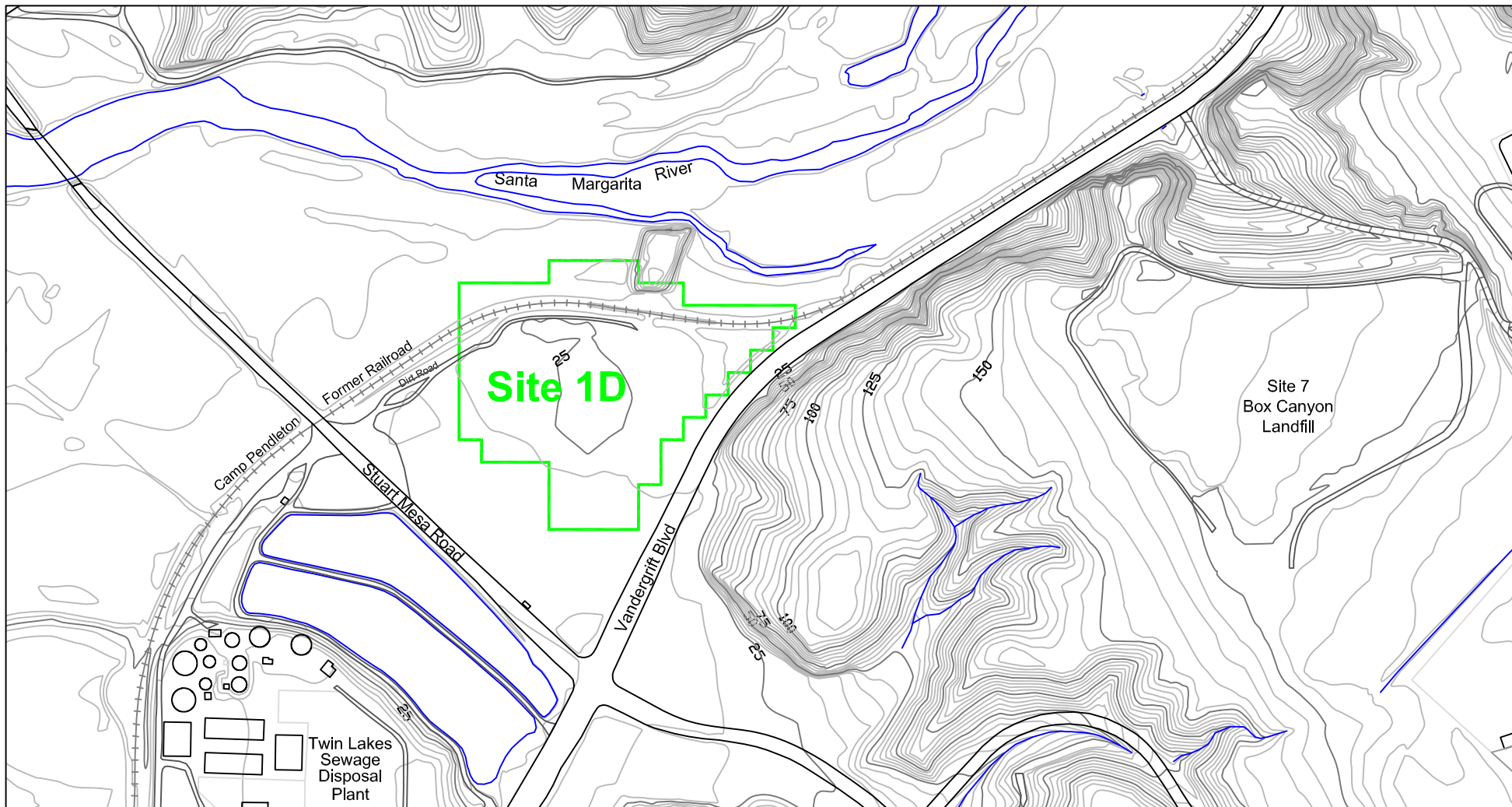
Note:

- * 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 DON 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 specific citations are considered potential ARARs

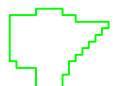
Acronyms/Abbreviations:

ARAR – applicable or relevant and appropriate requirement
CAA – Clean Air Act
CCR – *California Code of Regulations*
CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act
CFR – *Code of Federal Regulations*
ch. – chapter
CWA – Clean Water Act
DON – Department of the Navy
°F – degrees Fahrenheit
FS – feasibility study
LDR – land disposal restriction
MCAS – Marine Corps Air Station
MCL – maximum contaminant level
mg/dscm – milligrams per dry standard cubic meter

NPDES – National Pollutant Discharge Elimination System
OU – operable unit
PM₁₀ – particulate matter, less than 10 micrometers in diameter
POC – point of compliance
pt. – part
Pub. L. No. – public law number
RCRA – Resource Conservation and Recovery Act
RI – remedial investigation
§ – section
SCAQMD – South Coast Air Quality Management District
SDAPCD – San Diego Air Pollution Control District
SDWA – Safe Drinking Water Act
TSCA – Toxic Substances Control Act
USC – *United States Code*
USEPA – United States Environmental Protection Agency



Legend



Site 1D Investigation Area



0 500 1000



Scale in Feet

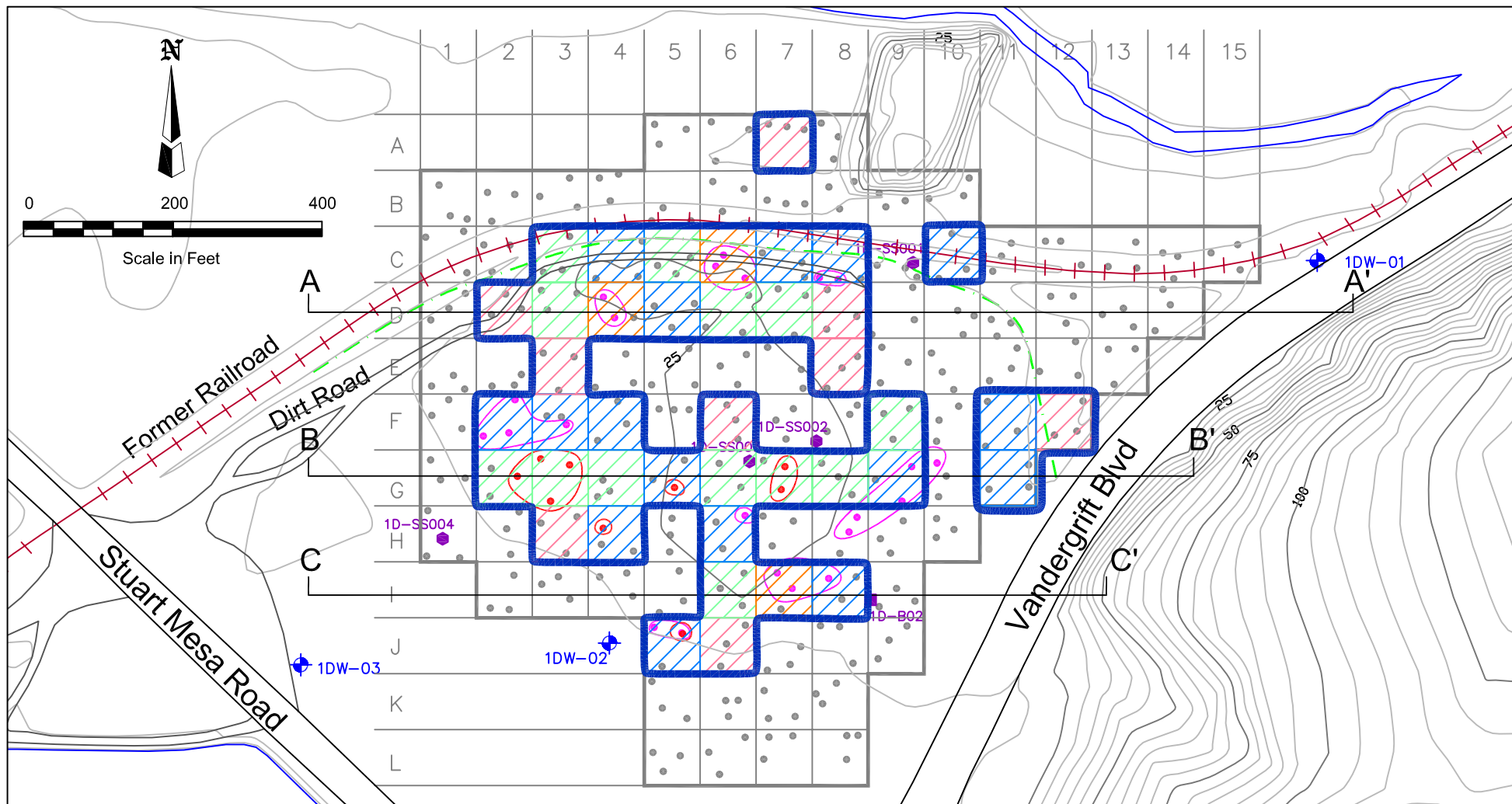
Figure 2-1

**Site 1D
Location Map**

MCB Camp Pendleton, California

PARSONS

Pasadena, CA



Legend

- | | |
|---|--|
| ● Boring, No Ash Encountered | Characterization Unit, 0-1 ft bgs > RG |
| ● Boring, Ash Encountered (2-3 ft bgs) | Characterization Unit, 0-3 ft bgs > RG |
| ● Boring, Ash Encountered (4 ft bgs or deeper) | Characterization Unit, 0-5 ft bgs > RG |
| ○ Boring where Debris Noted (XRF Borings, May 1999) | Characterization Unit, Deeper than 5 ft bgs > RG |
| Area, Ash Encountered (2-3 ft bgs) | Approximate Location of Toad Fence |
| Area, Ash Encountered (4 ft bgs or deeper) | OU 4 FS Approximate Extent |
| A A' Cross Section Line | |

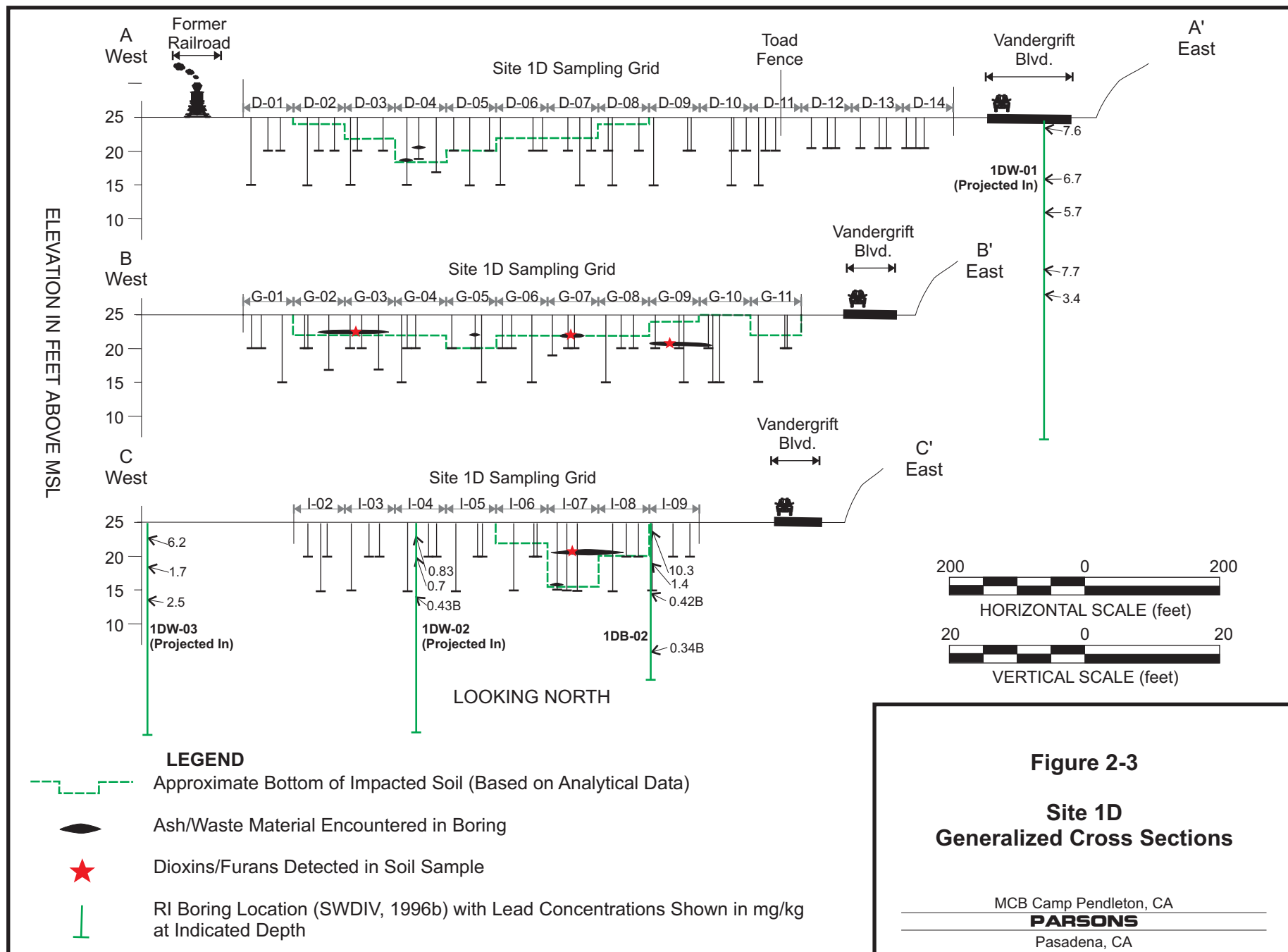
Figure 2-2

Site 1D Distribution of Metals Above RGs and Visible Ash Encountered

MCB Camp Pendleton, California

PARSONS

Pasadena, CA



DECISION SUMMARY

3.0 SITE 1E-1

3.1 Site Name, Location, and Brief Description

Site 1E-1 - Former Burn Pits (32 Area) is a former refuse burning area located in 32 Area along MACS Road, approximately 3,000 feet from the Santa Margarita River (Figure 3-1). The site consisted of a series of burn pits adjacent to Site 1E, from which soil was excavated and removed, as described in the OU 3 ROD (IT, 1999a).

3.2 Site History and Enforcement Activities

Site 1E-1 is one of nine refuse burning grounds used from 1942 through the early 1970s to burn refuse generated by Base operations (IT, 1998; Kleinfelder, 1997). Until 1970, all refuse at the Base was disposed of by burning; however, no information is available on the specific years of operation or the amount of refuse disposed of at each burning ground. The Base refuse burning areas were closed between the late 1960s and 1971.

Waste material from Site 1E-1 burn pits was disposed of in Site 1E by physically removing the material from the pits. The burn pits at Site 1E-1 were closed, covered with native soil, and allowed to revert to natural vegetation. At some point after the burn pits were closed, the area was graded for the realignment of MACS Road, which now crosses over a portion of the former burn pits.

There are no enforcement activities related to Site 1E-1. Environmental investigation and remediation activities associated with the site are implemented under the IR Program. The purpose of this program is to identify, investigate, assess, characterize, and clean or control releases of hazardous substances as well as to cost-effectively reduce the risk to human health and the environment from past waste-disposal operations and hazardous material spills at Navy/Marine Corps stations. The program is administered in accordance with CERCLA, as amended by SARA.

Because Site 1E-1 is related to Site 1E, previously collected background information and data for Site 1E are pertinent to the evaluation of Site 1E-1. Although this ROD provides a summary of information on Site 1E conditions, it does not repeat all the information provided in previous documents on Site 1E regarding detailed site descriptions, histories, regional and site-specific environmental information, or results of previous investigations and risk assessments. This information is documented in the following reports:

- Draft Final Remedial Investigation and Feasibility Study for Operable Unit 3 (IT, 1998).
- Draft Engineering Evaluation/Cost Analysis (EE/CA) For Sites 1D/1003, 1E/1004, 30, and 35 (Kleinfelder, 1997).
- Energy Dispersive X-Ray Fluorescence Field Investigation Report, Sites 1A, 1D, 1E, 1F, and 2A (SWDIV, 1998).
- Record of Decision, Operable Unit 3 (IT, 1999a).
- Draft Final Remedial Design and Remedial Action Work Plan for Operable Unit 3, Sites 1A, 2A, 1D, 1E, and 1F (OHM, 1999).
- Biological Assessments for Sites 1A, 1D, 1E, 1F, 2A, and 30 (IT, 1999b).
- [Archeological] Monitoring and Discovery Plan for Six Waste Remediation Areas (LSA, 2000).

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- Phase I Interim Confirmation Report, Site 1E Remedial Action (IT, 2000).
- Draft Final OU 4 Feasibility Study (Parsons, 2003).

3.3 Highlights of Community Participation

Please see Section 1.3 regarding Community Participation.

3.4 Scope and Role of Operable Unit

Please see Section 1.4 regarding the scope and role of OU 4.

3.5 Site Characteristics

This section summarizes the environmental setting and the nature and extent of contamination at Site 1E-1.

3.5.1 Environmental Setting

This section includes a description of site topography, surface water, geology, hydrogeology, ecology, and cultural resources at Site 1E-1.

3.5.1.1 Size

Site 1E-1 covers approximately 0.7 acre.

3.5.1.2 Topography

Site 1E-1 is on a plateau approximately 150 feet amsl. The site was apparently graded during the construction of MACS Road. The site is unpaved with no nearby surface structures.

3.5.1.3 Surface Water

No perennial surface water is present at Site 1E-1. The area receives low annual rainfall, primarily during the winter months. Surface water runoff during significant rainfall follows site surface topography and flows generally northwest towards a canyon and eventually southeast towards the Santa Margarita River.

3.5.1.4 Geology

Site 1E-1 is located on a plateau approximately 3,000 feet north of the Santa Margarita River (Figure 3-1), within the Santa Margarita Basin. The geology of the basin consists of stream-deposited younger and older Quaternary alluvium overlying bedrock of the San Mateo Formation. Site 1E-1 is underlain by older alluvium, which consists of interbedded, fine to coarse-grained, unconsolidated to poorly consolidated sand, silt, and gravel interspersed with clay lenses.

3.5.1.5 Hydrogeology

Groundwater was not encountered to a depth of 24 feet bgs during previous investigations (IT, 1998). Based on the elevation of the site and known groundwater in the area, groundwater beneath the site is estimated at 100 feet bgs according to the Group C RI (SWDIV, 1996b).

3.5.1.6 Ecology

Habitat at Site 1E-1 consists primarily of annual grasses (wild oat and brome), filaree, fennel, and peppergrass. White sage and coyote brush habitats surround the site. The northeast portion of the site contains an unpaved access road and is sparsely vegetated.

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Coastal California gnatcatchers were observed at Site 1E in 1997, and least Bell's vireos were identified in riparian vegetation near the site in 1996. No Pacific pocket mice were observed at the site (IT, 1998), although the site has been identified as being between two known areas of Pacific pocket mouse habitat. Therefore, to conduct the fieldwork, access to the site was limited to the north and east. A biological monitor was present during drilling to indicate areas to be avoided and to eliminate any disturbance of the Pacific pocket mouse.

During the biological monitoring performed before initiating the OU 4 FS field investigations (Appendix B), burrows that might have been made by Pacific pocket mice were observed on site, as was evidence of the coastal California gnatcatcher.

3.5.1.7 Cultural Resources

No cultural resources were previously recorded within Site 1E-1.

3.5.2 Nature and Extent of Contamination

This section summarizes the nature and extent of contamination at the site. The potential source of contamination is refuse-burning operations conducted approximately between 1942 and 1970. Contaminants are consistent with old burning operations and include metals and dioxins/furans.

Several metals were identified during the OU 3 RI/FS and ROD process as COCs at Site 1E, including aluminum, antimony, arsenic, cadmium, chromium, cobalt, copper, iron, lead, and zinc. Historical data for Site 1E-1 are included in the FS (Parsons, 2003). The OU 3 ROD RGs for Site 1E are included in Appendix C. The majority of the metals with concentrations exceeding residential and industrial soil PRGs were reported in shallow soil (0 to 5 feet) (IT, 1998).

Small pockets of ash and burn material (less than 3 inches thick) were encountered at various depths in several borings, although no continuous layer of ash or waste was encountered. Although pockets of ash-darkened soil are present, most of the burn material appears to have been dug out and likely disposed of at Site 1E. The intermittent pockets of ash suggest that the remains of the burn material were mixed into the soils used at the time the burn pits were covered, or when the area was graded for the realignment of MACS Road.

3.5.3 Fate and Transport

Based on the potential threat to groundwater, SPLP analysis was conducted on two soil samples for metals to determine leachability potential and any associated threat to underlying groundwater. These were chosen because they were visually identified as waste material.

SPLP results for aluminum, iron, and vanadium indicate that extractable concentrations are above their respective MCLs or California Action Levels. However, as previously discussed, (total) concentrations of all of these metals are consistent with background levels (IT, 1998). Given that there do not appear to be any site-related metals and the relatively large depth to groundwater at this site, it is unlikely that these metals pose a threat to groundwater resources. Other detected compounds at the site (e.g., diethyl phthalate, dichlorodiphenyldichloroethene/dichlorodiphenyltrichloroethane [DDE/DDT], and dioxins/furans) are immobile in soil and would not represent a threat to groundwater. Concentrations of DDE/DDT are well below soil screening levels (SSLs) (published as part of the USEPA Region 9 PRG tables [USEPA, 2000a]) that are protective of the groundwater pathway.

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A highly conservative screening-level analysis was performed to confirm that detected levels of dioxins/furans in surface soils would not pose a threat to nearby surface water resources. The Santa Margarita River is located approximately 3,200 feet east and southeast of the site and is the primary surface water body potentially influenced by the site. Several other small drainages are closer to Site 1E-1, although these typically are dry except during periods of precipitation run-off. The screening analysis conservatively assumed that the maximum detected concentration of 2,3,7,8-TCDD toxicity equivalents (1.7 picograms per gram [pg/g]) was in direct contact with surface water under equilibrium conditions. This is a highly conservative assumption given that no attenuation was assumed between the site and the surface water. A surface water concentration of 0.068 picograms per liter (pg/L) was estimated, assuming an organic carbon content of 1 percent and an organic carbon partition coefficient ($\log K_{oc}$) of 6.4 (Marple et al., 1987 and Walters et al., 1989 as cited in USEPA, 2000b). The predicted concentration is well below the MCL of 30 pg/L and the lowest observable effect level of 10 pg/L for freshwater organisms (NOAA, 1999). Thus, it is highly unlikely that surface water resources would be impacted from runoff of residual dioxins present in the surface soils at Site 1E-1.

The human health exposure pathway of concern is potential exposure to contaminated soil by future residential populations. The impact of contaminated soil on several ecological receptors was also evaluated. These exposure risks are described in Section 3.7.

3.6 Current and Potential Future Site and Resource Uses

The Site 1E-1 burning area is no longer in operation. The northeast portion of the site contains an unpaved access road and is sparsely vegetated. The surrounding areas are undeveloped.

The Santa Margarita River is approximately 3,200 feet southeast of the site. No public drinking water wells are located downgradient of the site.

The former burn pit was covered with native soil and allowed to revert to natural vegetation. The site was later graded for the realignment of MACS Road, which covers a portion of the site. Given the immediate proximity to MACS Road and the presence of endangered species (i.e., Pacific pocket mouse), it is unlikely that the site would be developed in the future.

3.7 Summary of Site Risks

Risk assessments provide an evaluation of the potential threat to human health and the environment in the absence of remedial action. They provide the basis for determining whether remedial action is necessary and the justification for such actions; they also identify the contaminant and exposure pathways that need to be addressed by the remedial actions (USEPA, 1988 & 1991). The human health and ecological risk assessments are summarized below.

3.7.1 Human Health Risk Assessment

Metals concentrations in soil samples collected at Site 1E-1 were generally consistent with naturally occurring background levels (see Appendix C). Although maximum detected values of chromium and cobalt were slightly above the statistically derived background concentrations, these metals appear to be present at levels generally consistent with background and are not believed to be site related. Arsenic concentrations in the surface samples at Site 1E-1 were less than the statistically

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derived background value for Santa Margarita Basin soils (4.6 mg/kg for 0 to 5 feet bgs and 4.3 mg/kg for 0 to 10 feet bgs) (SWDIV, 1996a). One subsurface sample, the co-located “duplicate” for 1E1B-08B collected at 12 to 16 feet bgs, had an arsenic concentration of 6.5 mg/kg, which is slightly greater than the background values. Although this single concentration is greater than the background value, it does not appear to represent evidence of site-related arsenic contamination based on the following lines of evidence:

- The maximum site arsenic concentration is less than the maximum detected arsenic concentration in the Santa Margarita Basin soils background data set (11.5 mg/kg).
- There was no evidence of site-related contamination in this sample. All other detected metals were at concentrations below background. There were no detectable SVOCs, dioxins/furans, petroleum hydrocarbons, or pesticides. There was a low-level detection of 4-methyl-2-pentanone (also referred to as methyl isobutyl ketone [MIBK]) in a sample at a concentration below the reporting limit. In addition, the co-located sample had a similar detection of methyl ethyl ketone (MEK). The analytical results were flagged as “J” or “estimated” values. As discussed in the FS, a definitive source of ketones could not be identified; they could be natural in origin or an analytical artifact. They are probably not site-related.
- A co-located “duplicate” sample had an arsenic concentration of 4.1 mg/kg.
- A more refined comparison of site-related arsenic data to background would likely show that the two populations are not statistically different.
- At adjacent Site 1E (where a major soil removal action was recently completed), arsenic was considered a remedial chemical of concern (COC) in the OU 3 ROD. The maximum detected concentration of arsenic at adjacent Site 1E was 10.7 mg/kg and occurred in a sample with elevated lead (1,610 mg/kg). Given that arsenic was a remedial COC at Site 1E, it is likely that this arsenic detection was site-related given the concentration and its association with lead. Elevated arsenic is often found at sites involved in the use or manufacturing of lead alloys (e.g., lead smelters, battery manufacturing facilities, etc.) given their geochemical association in certain lead ores (ATSDR, 2000).
- The absence of elevated lead (i.e., 4.9 mg/kg) in the Site 1E-1 sample (1E1B-08B) further supports that the arsenic is not site-related.

Based on these lines of evidence, the detected arsenic at Site 1E-1 is believed to be naturally occurring.

Surface soil samples were collected at Site 1E-1 at depths between 0 and 1-foot bgs. Sampling at Site 1E-1 targeted surface soils and soils at depths greater than 10 feet bgs. Only the surface samples were used in the risk and hazard calculations.

There were no samples collected from 2 to 10 feet bgs. However, based on a weight-of-evidence approach, soils in the 2 to 10 feet bgs interval are not expected to be significantly different from surface soils. Consequently, the lack of sampling data between 2 and 10 feet bgs was not considered a significant uncertainty in the risk assessment. All of the data collected at depths greater than 10 feet bgs would not typically be available for contact under a hypothetical residential land use scenario.

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To characterize potential risks and hazards associated with soil exposure at Site 1E-1, a screening-level risk assessment was performed as part of the FS. The evaluation was performed in accordance with Cal/EPA Preliminary Endangerment Assessment (PEA) guidance for a hypothetical residential receptor. The assessment indicates a cumulative cancer risk of 8×10^{-6} , with almost all of the risk (95 percent) attributable to arsenic. As discussed previously, arsenic at Site 1E-1 is likely naturally occurring. Excluding the contribution from arsenic, the incremental site-related cancer risk is only 4×10^{-7} , which results primarily from the dioxins/furans (see Appendix C).

The dioxin/furan cancer risk estimates are based on the 2,3,7,8-TCDD equivalency calculation. Congeners not detected were conservatively assumed to be present at their reporting limit for purposes of the equivalency calculation. In terms of 2,3,7,8-TCDD equivalents, the maximum detected dioxin concentration based on one analytical method, Method SW8290, was 1.71×10^{-6} mg/kg (1.71 pg/g). The results for dioxins/furans from a second analytical method, Method SW8280A, were not used because of the presence of numerous “non-detects” with elevated reporting limits. The assumption that individual congeners are present at the reporting limits for purposes of risk calculations results in relatively high incremental risks (e.g., 10^{-6} to 10^{-5}). Subsequent analysis of select samples using SW8290 resulted in significantly lower reporting limits and more accurate estimates of 2,3,7,8-TCDD equivalents.

The cumulative noncancer hazard index (HI) is estimated to be less than the cumulative target HI goal of 1.0. In addition, the maximum detected lead concentration (6.1 mg/kg) is well below the USEPA residential soil PRG value of 400 mg/kg.

3.7.2 Ecological Risk Assessment

The purpose of the ERA was to evaluate the potential hazards to ecological receptors posed by site-related preliminary chemicals of potential ecological concern (COPECs) detected in environmental media at Site 1E-1. The screening-level ERA was based on the results of soil data collected at Site 1E-1, which indicated relatively minor contaminant levels. The ERA consists of problem formulation, analysis, and risk characterization, which are summarized below.

3.7.2.1 Problem Formulation

Problem formulation is a planning step for evaluating the ecological setting, defining the conceptual site model (CSM; including exposure pathways and receptors of interest), identifying COPECs, and defining the assessment endpoints.

Habitat at the adjacent Site 1E consists primarily of annual grasses (wild oat and brome), filaree, fennel, and peppergrass. White sage and coyote brush habitats surround the site. The northeast portion of Site 1E-1 contains an unpaved access road and is lightly vegetated. A densely vegetated, stream-cut channel at an elevation 100 feet below the site defines the western border. Many species of wildlife have been observed at and near the site, including the special status species such as the least Bell's vireo, coastal California gnatcatcher, and Pacific pocket mouse.

A CSM was specified for the site that indicates that complete exposure pathways are present. Bird and mammalian wildlife, including special-status birds, are potentially exposed to soil-borne preliminary COPECs, as well as soil-borne preliminary COPECs that are transferred within the food web. The preliminary COPECs include organic pesticides (4,4'-DDT and 4,4'-DDE) and the 2,3,7,8-polychlorinated dibenzodioxin (PCDDs) and polychlorinated dibenzofuran (PCDFs).

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For Site 1E-1, the ERA assessment endpoints were protection of terrestrial wildlife receptors from adverse population-level effects due to exposures to site-related preliminary COPECs (gray fox and red-tailed hawk were the receptor species), and protection of individuals of special-status species from adverse effects that could compromise genetic diversity. At this site, the endangered Pacific pocket mouse and least Bell's vireo represent the special-status-species; the other receptors represent the population-level assessment endpoints.

3.7.2.2 Analysis

The analysis phase consists of exposure and ecological-effects assessments.

The receptor-specific exposure doses of each preliminary COPEC were estimated using food-chain uptake algorithms that account for exposure via incidental ingestion of contaminated soil, ingestion of plants grown in contaminated soil, and ingestion of lower-trophic-level animals associated with contamination. Adjustments were made in the exposure assessment to account for accumulation and biomagnification of contaminants through the trophic levels. Bioaccumulation was evaluated by means of contaminant-specific plant, invertebrate, and small mammal bioaccumulation factors (BAFs).

The effects assessment defines and evaluates the potential adverse (i.e., toxic) ecological effects of preliminary COPECs on the receptor species using the measures of effect. This step involved developing reference toxicity values (RTVs) and site-specific preliminary limits of exposure (PLEs) for each soil preliminary COPEC. PLEs are threshold effect levels, which are defined as the concentrations of preliminary COPECs in environmental media at a site that are presumed to be non-toxic to biota using the site. The PLEs are chemical- and receptor-specific values derived for a given exposure medium and route. PLEs are based on the wildlife RTVs. The results of the effects assessment were used to identify chemicals of ecological concern (COECs) and to characterize ecological risk.

3.7.2.3 Risk Characterization

Risk characterization integrates preliminary COPEC exposures to, and effects on, receptors using hazard quotients (HQs), which are ratios of exposure and effect concentrations. The resulting data are used to estimate the magnitude of risk from preliminary COPECs and to assess the risk to ecological receptors. Risk characterization includes two principal steps: risk estimation and risk description.

At the concentrations detected, none of the preliminary COPECs identified in the evaluated surface soil (0 to 1 foot bgs) at Site 1E-1 result in hazard quotient values greater than the threshold value of 1. These results indicate there are no preliminary COPECs likely to pose unacceptable hazards to, or induce adverse effects, at the individual organism level for the special-status Pacific pocket mouse or the least Bell's vireo, or population-level effects on any of the representative receptors evaluated. Therefore, based on the risk characterization results, soil contaminants would pose negligible risk to individuals of the wildlife species evaluated or the terrestrial wildlife guilds that they represent.

Although there is uncertainty associated with the characterization of the extent and magnitude of PCDDs and PCDFs in site soils, the extremely low bioavailability of these compounds in soils with a high organic-carbon content renders them generally unavailable for plant uptake or assimilation by wildlife that may be exposed to soils affected by these chemicals. In addition, the potential for transport of PCDD and PCDFs away from Site 1E-1 to the Santa Margarita River was assessed using highly

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conservative assumptions (for example, that site soils were in the river not 3,200-feet distant); the results of this analysis indicate that surface-water resources would not be affected by PCDDs and PCDFs in soil at Site 1E-1.

3.8 Recommendation for No Further Action

The data collected for the FS led to the following conclusions:

- Small pockets of ash and burn material (less than 3-inch thick) were encountered at various depths in several borings, although no continuous layer of ash or waste was encountered. Although pockets of ash-darkened soil are present, most of the burn material appears to have been dug out and likely disposed of at Site 1E. The intermittent pockets of ash suggest that the remains of the burn material were mixed into the soils used at the time the burn pits were covered, or when the area was graded for the realignment of MACS Road.
- Only relatively minor soil contamination was found. No metals were detected above naturally occurring background in surface soil samples. Arsenic, chromium, and cobalt were detected at concentrations slightly above background values at depths greater than 10 feet. However, these metals are not believed to be site-related based on a weight-of-evidence approach that considered site history, the uncertainty in quantifying local background levels, and the spatial distribution of detected levels. Low concentrations of dioxins were detected in soil samples from all depths, which support the previous conclusion regarding possible mixing of soils at some time in the past. The dioxins, which are likely site-related as a result of waste burning activities, appear to be present at levels consistent with anthropogenic background for rural areas (USEPA, 2000c).
- A screening-level HHRA, based on maximum detected surface-soil concentrations, indicates a cumulative residential cancer risk of 8×10^{-6} , with almost all of the risk (95 percent) attributable to arsenic. As discussed above, detected levels of arsenic at Site 1E-1 are likely naturally occurring and are not believed to be site-related. Excluding the contribution from arsenic, the incremental site-related residential cancer risk is 4×10^{-7} , and results primarily from the dioxins/furans. The cumulative noncancer HI is estimated to be less than the cumulative target HI goal of 1.0. In addition, the maximum detected lead concentration (6.1 mg/kg) is well below the USEPA residential soil PRG value of 400 mg/kg.
- There is minor uncertainty in the risk and hazard estimates because the results are based on maximum detected concentrations from soil samples collected at the surface. No soil samples were collected in the 2 to 10 feet bgs interval; thus, it is possible that contamination is present but was not sampled. However, it is considered unlikely that significant undiscovered contamination is present. This conclusion is based on a weight-of-evidence approach considering that a judgmental sampling approach was used, which included borings located in the center of the former waste burn pits, soil samples collected where visible burn-ash residue was identified, and the relatively low concentrations of detected analytes, including dioxins, which appear to be present at concentrations consistent with rural background levels. Although one of the former pits could not be sampled because the terrain was too steep for access, there is no evidence to suggest that the nature of residual waste in that pit would differ from the other four pits that were sampled.

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- The results indicate there are no preliminary COPECs likely to pose unacceptable hazards to, or induce adverse effects in ecological representative receptors. A screening-level ERA concluded that baseline conditions would pose negligible risk to ecological receptors.
- Based on the SPLP analysis conducted during the FS, extractable concentrations of aluminum, iron, and vanadium are greater than corresponding water-quality goals and could theoretically pose a threat to groundwater. However, these metals were near or below their respective background values in soil. In addition, the site is estimated to be approximately 100 feet above groundwater (SWDIV, 1996a). Therefore, risk to groundwater posed by these relatively low metals concentrations is considered extremely low. Other detected analytes at the site (e.g., dioxins, pesticides, and diethyl-phthalate) were detected at relatively low levels and are relatively immobile and thus pose an insignificant threat to water quality resources.

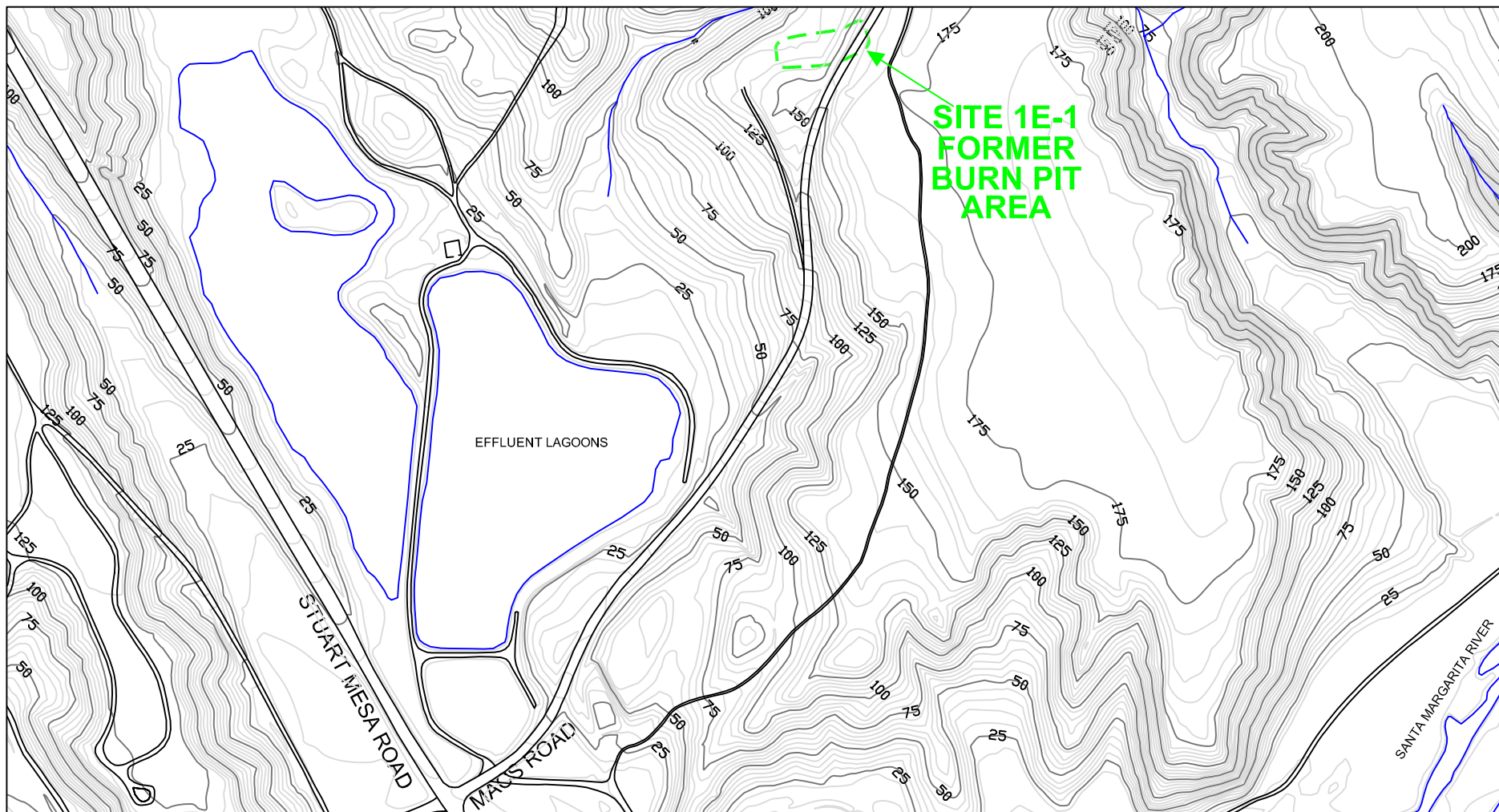
In summary, there is little evidence of contamination in the upper 10 feet of soil at Site 1E-1. Although it is likely that localized areas of low-level dioxins may be present at the site, the levels do not appear to be significantly higher than anthropogenic background. Under current conditions, the site represents an insignificant threat to human health based on the conservative assumption that a resident would be located on site. Given current and reasonably foreseeable future land uses, it is highly unlikely that this site would be developed for residential purposes. Site 1E-1 also represents an insignificant threat to ecological receptors. Residual soil contamination below 10 feet does not represent an ongoing or future threat to water quality resources. Based on this evidence, further action is not warranted at Site 1E-1. Consequently, remedial alternatives at Site 1E-1 were not identified or evaluated. It is recommended that Site 1E-1 be documented for no further action in the OU 4 ROD.

The USEPA, Cal/EPA DTSC, and the San Diego RWQCB concur with the No Further Action decision.

No comments were received from the community on the Proposed Plan or during the Public Meeting held 12 October 2005.

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Legend

--- Site 1E-1 Former Burn Pit Area



0 500 1000



Scale in Feet

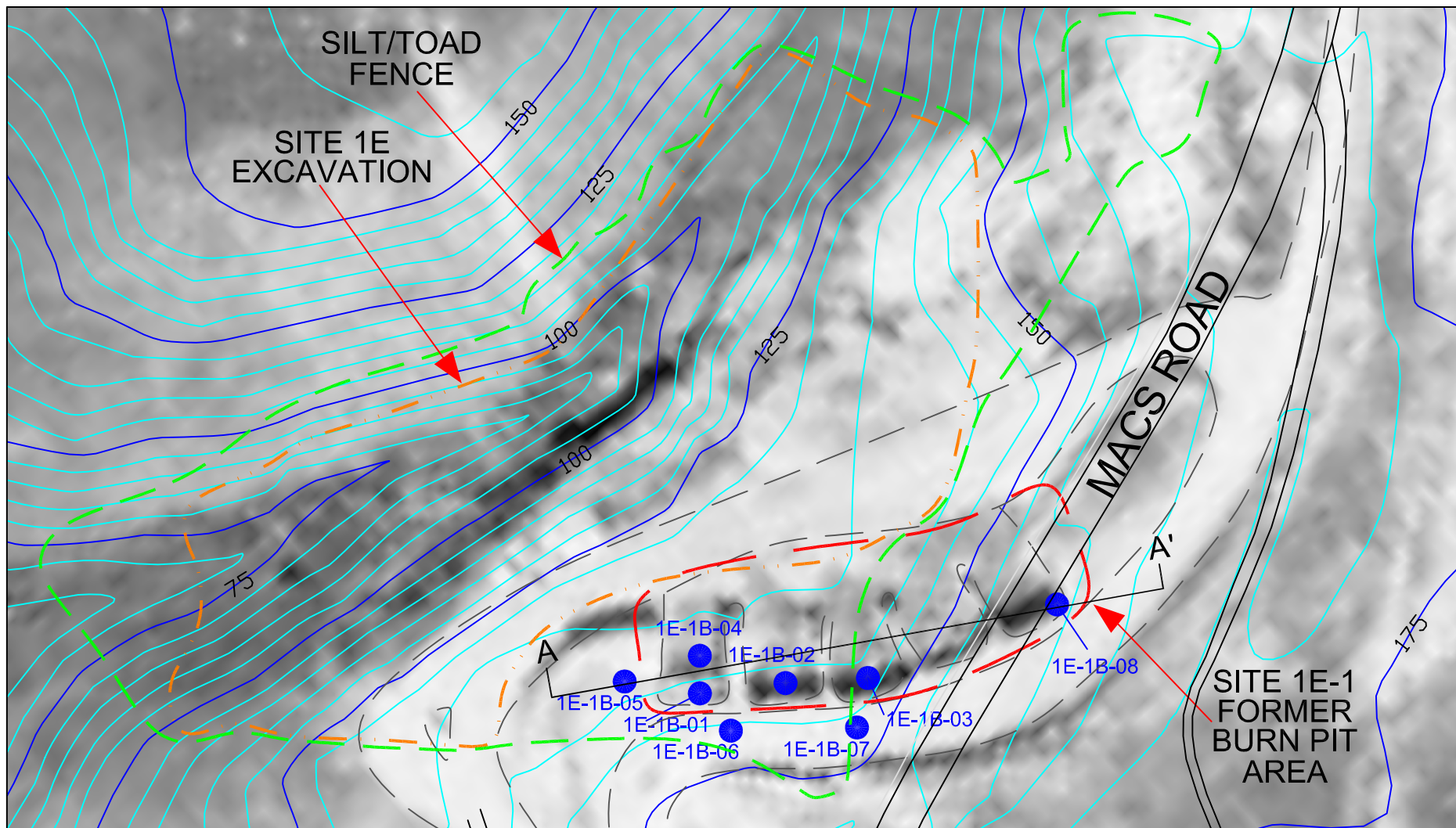
Figure 3-1

Site 1E-1 Location Map

MCB Camp Pendleton, California

PARSONS

Pasadena, CA



Legend

- Former Burn Pit Area (Site 1E-1)
- Approximate Extent of Site 1E Excavation
- Approximate Location of Silt/Toad Fence
- Soil Boring Location
- A A' Cross Section Line



0 100 200



Scale in Feet

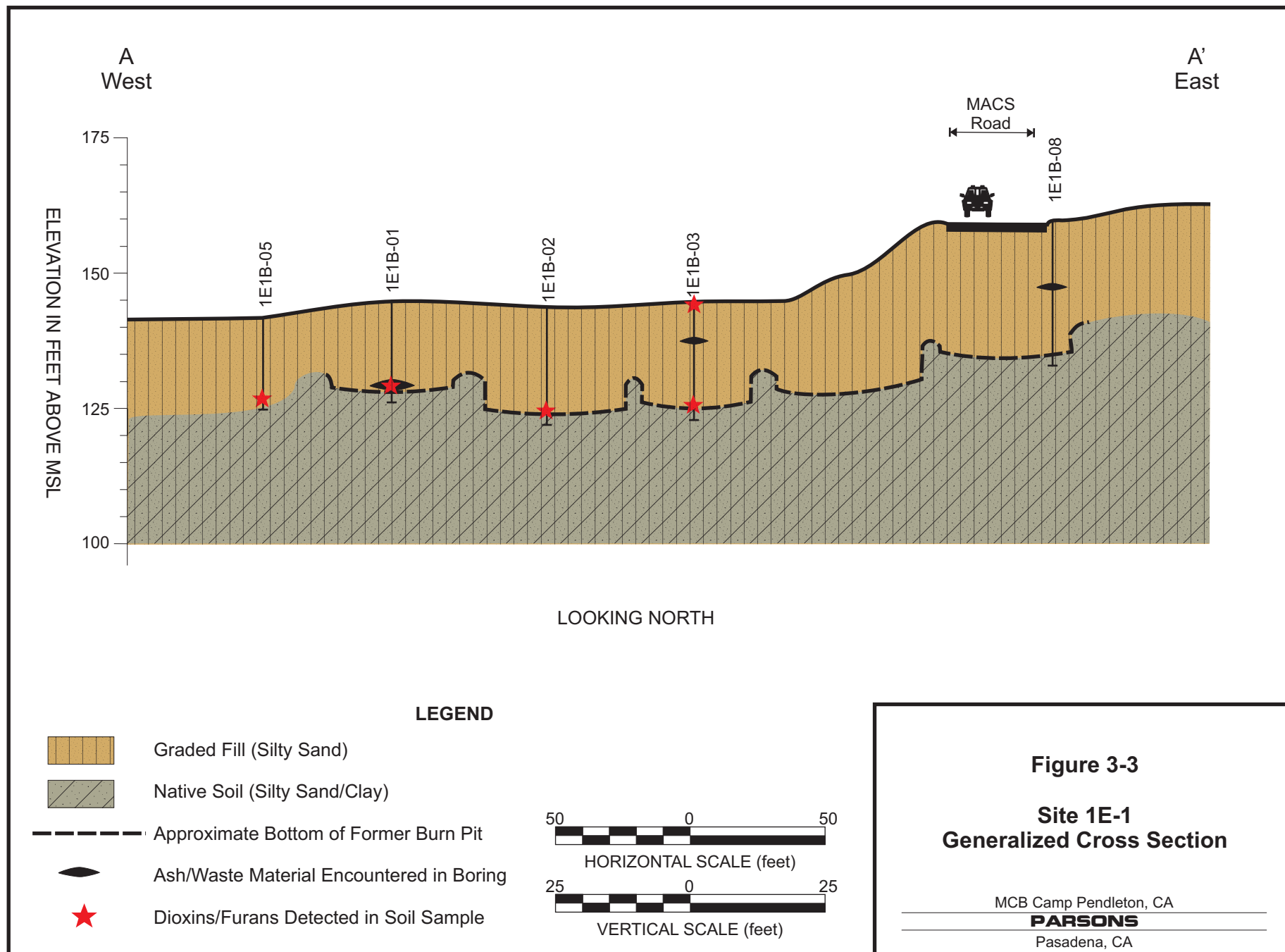
Figure 3-2

Site 1E-1 1970 Aerial Photograph with Site and Boring Locations

MCB Camp Pendleton, California

PARSONS

Pasadena, CA



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4.0 SITE 30

4.1 Site Name, Location, and Brief Description

Site 30 - Small Arms Firing Range Soil (31 Area) is located in the 31 Area, approximately 1,300 feet west of the intersection of Stuart Mesa Road and MACS Road (Figure 4-1). The Santa Margarita River is south of the site.

4.2 Site History and Enforcement Activities

Site 30 consists of soil fill material near an unpaved road west of Stuart Mesa Road. The soil contains bullets and bullet fragments from a 31 Area small arms firing range (Kleinfelder, 1997). The soil fill material was transported from firing ranges during the mid- to late-60s and possibly into the 70s.

There are no enforcement activities related to Site 30. Environmental investigation and remediation activities associated with the site are implemented under the IR Program. The purpose of this program is to identify, investigate, assess, characterize, and clean or control releases of hazardous substances as well as to cost-effectively reduce the risk to human health and the environment from past waste-disposal operations and hazardous material spills at Navy/Marine Corps stations. The program is administered in accordance with CERCLA, as amended by SARA.

Although this ROD provides a summary of site conditions, it does not repeat all the information provided in previous documents regarding detailed site descriptions, histories, regional and site-specific environmental information, or results of previous investigations and risk assessments. This information is incorporated by reference as appropriate and is documented in the following reports:

- Draft Final Remedial Investigation and Feasibility Study for Operable Unit 3 (IT, 1998).
- Draft Engineering Evaluation/Cost Analysis (EE/CA) for Sites 1D/1003, 1E/1004, 30, and 35 (Kleinfelder, 1997).
- Biological Assessments for Sites 1A, 1D, 1E, 1F, 2A, and 30 (IT, 1999b).
- Draft Engineering Evaluation and Cost Analysis, Site 30 (IT, 1999c).
- [Archeological] Monitoring and Discovery Plan for Six Waste Remediation Areas (LSA, 2000).
- Draft Final OU 4 Feasibility Study (Parsons, 2003).

4.3 Highlights of Community Participation

Please see Section 1.3 regarding Community Participation.

4.4 Scope and Role of Operable Unit

Please see Section 1.4 regarding the scope and role of OU 4.

4.5 Site Characteristics

This section summarizes the environmental setting and the nature and extent of contamination at Site 30.

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4.5.1 Environmental Setting

This section includes a description of site topography, surface water, geology, hydrogeology, ecology, and cultural resources at Site 30.

4.5.1.1 Size

The site is approximately 7.5 acres and contains 3.4 acres of contaminated soil.

4.5.1.2 Topography

The site is at an average elevation of approximately 20 feet amsl. Hills to the north rise 125 feet above the site. The site contains uneven topography and is unpaved with no nearby surface structures. A road runs through the southern side of the site.

4.5.1.3 Surface Water

No perennial surface water is present at Site 30. The area receives low annual rainfall, primarily during the winter months. Surface water runoff during significant rainfall follows site surface topography and flows generally south towards the Santa Margarita River. A marsh is located northwest of the site. The site is adjacent to the Santa Margarita River, within the floodplain, which is subject to flooding during peak rainfall events (Kleinfelder, 1997).

4.5.1.4 Geology

Site 30 is located in the Santa Margarita Basin. Soil at this site consists of interbedded, fine to coarse-grained alluvial sand, silt, and clay deposited as discontinuous lenses. The upper alluvium consists of poorly graded to well-graded sand, silt, and minor clay. The sand contains lenses with varying amounts of silt. The lower alluvium consists of finer grained materials such as silt with minor clay, exhibits localized gastropod, or clam bioturbation, and contains crushed shells (SWDIV, 1996b).

4.5.1.5 Hydrogeology

Groundwater is inferred to flow parallel to surface topography, towards the west or southwest (SWDIV, 1996b).

4.5.1.6 Ecology

Site 30 contains three types of vegetation: California sagebrush, coastal freshwater marsh, and coastal brackish marsh. The California sagebrush series includes white sage, coyote brush, and prickly cactus and is located on the elevated portions of the site. The freshwater marsh, which contains cattails and bulrush, is primarily confined to a ponded area in the western portion of the site. Coastal brackish marsh is located along the Santa Margarita River, which is approximately 150 feet south of the site. The brackish marsh is dominated by willow, mulefat, tree tobacco, and pickleweed (IT, 1998).

In 1997, coastal California gnatcatchers were observed at Site 30. Least Bell's vireos were observed in adjacent riparian habitats, but not within the site's boundary. A Belding's savannah sparrow (a special-status species) was observed in the brackish marsh habitat at Site 30. Surveys at Site 30 for the arroyo toad and Pacific pocket mouse were conducted in 1997, but neither of these species was observed (IT, 1998).

In 1997, biological samples of plants and invertebrates were taken at Site 30. Lead levels in plants were much higher than reference concentrations, indicating that there may be increased risk, both directly to plants and to those receptors feeding on plants. Copper and lead concentrations in invertebrates were slightly higher than reference

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concentrations, indicating that there may be increased risk to invertebrates and receptors feeding on invertebrates at the site (IT, 1998).

Coastal California gnatcatchers, light-footed clapper rail, and least Bell's vireos were observed near Site 30 during the biological field survey conducted in August 2001. No nests or nestlings were observed. The tidewater gobies were detected in the estuary adjacent to Site 30. A biological monitor was present during drilling in the marsh areas, and fieldwork was conducted as scheduled.

4.5.1.7 Cultural Resources

Site 30 is reported to be on and near prehistoric sites and historic archeological sites. The Monitoring and Discovery Plan (LSA, 2000) reports that Site 30 is situated directly atop one prehistoric site, which is recorded as a low-density shell midden with over 100 pieces of shell. This prehistoric site also contains stone flakes, which are artifacts from the making of stone tools (LSA, 2000). The southern portion of a second archeological site is located near the eastern edge of Site 30 (LSA, 2000). This second site contains both historic (ceramic fragments and ration tins) and prehistoric (one core fragment, one mano, one unidentified ground stone fragment, 15 pieces of lithic debitage, several fragments of bone, and over 300 pieces of marine shell) artifacts (LSA, 2000). A third archeological site is located approximately 360 feet north and upslope of Site 30 (outside of the planned remediation area) and is composed of one core fragment, four stone flakes, and more than 50 pieces of marine shell (LSA, 2000).

4.5.2 Nature and Extent of Contamination

This section summarizes the nature and extent of contamination in soil. The source of contamination is soil fill material near an unpaved road west of Stuart Mesa Road. The soil contains bullets and bullet fragments from a 31 Area small arms firing range (Kleinfelder, 1997).

4.5.2.1 Soil

The COCs in soil at Site 30 are antimony, arsenic, chromium, cobalt, copper, and lead (Parsons, 2003). The development of soil RGs for Site 30 was based on the results of previously performed human and ecological risk assessments that were documented in the OU 3 RI/FS (IT, 1998). These RGs are included in Appendix C.

The total volume of contaminated soil above RGs at Site 30 is estimated at approximately 15,600 cubic yards based on the investigation conducted as part of the OU 4 FS (Parsons, 2003), which is approximately a 40 percent reduction compared to the OU 3 RI/FS estimate of 25,000 cubic yards for the site (IT, 1998). The change in estimated volume resulted from a greater sampling density obtained during the OU 4 FS. The lateral extent of impacted soils is approximately 400 feet by 700 feet, and the depth of impacted soils varies from approximately 1 foot to 5 feet bgs. The horizontal distribution of metals above their previously established RGs at the deepest depth is shown on Figure 4-2. Figure 4-3 shows vertical distribution of contaminated soil.

4.5.2.2 Groundwater

Groundwater sampling at Site 30 was documented in the Draft Final RI Report for Group C Sites (SWDIV, 1996b). Three Hydropunch samples were collected and analyzed for metals. The results of the groundwater sampling were summarized in the Group C RI (SWDIV, 1996b). Because groundwater was determined to not require action, the OU 4 FS focused on better defining the volume of soil waste requiring remediation at Site 30.

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4.5.3 Fate and Transport

Based on the potential threat to groundwater, SPLP analysis (SW1312) was conducted for the full suite of metals and was performed on a selected subset of soil samples to determine leachability potential and any associated threat to underlying groundwater. To evaluate the leaching potential of soils that might be left in place at the site and to determine the migration potential in highly contaminated areas, samples that exhibited a range of lead concentrations were chosen for SPLP analysis rather than simply choosing those samples having the highest concentrations.

The results from SPLP analyses conducted during the FS indicate that metal concentrations present in soil pose a potential threat to groundwater. SPLP results for aluminum, antimony, copper, iron, lead, manganese, and vanadium are above their respective MCLs. In the sample (30-E11-A) where no metals were detected above their respective RGs and the sample (30-F17-C) where only copper slightly exceeded its RG (13.8 mg/kg compared to RG of 13 mg/kg) in the TTLC analysis, the SPLP results for aluminum, iron, lead, and vanadium were still above their respective MCLs or California Action Levels.

The human health exposure pathway of concern is potential exposure to contaminated soil by future residential populations. The impact of contaminated soil on several ecological receptors was also evaluated. These exposure risks are described in Section 4.7.

4.6 Current and Potential Future Site and Resource Uses

There are no military operations at Site 30, and military and civilian personnel rarely cross the site because the vegetation is relatively dense. The road through the site is active and construction activities occasionally occur along the road (i.e. water line replacement).

The Santa Margarita River is directly south of the site. No public drinking water wells are downgradient of the site.

Since fill material was deposited at the site in the 1960s and 1970s, the site has remained undeveloped and been allowed to return to a natural state. Given that at least a portion of the site is in the floodplain of the Santa Margarita River, and that threatened and endangered species are present, it is unlikely that the site will be developed for future use.

4.7 Summary of Site Risks

Risk assessments provide an evaluation of the potential threat to human health and the environment in the absence of remedial action. They provide the basis for determining whether remedial action is necessary and the justification for such actions; they also identify the contaminant and exposure pathways that need to be addressed by the remedial actions if they are necessary (USEPA 1988a, & 1991). The soil RG values represent the more stringent of the chemical-specific residential soil PRGs and the ecological PLEs (see Appendix C). In cases where this value is less than the upper range of naturally occurring levels, the background concentration (i.e., 95 percent UTL) was established as the RG.

A human health risk assessment was previously performed for the soil exposure pathway at Site 30 as part of the OU 3 RI/FS (IT, 1998). A baseline ecological risk assessment was also performed during this investigation. These risk assessments were

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updated with the data collected during the FS (Parsons, 2003) and results are summarized below.

The response action selected in this Record of Decision is necessary to protect the public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment.

4.7.1 Human Health Risk Assessment

Based on the maximum detected concentrations in Site 30 soil, the total risk to a hypothetical on-site resident was estimated to be 3×10^{-4} and the total hazard was estimated to be 155 (SWDIV, 1996b). However, the calculation of the total hazard index incorrectly included lead in the summation. Excluding lead, the total hazard index would have been 8.3.

The risk and hazard from naturally occurring background were calculated separately. The difference was presented as the site-related risk and hazard. Discounting the risk contributed by background metals, the site-related ILCR and hazard index were estimated to be 1×10^{-4} and 153, respectively (IT, 1998) (6.8 without lead). Arsenic (4×10^{-5}), beryllium (1×10^{-5}), and chromium (3×10^{-4}) were the primary contributors to cancer risk while antimony (HI = 5.2) and manganese (HI = 1.4) were the primary contributors to the non-cancer hazard. Organic compounds were not considered chemicals of potential concern (COPCs) at Site 30 in the Group C RI (SWDIV, 1996b).

The maximum historical lead concentration (19,000 mg/kg) exceeded both the USEPA and Cal/EPA residential screening criteria (SWDIV, 1996b). A more refined analysis of lead based on average exposure point concentration was not performed given the elevated lead concentrations at the site. Consequently, a more refined evaluation to characterize human health impacts would not impact decision-making.

The Group C RI (SWDIV, 1996b) concluded that baseline conditions represent a potential threat to hypothetical future residents.

The Group C RI human health risk assessment methodology and assumptions was reviewed to determine their appropriateness for use in decision making. The review indicated that there have been no subsequent changes in toxicological data, calculation methodologies, exposure assumptions, or exposure point concentrations that would alter the original conclusion that the site poses a threat to a hypothetical on-site resident. However, the inclusion of lead in the overall total non-carcinogenic hazard index calculation is inappropriate and overestimates the overall hazard index. Impacts from lead are typically calculated separately using the LEADSPREAD model from DTSC (2000). In addition, changes in toxicity data for beryllium and hexavalent chromium have resulted in changes to the PRGs (USEPA, 1995) that were used in the Group C RI (SWDIV, 1996b). These changes have a significant effect on the estimated cancer risk associated with soil exposure at Site 30 and are discussed below.

The cancer risk from chromium (approximately 4×10^{-4}) was significantly overestimated by conservatively assuming that all detected (total) chromium was hexavalent and by applying the subsequently withdrawn CAL-modified PRG for hexavalent chromium of 0.2 mg/kg. The current USEPA Region 9 (2004) PRG for hexavalent chromium is 30 mg/kg. The cancer risk from beryllium (approximately 1×10^{-5}) was also overestimated because it was calculated using a soil beryllium USEPA toxicity value that has since changed. The current USEPA Region 9 (2004) PRG for beryllium is 150 mg/kg.

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Excluding beryllium and chromium results in a total cancer risk of approximately 4×10^{-5} . Most of this risk is attributable to arsenic, which appears to be present at this site at concentrations that are elevated relative to naturally occurring background. The maximum detected arsenic concentration at Site 30 is 16 mg/kg (SWDIV, 1996b), compared to the background value of 4.3 mg/kg for Santa Margarita Basin soils (SWDIV, 1996b). Concentrations of arsenic in the background data set ranged up to 11.5 mg/kg. In addition, the statistically determined background value was 9.4 mg/kg, which indicates that the arsenic detected at the site is greater than background and is therefore related to human activities.

As discussed above, the total hazard index (excluding lead) would have been 8.3, with antimony (HI = 5.2) and manganese (HI = 1.4) the primary contributors. The spatial distribution of antimony relative to lead strongly suggests that the antimony is site-related. However, the single elevated detection of manganese (5,140 mg/kg) is believed to be naturally occurring. This is based on a weight-of-evidence approach considering the spatial distribution of manganese at the site relative to known site-related metals (e.g., antimony and lead), regional geology, and the lack of historical information to suggest a separate release source involving manganese at Site 30.

4.7.2 Ecological Risk Assessment

A baseline ERA for organisms potentially exposed to contaminants in Site 30 soil was conducted as part of the Group C RI Report. A full discussion of the technical approach and methodology used is included in the baseline ERA and is summarized in the draft final RI/FS for OU 3 (IT, 1998).

Habitats at Site 30 consist primarily of bulrush-cattail series, California sagebrush series, arroyo willow/black willow series, and California annual grassland series (IT, 1998). The representative species selected for the ERA were plants, terrestrial invertebrates, California quail, coastal California gnatcatcher, Belding's savannah sparrow, deer mouse, and raccoon (IT, 1998).

Concentrations of inorganic chemicals were compared with background values for the Santa Margarita Basin (IT, 1998). Concentrations of nine preliminary inorganic compounds that exceeded the available background values were retained for the initial ecological risk screening (IT, 1998). The PLEs for birds and mammals were modified based on the size of the area of concern and the foraging range for each representative species (IT, 1998).

The ERA concluded that five metals (antimony, arsenic, cobalt, copper, and lead) were present at Site 30 in concentrations that could be directly toxic to ecological receptors or could bioaccumulate in the wildlife food chain (IT, 1998).

Based on the OU 3 RI/FS evaluation, current conditions at Site 30 are not protective of ecological receptors. However, it is important to note that the methodology employed was a screening level risk assessment and may have overestimated the actual impacts to ecological receptors.

4.8 Remedial Action Objectives

The RAOs for the Site 30 soil contamination are defined below:

- Minimize exposure (inhalation/dermal contact/ingestion) by humans and ecological receptors to chemicals in soil at concentrations exceeding remediation goals.

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- Protect the beneficial uses and water quality objectives of the lower Santa Margarita River Basin.

Six metals were detected in soil samples above their respective residential soil PRGs during the OU 4 FS: antimony, arsenic, chromium, cobalt, copper, and lead. Manganese, a COC from previous studies, was not detected in the FS samples above its RG. In addition, the ERA concluded that antimony, arsenic, cobalt, copper, and lead were presented at levels of concern from an ecological perspective. All of these metals were classified as RCOCs in the Draft EE/CA (Kleinfelder, 1997) and are classified as RCOCs for this ROD. The Draft EE/CA RGs are included in Appendix C.

4.9 Description of Alternatives

This section describes the remedial alternatives for soil selected for detailed analysis in the OU 4 FS for Site 30 (Parsons, 2003). The evaluations of remedial alternatives for the site address different means of achieving these RAOs.

Remedial alternatives for Site 30 were developed on the basis of RAOs and according to requirements of CERCLA, as amended by SARA, 42 USC § 9602 et seq., and the NCP. The following five alternatives were developed for remediation of contaminated soil at Site 30:

- Alternative 30-1: No action
- Alternative 30-2: Implementation of institutional controls (site access restrictions with Base Master Plan Amendment, periodic site inspection/monitoring)
- Alternative 30-3: Soil excavation, backfill, ex situ S/S, and on-Base reuse of treated soil
- Alternative 30-4: Soil excavation, backfill, pretreatment, and off-Base disposal
- Alternative 30-5: Soil excavation, backfill, pretreatment, and on-Base disposal.

Each alternative is described in detail in the following sections.

4.9.1 Alternative 30-1: No Action

The NCP (40 CFR 300.430[e][6]) requires that a no action alternative be evaluated. Under this alternative, no further action would be taken to clean up the soil contamination, prevent land use, or limit contaminant migration at Site 30 to reduce potential risks to human health and the environment. The no action alternative involves no remediation of soils and results in no disturbance to the existing environment.

4.9.2 Alternative 30-2: Institutional Controls (Site Access Restrictions with Base Master Plan Amendment).

Institutional controls reduce the risk to human health by controlling and monitoring exposure pathways rather than removing or controlling the contaminated soils. The institutional actions in Alternative 30-2 include restricting the site's future development and use, as well as periodic site inspection to prevent unauthorized use.

Future use of Site 30 would be controlled by restricting land use to limit exposure to buried materials. This would be accomplished by use of administrative land use controls. The site would be inspected periodically during the rainy season for erosion. Alternative 30-2 represents minimal administrative actions and physical measures to restrict site access to reduce exposure risks, but it does not involve any active remediation of the contaminated soil to eliminate exposure risk. Therefore, this

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alternative would not protect the ecological receptors that may be exposed to the soil. This alternative also would not protect human health and the environment downstream of the site from exposure to potential contaminants eroded from the site during a flood event. Monitoring is expected to continue as long as contaminated soils remain at the site.

4.9.3 Alternative 30-3: Soil Excavation, Backfill, Ex Situ Solidification/Stabilization, and On-Base Reuse of Treated Soil

This alternative involves excavating contaminated soil, and treating it on site by incorporating cold-mix asphalt to solidify and stabilize it. The solid, stable material is used in road building and maintenance, or other construction projects on Base. A treatability study would be necessary to determine the suitability of specific stabilizing reagents for the site conditions, including optimal formulation of emulsion and stabilizing reagents, appropriate mix ratios, quantities of aggregate needed, ability of the resultant asphalt to meet pavement specifications, and the effectiveness of the process in reducing the mobility of chemicals in soils. The reduction in mobility of chemicals of concern is key in the viability of this alternative.

For Site 30, this remedial alternative includes excavation of an estimated 15,600 cubic yards of soil containing metals at concentrations exceeding previously established remediation goals. The soil could be excavated with conventional equipment such as backhoes, excavators, and loaders. Appropriate mitigation measures and coordination with the USFWS would be required to minimize and avoid habitat disruptions during all activities. Additional coordination with the SHPO and appropriate Native American groups would be needed to comply with the Archeological and Historic Preservation Act.

4.9.4 Alternative 30-4: Soil Excavation, Backfill, Pretreatment, and Off-Base Disposal

Alternative 30-4 is the preferred alternative for Site 30. This alternative addresses remediation of contaminated soils exceeding the RGs through excavation, on-Base chemical stabilization, and off-Base disposal. Alternative 30-4 includes:

- Excavation of impacted soil
- Treatment of a portion of the excavated soil to incorporate chemical stabilizer
- Temporary storage of excavated soil stockpiles
- Sampling and analysis of soil stockpiles to determine chemical composition (waste characterization)
- Transportation of the excavated soil to an off-Base disposal facility
- Confirmation sampling and analysis of excavation areas
- Import and compaction of certified clean backfill material
- Site restoration.

Approximately 15,600 cubic yards exceed the remediation goals. Based on the data and waste classification, approximately 9,333 cubic yards of the excavated soil would be classified as California-hazardous or nonhazardous waste, and approximately 6,267 cubic yards would classify as RCRA-hazardous waste prior to treatment. The California-hazardous soil will be treated on site to a nonhazardous status. The RCRA-hazardous soil will be treated chemically to California-hazardous status. Upon completion of pretreatment, all soil would be transported to the appropriate licensed disposal facilities.

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4.9.5 Alternative 30-5: Soil Excavation, Backfill, Pretreatment, and On-Base Disposal

Alternative 30-5 is nearly the same as Alternative 30-4, except that contaminated soils would be disposed of at a new on-Base disposal facility instead of disposal off Base.

Soil excavation, pretreatment of excavated soil, temporary stockpile storage, waste characterization, confirmation sampling, backfilling, and site restoration would be conducted exactly as for Alternative 30-4. Upon completion of pretreatment, all contaminated soil would be hauled to an appropriate on-Base facility for disposal.

Currently an appropriate on-Base facility has not been identified at the Base. Alternative 30-5 would be contingent upon the identification of an appropriate facility that would be able to accept waste from Site 30.

4.10 Summary of the Comparative Analysis of Alternatives

This section presents the results of the comparative analysis conducted to evaluate the relative advantages and disadvantages of each remedial alternative in relation to the nine evaluation criteria outlined in CERCLA Section 121(b), as amended. A comprehensive analysis of each alternative with respect to the nine criteria is presented in the OU 4 FS Report (Parsons, 2003). Table 4-1 summarizes the results of the comparative analysis conducted to evaluate the relative advantages and disadvantages of Alternatives 30-1 through 30-5 relative to the NCP criteria.

4.10.1 Threshold Criteria

Threshold criteria include overall protection of human health and the environment and compliance with ARARs. An alternative must meet both threshold criteria to be eligible for selection.

4.10.1.1 Overall Protection of Human Health and the Environment

Alternative 30-1 includes no treatment and no control of exposure pathways and would leave contaminant concentrations in place that pose a potential to future human health and the environment. Alternative 30-2 provides for temporary control of exposure pathways through institutional controls, but does not remove the contaminants and their potential threat. Because Site 30 is located in the floodplain, site contaminants could eventually wash out and potentially impact surface soil and water quality. In addition, SPLP analytical results for Site 30 indicate that existing metal contamination in the soil could pose a threat to groundwater. Therefore, neither of these alternatives would be protective of human health and the environment.

Alternatives 30-3, 30-4, and 30-5 would be protective of human health and the environment through removal and reuse or on-Base or off-Base disposal of impacted soils.

4.10.1.2 Compliance With ARARs

Based on the previously performed human health and ecological risk assessments, Alternatives 30-1 and 30-2 would not comply with location-specific requirements of the Endangered Species Act, and with substantive provisions of the Porter-Cologne Act, as implemented through the beneficial uses and water quality objectives of San Diego Basin Water Quality Control Plan. Alternative 30-4 would comply with ARARs for excavation and transportation. It is likely that Alternatives 30-3, 30-4, and 30-5 would comply with action- and location-specific requirements of the Endangered Species Act, although coordination with the USFWS would be required. Pilot testing of Alternative 30-

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3 would be necessary to ensure compliance with ARARs governing disposal and reuse of stabilized materials. Alternatives 30-3, 30-4, and 30-5 would likely comply with action-specific requirements of the Archeological and Historic Preservation Act, but they would require appropriate monitoring during excavation and implementation of mitigation measures if significant artifacts are identified. Alternatives 30-3, 30-4, and 30-5 would comply with the substantive provisions of the Porter-Cologne Act.

4.10.2 Primary Balancing Criteria

Primary balancing criteria include long-term effectiveness and permanence; reduction of toxicity, mobility, or volume; short-term effectiveness; implementability; and cost. These are used to weigh trade-offs among alternatives and identify the most favorable.

4.10.2.1 Long-Term Effectiveness and Permanence

Alternative 30-1 is rated low for long-term effectiveness and permanence because no measures or controls are associated with this alternative. Alternative 30-2 would require long-term maintenance. Alternative 30-2 would provide a degree of long-term effectiveness through limiting exposure and site uses, but it would provide minimal long-term effectiveness and permanence for ecological receptors. For Alternatives 30-3, 30-4, and 30-5, the measures and controls implemented would reduce the potential for future human health and ecological exposure, and no future actions would be necessary. Alternatives 30-3, 30-4, and 30-5 would provide a high degree of long-term effectiveness and permanence because they involve removal of the contaminated soils from the area and backfilling of the excavation with clean import soil with disposal at either an off-Base facility or an on-Base facility. In addition, the wastes would be stabilized on Base at the transportable treatment unit (TTU) prior to transport and disposal. This leaves little residual risk and provides no long-term maintenance requirement.

4.10.2.2 Reduction of Mobility, Toxicity, or Volume Through Treatment

Alternatives 30-1 and 30-2 are rated low for this evaluation criterion. Alternative 30-3 includes treatment. This alternative is rated highly effective because all of the waste material would be treated via asphalt mixing, resulting in a net reduction of toxicity of the waste soil. This effectiveness has been demonstrated at a wide range of remediation sites with metal leachability reductions of three or four orders of magnitude, although the required reduction in leachability would need to be demonstrated prior to implementation. Alternatives 30-4 and 30-5 include on-Base stabilization pretreatment prior to disposal to limit the leachability of contaminants. Stabilization reduces the mobility and toxicity of contaminants but increases the overall volume of resulting treated soil; therefore, this criterion is rated moderate for Alternatives 30-4 and 30-5.

4.10.2.3 Short-Term Effectiveness

This criterion is not rated for Alternative 30-1 because it does not involve any actions that would disturb the site. The short-term effectiveness of Alternative 30-2 is ranked high and is expected to be the greatest of the five alternatives because minimal site disruptions would occur, and there would be no environmental impacts from implementing the action. For Alternatives 30-3, 30-4, and 30-5, the potential for short-term dust exposure exists during excavation, transportation, and any pretreatment. Potential impacts to ecological receptors would be minimized by scheduling excavation activities during the optimal season and conducting appropriate monitoring. Impacts to historic or prehistoric artifacts would be minimized through appropriate monitoring and implementation of mitigation measures if significant artifacts were identified. The potential for short-term impacts associated with traffic and dust would be somewhat

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greater with Alternatives 30-3 and 30-5, due to the presence of the on-site stabilization and the increased amount of on-Base truck traffic compared to Alternative 30-4.

4.10.2.4 Implementability

This criterion is not rated for Alternative 30-1 because no activities would be conducted under this alternative. Alternative 30-2 is readily implementable and involves commonly performed operations, such as administrative restrictions on development that can occur at the site. However, given that the Base mission is to support training, any area with a land use restriction would limit that function and this potential loss of land use causes Alternative 30-2 to be rated moderate.

Alternative 30-4 is ranked high for implementability because all aspects of excavation and disposal are readily implementable. Equipment, materials, and labor for Alternatives 30-3, 30-4, and 30-5 are easily available, and all three alternatives involve commonly performed remedial operations. Excavation and treatment for Alternatives 30-3, 30-4, and 30-5 uses standard equipment and labor skills and are readily implementable. Stabilizing reagents range from widely available off the shelf reagents, such as fly ash, cement, etc., to less common, more specialized proprietary reagents.

Alternative 30-3 is ranked moderate because it is not as readily implementable as Alternative 30-2 and 30-4. Implementation of Alternative 30-3 involves pilot testing and associated regulatory coordination, as well as the on-Base coordination required to use the treated soil as part of Base construction projects. Alternative 30-4 is ranked high for implementability because all components of this alternative are readily implementable. Alternative 30-5 is ranked moderate to implement because it would require identification of an appropriate on-Base facility; compliance with the disposal requirements; and regulatory coordination.

4.10.2.5 Cost

No cost is associated with Alternative 30-1. Alternative 30-2 is less expensive than Alternatives 30-3 and 30-4, with an estimated cost of \$355,000. Alternatives 30-3 and 30-5 provide medium costs of \$4,735,000 and between \$3,986,000 and \$4,622,000, respectively. Alternative 30-4 is the most expensive remedial alternative, with an estimated cost of \$7,220,000.

4.10.3 Modifying Criteria

Modifying criteria include regulatory and community acceptance. Regulatory acceptance is taken into account during development of the proposed plan and ROD. Public acceptance is considered through comments received during the public comment period.

4.10.3.1 Regulatory Acceptance

The USEPA, Cal/EPA DTSC, and the San Diego RWQCB concur with the preferred alternative.

4.10.3.2 Community Acceptance

The proposed plan was issued for public review 26 September to 25 October 2005 and discussed at a public meeting on 12 October 2005. No public comments or concerns were received.

4.11 Selected Remedy

The DON has selected Alternative 30-4, Soil Excavation, Backfill, Pretreatment, and Off-Base Disposal, as the preferred alternative at Site 30 because it effectively prevents

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potential human and ecological exposure to site chemicals of concern. Based on current information, the DON believes Alternative 30-4 meets the threshold criteria and provides the best balance of tradeoffs with respect to the balancing and modifying criteria.

4.11.1 Rationale for Remedy Selection

The selected alternative provides the best balance with respect to the NCP evaluation criteria.

4.11.1.1 Threshold Criteria

Alternative 30-4 meets the threshold criteria of overall protection of human health and the environment and complies with ARARs (see Section 4.12.2).

All contaminated soil exceeding chemical-specific RGs would be removed, treated for stabilization, and transported off Base for disposal. The site would then be backfilled with clean import soil, and site vegetation would be restored. Residual contamination would meet RGs and would be protective of human health and the environment.

The clean closure requirements in 22 CCR 66264.111 (a) and (b) are met by excavating soils exceeding chemical-specific RGs. The RG chemical-specific cleanup levels for this action were determined to be risk-based levels that are the lowest achievable levels that are technologically and economically feasible under CCR Title 22, § 66264.94(a)(1), (a)(3), (c), (d), and (e). Coordination with the USFWS would be required. Historical and cultural resources are known to exist near the site, so additional coordination with the SHPO and appropriate Native American groups would be needed to comply with the Archeological and Historic Preservation Act.

4.11.1.2 Primary Balancing Criteria

Alternative 30-4 is rated high for long-term effectiveness and permanence, and implementability. This alternative provides a high degree of long-term effectiveness and permanence because contaminants are removed from the site and the contaminated soil is replaced with clean import soil. Excavation, pretreatment, and disposal of contaminated soil at an off-Base disposal facility are readily implementable. Several firms can provide the necessary equipment, materials, and labor to excavate and dispose of the contaminated soil. Licensed disposal facilities capable of accepting the contaminated soil currently exist within California. Because the majority of the impacted soil would be permanently removed from the site, future soil remedial activities are not expected to be necessary. Collecting and screening confirmation samples during excavation would be used to evaluate the effectiveness of soil excavation.

This alternative is ranked moderate for a reduction in toxicity, mobility, or volume through treatment, and short-term effectiveness. Although an increase in volume of soil is realized during treatment prior to disposal, there is a moderate reduction in toxicity and mobility observed with this alternative. Potential short-term risks to site workers would include inhalation of fugitive dust, dermal contact, and ingestion of impacted site soil during excavation and pretreatment. Potential exposure and protection procedures for workers would be addressed in the health and safety plan. Heavy equipment operated at the site would conform to Cal/OSHA specifications and would be operated only by trained personnel. Some short-term impacts to ecological receptors and habitat could occur, but adverse effects would be minimized through close coordination with the appropriate regulatory agencies (i.e., USFWS).

The cost for Alternative 30-4 is estimated at \$7,220,000. This cost includes the required equipment, materials, and labor to perform site preparation, including construction of the

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soil stockpile area; excavation, backfilling with clean soil, and stockpiling; on-Base pretreatment of all of the excavated soil to incorporate chemical stabilizer; confirmation sampling and laboratory analysis; waste characterization; transportation and disposal of contaminated soil at a California hazardous waste disposal facility; surveying; and site restoration.

4.11.1.3 Modifying Criteria

The USEPA, Cal/EPA DTSC, and the San Diego RWQCB concur with the preferred alternative.

The community concurs with the preferred alternative. No comments were received on the Proposed Plan or the Public Meeting held 12 October 2005.

4.11.2 Detailed Description of Selected Remedy

Alternative 30-4 addresses remediation of contaminated soils exceeding the RGs through excavation, on-Base chemical stabilization, and off-Base disposal. The logistics associated with the implementation of Alternative 30-4 including utilities would be addressed in a Remedial Action Work Plan for the site. The siting, location, and excavation for utilities are therefore not discussed in detail in this document. The following elements are associated with Alternative 30-4:

- Excavation of impacted soil
- Confirmation sampling and analysis of excavation areas
- Import and compaction of certified clean backfill material
- Treatment of a portion of the excavated soil to incorporate chemical stabilizer
- Temporary storage of excavated soil stockpiles
- Sampling and analysis of soil stockpiles for waste characterization
- Transportation of the excavated soil to an off-Base disposal facility
- Site restoration.

Based on the volume of material (15,600 cubic yards) exceeding the previously established RGs, it is estimated that approximately 9,333 cubic yards (14,000 tons) of the excavated soil would classify as California-hazardous or nonhazardous waste, and approximately 6,267 cubic yards (9,400 tons) would classify as RCRA-hazardous waste prior to treatment.

Heavy earthmoving equipment, such as a track-mounted excavator and track- or wheeled- loaders, would be used to excavate the impacted soil within the lateral limits.

Following excavation of individual grids to the assumed lateral limits and target depth, confirmation samples would be collected for laboratory analysis. Based on the analytical results from the confirmation samples and comparison to RGs, the excavation would be backfilled or extended laterally and/or vertically until the cleanup goals are achieved. If additional excavation were required, additional confirmation sampling and analysis would be performed until the cleanup goals are met.

A licensed land surveyor would survey the final spatial limits of the excavation after confirmation sampling and analysis and prior to placement and compaction of backfill. The excavation would be backfilled to the original surface contours, surveyed, and revegetated to restore habitat and to minimize erosion.

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For cost estimating purposes, it is assumed that the California-hazardous soil would be treated to nonhazardous status and the RCRA-hazardous soil to California-hazardous prior to off-Base transport and disposal. None of the material would be classified or manifested as RCRA waste and would not be subject to the universal treatment standards of the land disposal restrictions.

During the remedial action, the excavation and stockpile areas would be restricted from access by unauthorized personnel. Potential exposure and protection procedures for site workers would be addressed in a site-specific health and safety plan.

Prior to transport, stockpile samples would be collected and the analytical results would be used to characterize and classify the waste. Stockpile samples would be analyzed for soluble lead by the following two test procedures: the TCLP (SW1311), as described in USEPA Publication SW 846, and the California WET analysis (CCR Title 22 Chapter 11). The results for the WET analyses would be compared to the STLCs to determine if the waste classifies as California hazardous. Likewise, the results from the TCLP tests would be compared to the TCLP criteria to determine if the waste classifies as RCRA hazardous. Using these results and appropriate regulations governing classification of hazardous waste, each 500-ton soil stockpile would be classified as RCRA-hazardous, California-hazardous, or nonhazardous waste.

Upon excavation and treatment, all soil would be transported to appropriate facilities for disposal.

4.11.3 Cost Estimate for the Selected Remedy

Table 4-2 summarizes the cost estimate for the selected alternative. Because the costs would be incurred over a relatively short time frame (approximately one year) and O&M is not anticipated, a net present worth was not calculated for this alternative. The capital costs include: equipment, materials, and labor to perform site preparation, including construction of the soil stockpile area; excavation, backfilling with clean soil, and stockpiling; on-Base pretreatment of all excavated soil to incorporate chemical stabilizer; confirmation sampling and laboratory analysis; waste characterization; transportation and disposal of contaminated soil at a California hazardous waste disposal facility; surveying; and site restoration. The estimated cost for the selected remedy is \$7,220,000.

4.11.4 Estimated Outcomes of the Selected Remedy

The site will be suitable for unrestricted land use as a result of the selected remedy. However, the site is located at least partially in a floodplain, and has sensitive and endangered species, which may limit future development. In addition, the selected remedy will reduce the threat to the environment by eliminating the threat of releasing contaminants during a flood event.

4.12 Statutory Determinations

CERCLA requires the DON to undertake remedial actions that achieve adequate protection of human health and the environment. Section 121 of CERCLA establishes several additional statutory requirements and preferences specifying that, when complete, the selected remedial action 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. The statute also includes a preference

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for remedies that, as their principal element, permanently and significantly reduce the volume, toxicity, or mobility of hazardous waste.

Complete discussions of statutory requirements are found in the OU 4 FS Report (Parsons, 2003). This section discusses how the selected remedy meets the statutory requirements and preferences.

4.12.1 Protection of Human Health and the Environment

RAOs for Site 30 address minimizing exposure (inhalation/dermal contact/ingestion) by humans and ecological receptors to chemicals in soil at concentrations exceeding RGs and protecting the beneficial uses and water quality objectives of the lower Santa Margarita River Basin. The selected remedy protects human health and the environment by physically removing all contaminated soil exceeding chemical-specific RGs, transporting that soil off Base, and backfilling the site with clean imported soil. Residual contamination would meet RGs and would therefore be protective of human health and the environment. There are no short-term threats associated with the selected remedy that cannot be controlled. In addition, no adverse cross-media impacts are expected from the remedy.

4.12.2 Compliance with ARARs

The selected remedy complies with ARARs. A complete discussion of ARARs is presented in the OU 4 FS Report (Parsons, 2003). The following sections discuss chemical-, location-, and action-specific ARARs for the selected remedy.

4.12.2.1 Chemical-Specific ARARs

Chemical-specific ARARs are generally health- or risk-based numerical values or methodologies applied to site-specific conditions that result in the establishment of a cleanup level. If a chemical has more than one remediation goal, the most stringent level has been identified as an ARAR for this remedial action. The selected remedy can be implemented to comply with chemical-specific ARARs.

This section presents a summary of chemical-specific ARARs for the selected remedy at Site 30. Contaminants in soil at Site 30 were detected at concentrations that could potentially threaten human health and the environment. The soil may be classified as a federal hazardous waste as defined by RCRA and the state-authorized program, or as non-RCRA, state-regulated hazardous waste. If the soil is determined to be hazardous waste, appropriate handling requirements are identified.

4.12.2.1.1 Soil ARARs

The key threshold question for soil ARARs is whether the soil located at Site 30 would be classified as hazardous waste if excavated. The data indicate concentrations in soil that exceed the hazardous waste levels for RCRA and non-RCRA hazardous waste. When the soil is excavated, at least a portion would likely be hazardous waste.

Federal

RCRA Hazardous Waste and Groundwater Protection Standards

The federal RCRA requirements identified in 40 CFR pt. 261 do not apply in California because the state RCRA program is authorized. The authorized state RCRA requirements are therefore considered potential federal ARARs. The applicability of RCRA requirements depends on whether the waste is a RCRA hazardous waste, whether the waste was initially treated, stored, or disposed of after the effective date of the particular RCRA requirement, and whether the activity at the site constitutes

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treatment, storage, or disposal as defined by RCRA. However, RCRA requirements may be relevant and appropriate even if they are not applicable. Examples include activities that are similar to the definition of RCRA treatment, storage, or disposal for waste that is similar to RCRA hazardous waste.

The determination of whether a waste is a RCRA hazardous waste can be made by comparing the site waste to the definition of RCRA hazardous waste. The RCRA requirements identified in CCR Title 22, § 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100 are applicable ARARs because they define RCRA hazardous waste. A waste can meet the definition of hazardous waste if it has the toxicity characteristic of hazardous waste. This determination is made by using the TCLP. The maximum concentrations allowable for the TCLP listed in § 66261.24(a)(1)(B) are applicable federal ARARs for determining whether the site has hazardous waste. If the site soil has concentrations exceeding these values, it would be determined to be a characteristic RCRA hazardous waste if excavated. Based on sampling results, the concentrations of metals in the soil indicate that excavated soil could exceed characteristic hazardous waste levels.

Concentration Limits

The requirements in CCR Title 22, § 66264.94(a)(1), (a)(3), (c), (d), and (e) are relevant and appropriate ARARs for the vadose zone (i.e., the unsaturated zone contamination). These sections set concentration limits for the unsaturated zone. These requirements are relevant and appropriate for cleanup of soil at Site 30 for this remedial action. It has been determined that cleanup to background is not technologically and economically feasible. The lowest achievable levels that are technologically and economically feasible are risk-based levels that assure protection of human health and the environment including groundwater. However, the selected remedy could result in levels lower than risk-based levels and could even result in meeting background over time. However, it has been determined that additional work to meet levels lower than risk-based levels is not economically feasible since risk levels will already be acceptable. These requirements are considered federal ARARs because they are part of the approved state RCRA program.

State

RCRA Requirements

State RCRA requirements included within the USEPA-authorized RCRA program for California are considered potential federal ARARs and are discussed above. When state regulations are broader in scope than their federal counterparts, they are considered potential state ARARs. State requirements such as the non-RCRA, state-regulated hazardous waste requirements may be potential state ARARs because they are not within the scope of the federal ARARs (57 Federal Register 60848). The CCR Title 22, division 4.5 requirements that are part of the state-approved RCRA program would be potential state ARARs for non-RCRA, state-regulated hazardous wastes.

The site waste characteristics need to be compared to the definition of non-RCRA, state-regulated hazardous waste. The non-RCRA, state-regulated waste definition requirements in CCR Title 22, § 66261.24(a)(2) are applicable state ARARs for determining whether other requirements are ARARs. This section lists the TTLCs and STLCs. The site waste may be compared to these thresholds to determine whether it meets the characteristics for a non-RCRA, state-regulated hazardous waste. Based on sampling results at Site 30, the concentrations of metals in the soil indicate that

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excavated soil could exceed these levels and, therefore, the waste may be a non-RCRA California hazardous waste.

Water Quality Control Plan for the San Diego Basin (9) (Basin Plan)

The Basin Plan was evaluated for potential state ARAR status for the OU 4 sites. The Basin Plan was prepared and implemented to protect and enhance the quality of the waters in the San Diego Basin. The Basin Plan establishes beneficial uses and WQOs for the surface water and groundwater of the region and is the basis of the San Diego RWQCB regulatory programs. The Basin Plan includes both numeric and narrative WQOs for specific groundwater subbasins. The WQOs are intended to protect the beneficial uses of the waters of the region. Beneficial use and reuse of water are key aspects of the Basin Plan. The OU 4 sites at MCB Camp Pendleton are located in the Santa Margarita River basin, which has the following beneficial use designations (RWQCB, 1994):

- Municipal and domestic supply
- Agricultural supply
- Industrial service supply
- Industrial process supply.

The DON accepts the substantive provisions in Chapters 2 and 3 of the Basin Plan for the San Diego RWQCB (1994), including beneficial use and WQOs, as applicable ARARs for cleaning up the soil to remedial goals.

State Water Resources Control Board Resolutions 92-49 and 68-16.

State Water Resources Control Board Resolutions 92-49 (as Amended on 21 April 1994 and 02 October 1996) is titled Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Cal. Water Code § 13304. This resolution contains policies and procedures for the regional boards that apply to all investigations and cleanup and abatement activities for all types of discharges subject to Cal. Water Code § 13304.

SWRCB Resolutions 68-16, Statement of Policy With Respect to Maintaining High Quality of Waters in California, establishes the policy that high-quality waters of the state “shall be maintained to the maximum extent possible” consistent with the “maximum benefit to the people of the state.” It provides that whenever the existing quality of water is better than the required applicable water quality policies, such existing high-quality water will be maintained until it has been demonstrated to the state that any change will be consistent with maximum benefit to the people of the state, will not unreasonably affect present and anticipated beneficial use of such water, and will not result in water quality less than that prescribed in the policies. It also states that any activity that produces or may produce a waste or increased volume or concentration of waste and that discharges or proposes to discharge to existing high-quality waters will be required to meet waste-discharge requirements that will result in the best practicable treatment or control of the discharge necessary to assure that a) pollution or a nuisance will not occur and b) the highest water quality consistent with maximum benefit to the people of the state will be maintained (SWRCB, 1968).

Cleanup to below background water quality conditions is not required by the SWRCB under the Porter-Cologne Act. SWRCB Resolutions 92-49 II.F.1 (SWRCB, 1992) provides that regional boards may require cleanup and abatement to “conform to the

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provisions of the Resolution No. 68-16 of the State Water Board, and the Water Quality Control Plans of the State and Regional Water Quality Control Boards, provided that under no circumstances shall these provisions be interpreted to require cleanup and abatement that achieves water quality conditions that are better than background conditions.”

DON's Position Regarding SWRCB Resolutions 92-49 and 68-16.

The DON recognizes that the key substantive requirements of CCR Title 22, § 66264.94 (and the identical requirements of CCR Title 23, § 2550.4 and Section III.G of SWRCB Resolutions 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 DON 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 DON has also determined that SWRCB Resolutions 68-16 is not a chemical-specific ARAR for determining response action goals. SWRCB Resolutions 68-16 is an action-specific ARAR for regulating new discharges such as discharged treated groundwater into the aquifer. However, no new discharges are proposed by the remedial action alternatives. The DON has determined that further migration of already contaminated groundwater and soil is not a discharge governed by the language in Resolutions 68-16. More specifically, the language of SWRCB Resolutions 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 DON's position is that SWRCB Resolutions 68-16 and 92-49 and CCR Title 23, § 2550.4 do not constitute chemical-specific ARARs for this remedial action because they are state requirements and are not more stringent than federal ARAR provisions of CCR Title 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 ARARs (see also CERCLA Section 121(d)(2)(A)(ii) [42 U.S.C. § 9621(d)(2)(A)(ii)]).

The substantive technical standard in the equivalent state requirements (i.e., CCR Title 23, division 3, chapter 15 and SWRCB Resolutions 92-49 and 68-16) is identical to the substantive technical standard in CCR Title 22, § 66264.94. This section of CCR Title 22 will likely be applied in a manner consistent with equivalent provisions of other regulations, including SWRCB Resolutions 92-49 and 68-16.

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

The state does not agree with the DON's determination that SWRCB Resolutions 92 49 and 68-16 and certain provisions CCR Title 23, division 3, chapter 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 Resolutions 92 49 and 68-16, and compliance with the CCR Title 22 provisions should result in compliance with the CCR Title 23 provisions. The state does not intend to dispute the ROD, but reserves its rights if implementation of the CCR Title 22 provisions is not as stringent as state

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implementation of CCR Title 23 provisions. Because CCR Title 22 regulation is part of the state's authorized hazardous waste control program, it is also the state's position that CCR Title 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 DON and the state of California have not agreed on whether SWRCB Resolutions 92 49 and 68-16 and CCR Title 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.

4.12.2.1.2 Air ARARs

The soil excavation or moving activities proposed for Site 30 have the potential for dust particle emissions.

Federal

Clean Air Act

The CAA establishes the National Ambient Air Quality Standards (NAAQS) in 40 CFR § 50.4–50.12. NAAQS are not enforceable in and of themselves; they are translated into source-specific emissions limitations by the state (USEPA, 1990a). Substantive requirements of the San Diego Air Pollution Control District (APCD) rules that have been approved by USEPA as part of the SIP under the CAA are potential federal ARARs for air emissions (CAA Section 110).

The SIP includes rules for emissions restrictions for particulates under San Diego APCD. APCD Rule 50(d)(1) addresses discharge of any air contaminant and is considered an applicable federal ARAR for the discharge of particulate matter via fugitive dust emissions from soil excavation. Rule 50(d)(1) prohibits discharge of any air contaminant from any single source of emissions that is darker than number 1 on the Ringlemann Chart for more than 3 minutes in any 60-minute period.

State

No State ARARs were identified for air emissions for the selected remedy.

4.12.2.2 Location-Specific ARARs

Location-specific ARARs are restrictions on the concentrations of hazardous substances or the conduct of activities solely because they occur in special locations such as floodplains, wetlands, historic places, and sensitive ecosystems or habitats. The selected remedy action will be implemented to comply with location-specific ARARs.

Site 30 is located in 31 Area, on both sides of a dirt road near the Santa Margarita River where it drains to the ocean. The site consists of red fill soil material along an unpaved road. The site is approximately 2,800 feet from the ocean and approximately 600 feet from the Santa Margarita River (SWDIV, 1996b) and is subject to flooding during peak rainfall events. Extensive vegetation is growing over the fill soil areas, providing some protection from erosion. The northwestern area is adjacent to a sensitive ecological habitat. No Base production wells are located downgradient from Site 30.

The resource categories relating to location-specific requirements potentially affected by the Site 30 selected remedy include cultural resources, wetlands and floodplain resources, biological resources, and coastal zone resources. The substantive provisions of the following requirements were identified as the most stringent of the federal and state location-specific ARARs for the remedial actions at Site 30:

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- National Historic Preservation Act of 1966, as amended (16 USC §§ 470–470x-6, 36 CFR pt. 800, 40 CFR § 6.301[b])
- Archaeological and Historic Preservation Act (16 USC § 469–469c-1, 40 CFR § 6.301[c])
- Archaeological Resources Protection Act of 1979, as amended (Public Law 96-95, 16 USC § 470aa–470mm)
- Executive Order No. 11990, Protection of Wetlands (40 CFR § 6.302[a])
- Executive Order No. 11988, Floodplain Management (40 CFR § 6.302[b])
- RCRA (33 USC §§ 6901–6991[i]), CCR Title 22, § 66264.18(b)]
- Endangered Species Act of 1973 (substantive provisions of 16 USC §§ 1531–1543)
- Migratory Bird Treaty Act of 1972 (substantive provisions of 16 USC §§ 703–712)
- Coastal Zone Management Act (substantive provisions of 16 USC §§ 1451–1464, 15 CFR § 930)
- California Coastal Act of 1976 (California Public Resources Code §§ 30000–30900; CCR Title 14, §§ 13001–13666.4).

4.12.2.2.1 Cultural Resources ARARs

The following cultural resources requirements were determined to be ARARs for the Site 30 remedial action:

National Historic Preservation Act of 1966, as Amended

Pursuant to Sections 106 and 110(f) of the National Historic Preservation Act (NHPA) (16 USC §§ 470–470x-6, and its implementing regulations [36 CFR pt. 800]), as amended, CERCLA remedial actions are required to take into account the effects of remedial activities on any historic properties included on or eligible for inclusion on the National Register of Historic Places (National Register). The National Register is a list of districts, sites, buildings, structures, and objects that are significant in American history, architecture, archaeology, engineering, and culture. Section 110(f) of the National Historic Preservation Act of 1966, as amended, requires that before approval of any federal undertaking that may directly and adversely affect any National Historic Landmark, the head of the responsible federal agency will, to the maximum extent possible, undertake such planning and actions as may be necessary to minimize harm to the landmark, and will afford the Advisory Council a reasonable opportunity to comment on the undertaking.

The National Historic Preservation Act requires federally funded projects to identify and mitigate impacts of project activities on properties included in or eligible for the National Register of Historic Places.

Site 30 is near a cultural resource site that could be eligible for listing in the National Register (CA-SDI-13929). Substantive provisions for the identification of historical properties set forth in 36 CFR 800.3 and 800.4 are relevant and appropriate federal ARARs. Substantive provisions set forth in 36 CFR 800.5 to 800.15 and 36 CFR Part 65 are considered ARARs for Site 30 because a historical property was identified near the site.

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The Criteria of Adverse Effect will be used to determine whether or not such effects are adverse effects (36 CFR §800.5). If it is determined that the effects are not adverse, documentation of a “finding of no adverse effect” will be made (36 CFR §800.5(b)).

If it is determined that there will be adverse effects to historic properties, documentation of a “finding of adverse effect” will be made and measures will be taken that would avoid, minimize, or mitigate adverse effects in accordance with the substantive requirements of 36 CFR §800.6. More specifically, the DON will identify adverse effects and evaluate options that can avoid, minimize, or mitigate adverse effects in the Remedial Action Work Plan.

Archaeological and Historic Preservation Act

The Archaeological and Historic Preservation Act, 16 USC § 469–469c-1, codified at 40 CFR § 6.301(c), provides for the preservation of historical and archaeological data that might otherwise be lost because of dam construction or alterations of the terrain. If activities in connection with any federal construction project or federally approved project may cause irreparable loss to significant scientific, prehistorical, or archaeological data, the act requires the agency undertaking that project to preserve the data or request the Department of the Interior (DOI) to do so. This act differs from the NHPA in that it encompasses a broader range of resources than those listed on the National Register and mandates only the preservation of the data (including analysis and publication).

Site 30 is reported to be on and near prehistoric sites and historic archeological sites, as described in Section 4.5.1.7. Substantive provisions of 16 USC § 469–469c-1 and 40 CFR § 6.301(c) are relevant and appropriate for the Site 30 remedial action. Excavation activities will be monitored for potential identification of unknown cultural resources.

Archaeological Resources Protection Act of 1979

Public Law (Public L. No.) 96-95 (16 USC § 470aa–470mm), codified at CFR §229.1 et seq., was enacted in 1979 and amended in 1988 and applies to all lands to which the fee title is held by the United States. The purpose of this statute is to provide for the protection of archaeological resources on federal and Indian lands. The act prohibits unauthorized excavation, removal, damage, alteration, or defacement of archaeological resources located on public lands unless such activity is pursuant to a permit issued under Section 470cc.

Substantive provisions of the Archaeological Resources Protection Act of 1979, set forth in 32 CFR §229.4, for the protection of archaeological resources on federal lands are relevant and appropriate federal ARARs for Site 30. These requirements will be applicable to on-site excavation if previously unidentified archaeological resources are identified during excavation, or if excavation of Site 30 could impact a site listed on the National Register. Excavation activities will be monitored for potential identification of unknown cultural resources.

4.12.2.2.2 Wetlands Protection and Floodplains Management ARARs

The following wetlands protection and floodplains management requirements were determined to be ARARs for the Site 30 remedial action:

Federal

Protection of Wetlands, Executive Order No. 11990

Executive Order No. 11990 requires that federal agencies minimize the destruction, loss, or degradation of wetlands; preserve and enhance the natural and beneficial value of

DECISION SUMMARY

wetlands; and avoid support of new construction in wetlands if a practicable alternative exists. Executive Order No. 11990 is codified at CFR Title 40 § 6.302(a). The substantive provisions of CFR Title 40 § 6.302(a) are relevant and appropriate federal ARARs for response actions within a wetland. An area at the northwest edge of Site 30 has been identified as a wetland and may be impacted by remedial actions that involve site excavation. Therefore, these requirements are relevant and appropriate for Site 30.

Floodplain Management, Executive Order No. 11988

Under CFR Title 40 § 6.302(b), federal agencies are required to evaluate the potential effects of action they may take in a floodplain to avoid, to the extent possible, adverse effects associated with direct and indirect development of a floodplain. Site 30 is located within areas susceptible to flooding during a statistical 100-year flood event. Therefore, CFR Title 40 § 6.302(b) is relevant and appropriate requirement for Site 30.

Resource Conservation and Recovery Act (33 USC §§ 6901–6991[i])

Under CCR Title 22, § 66264.18(b), any hazardous waste facility located in a 100 year floodplain or within the maximum high tide must be designed, constructed, operated, and maintained to prevent washout of any hazardous waste by a 100-year flood or maximum high tide, unless the owner or operator can demonstrate that procedures are in effect that will cause the waste to be removed safely, before flood or tidewater can reach the facility.

Site 30 is located within areas susceptible to flooding during a statistical 100-year flood event. The substantive provisions of CCR Title 22, § 66264.18[b] require that a hazardous waste facility within a 100-year floodplain be designed, constructed, operated, and maintained to avoid washout and subsequent releases of hazardous materials. This requirement is applicable for the construction of any new soil treatment facilities to be used as part of the remedial actions for Site 30 because portions of contaminated soils at this site meet the definition of hazardous waste.

4.12.2.2.3 Biological Resources ARARs

The following biological resources requirements were determined to be ARARs for the Site 30 remedial action:

Federal

Endangered Species Act of 1973

The Endangered Species Act (ESA) of 1973 (16 USC §§ 1531–1543) provides a means for conserving various species of fish, wildlife, and plants that are threatened with extinction. The ESA defines an endangered species and provides for the designation of critical habitats. Federal agencies may not jeopardize the continued existence of any listed species or cause the destruction or adverse modification of critical habitat. Under Section 7(a) of the ESA, federal agencies must carry out conservation programs for listed species. The Endangered Species Committee may grant an exemption for agency action if reasonable mitigation and enhancement measures such as propagation, transplantation, and habitat acquisition and improvement are implemented. Consultation regulations at CFR Title 50 § 402 are administrative in nature and are therefore not ARARs. However, they may be considered later to comply with the substantive provisions of the ESA.

Endangered species have been observed in the vicinity of Site 30 during several biological surveys conducted in 1996, 1997, 1998, and 2001. Species of potential concern identified at the site includes light-footed clapper rail (federal threatened

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species), least Bell's vireo (federal endangered species), tidewater goby (federal endangered species), and arroyo southwestern toad (federal endangered species), and coastal California gnatcatcher (federal threatened species). Therefore, substantive requirements pertaining to the protection of endangered species or their habitats are considered applicable because some of the proposed alternatives for these sites involve facility construction and soil excavation that would disturb the sites.

Migratory Bird Treaty Act of 1972

The Migratory Bird Treaty Act (16 USC §§ 703–712) prohibits at any time using any means or manner, the pursuit, hunting, capturing, and killing or attempting to take, capture, or kill any migratory bird. This act also prohibits the possession, sale, export, and import of any migratory bird or any part of a migratory bird, as well as nests and eggs. A list of migratory birds for which this requirement applies is found at 50 CFR § 10.13. It is the DON's position that this act is not legally applicable to DON actions; however, Executive Order No. 13186 (dated 10 January 2001) requires each federal agency taking actions that have or are likely to have a measurable effect on migratory bird populations to develop and implement, within 2 years, a memorandum of understanding (MOU) with the USFWS to promote the conservation of such populations. The DoD and the USFWS are in the process of negotiating this MOU. In the meantime, the Migratory Bird Treaty Act will continue to be evaluated as a potentially relevant and appropriate requirement for DON's CERCLA response actions.

Migratory birds have been observed in the vicinity of Site 30. The substantive provisions of 16 USC § 703 are relevant and appropriate federal ARARs.

4.12.2.2.4 Coastal Resources ARARs

The following coastal resources requirements were determined to be ARARs for the Site 30 remedial action:

Federal

Coastal Zone Management Act

The Coastal Zone Management Act (CZMA) (16 USC. §§ 1451–1464) specifically excludes federal lands from the coastal zone (16 U.C § 1453[1]). Therefore, the CZMA is not potentially applicable to Site 30. The CZMA will be evaluated as a potentially relevant and appropriate requirement. Section 1456(a)(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. A state coastal zone management program is developed under state law guided by the CZMA and its accompanying implementing regulations in 15 CFR § 930. A state program sets forth objectives, policies, and standards to guide public and private uses of lands and water in the coastal zone.

Site 30 is located within the designated boundary of the coastal zone, as indicated in CCC maps that delineate the extent of the coastal zone maps (CCC, 1993). Therefore, the CZMA and implementing regulations at 15 C.F.R. § 930 are relevant and appropriate federal ARARs. Activities directly affecting the coastal zone at this site will be conducted in a manner consistent with the substantive provisions of the CZMA.

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State

California Coastal Act of 1976

The California Coastal Act is codified at Public Resources Code (California Public Resources Code) §§ 30000–30900 and CCR Title 14, §§ 13001–13666.4. These sections regulate activities associated with development to control direct significant impacts on coastal waters and to protect state and national interests in California coastal resources. Since federal lands are specifically excluded from the definition of coastal zone, the California Coastal Act is not potentially applicable to Site 30, but is evaluated further as a potentially relevant and appropriate requirement. The California Coastal Act policies set forth in the act constitute the standards used by the California Coastal Commission in its coastal development permit decisions and for the review of local coastal programs. These policies contain the following substantive requirements: protection and expansion of public access to the shoreline and recreation opportunities (California Public Resources Code §§ 30210–30224); protection, enhancement, and restoration of environmentally sensitive habitats including intertidal and near shore waters, wetlands, bays and estuaries, riparian habitat, grasslands, streams, lakes, and habitat for rare or endangered plants or animals (California Public Resources Code §§ 30230–30240), protection of productive agricultural lands, commercial fisheries, and archaeological resources

Site 30 is located within the designated boundary of the coastal zone, as indicated in CCC maps that delineate the extent of the coastal zone maps (CCC, 1993). Therefore, the coastal zone requirements at California Public Resources Code §§ 30000–30900 and CCR Title 14, §§ 13001–13666.4 were identified as relevant and appropriate state ARARs for the selected remedy at Site 30.

4.12.2.3 Action-Specific ARARs

Action-specific ARARs are technology- or activity-based requirements or limitations for remedial activities and apply to particular remediation activities. The selected remedy can be implemented to comply with action-specific ARARs.

This section presents a summary of action-specific ARARs for the selected remedy at Site 30. ARARs for excavation are typically state-promulgated regulations pertaining to fugitive emissions, temporary storage (of wastes for treatment or disposal), or protection of species and habitat during remedial construction activities.

Excavated soil would be subject to RCRA requirements in CCR Title 22, § 66262.10(a), 66262.11 and § 66264.13(a) and (b) to determine whether such wastes should be classified as hazardous. This characterization will be made prior to offsite disposal.

Staging Piles (40 CFR § 264.554)

Although the state of California has not promulgated its own regulation for staging piles, it has obtained interim authorization by rule under 40 CFR § 271.27(a)(2). In a letter dated 18 March 2002, Cal/EPA Department of Toxic Substances Control notified USEPA that California intended to adopt the 22 January 2002 amended corrective action management unit (CAMU) standards rule. California was authorized under RCRA for the 16 February 1993 CAMU rule as required under 40 CFR § 271.27(a)(1) to gain interim authorization for the 2002 amended rule. Therefore, the amended federal regulations at 40 CFR § 264.554 are state regulations. However, since they are federally enforceable, as are the other authorized state RCRA requirements (see Section A1.3.1), they are potential federal ARARs.

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Regulations at 40 CFR § 264.554 allow relief from LDRs for temporary storage (less than 2 years) of remediation waste on contiguous property. Placing hazardous remediation wastes in a staging pile does not trigger LDRs or minimum technology requirements (MTRs). In addition, physical operations such as mixing, sizing, blending, etc. that are intended to prepare wastes for subsequent management or treatment are allowed to occur in staging piles regardless of whether they technically meet the RCRA definition of “treatment.” The substantive provisions of § 264.554(d)(1)(i–ii), (d)(2), (h), (i), (j), and (k) are ARARs for design, operating, and closure criteria for the staging pile.

The staging pile regulations also require that the unit facilitate a remedy that is reliable, effective, and protective (§ 264.554[d][1][i]); and be designed using appropriate measures (e.g., liners, covers, run-on/runoff controls, groundwater monitoring system) to prevent or minimize releases and cross-media transfers of hazardous wastes and constituents (§ 264.554[d][1][ii]). For units located in a previously contaminated area of the facility, all remediation wastes, contaminated containment system components, structures, and equipment that are contaminated with waste or leachate must be removed or decontaminated within 180 days after the operating term of the staging pile expires (§ 264.554[j]). In addition, contaminated subsoils must be decontaminated. For units located on uncontaminated areas of the facility, within 180 days following expiration of the operating term, the staging pile must be closed in accordance with waste pile closure requirements in CCR Title 22, § 66264.258(a) and the closure performance standards in CCR Title 22, § 66264.111 for permitted facilities (§ 264.554[k]).

Construction Activities Stormwater Pollution Prevention Requirements

On 16 November 1990, USEPA final regulations implementing Section 402(p) of the Clean Water Act (CWA) setting forth the requirements for the Phase I Stormwater NPDES permit requirements were promulgated (55 Federal Register 47990). USEPA's Phase I Stormwater NPDES regulations require that owner/operators of construction activities obtain permit coverage and comply with discharge standards. The Phase II Stormwater Rule was promulgated on 08 December 1999. On 10 March 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 disturbing 5 acres or more (Phase I) to 1 acre or more (Phase II). USEPA is looking to states with delegated NPDES programs such as California to take the lead in issuing permits that implement the new regulations.

Section 121(e) of CERCLA exempts on-site CERCLA response actions from permit requirements. CERCLA on-site response actions must comply with federal and state ARARs, the promulgated substantive requirements of the federal and state laws and regulations that are typically implemented via environmental permit processes. The DON follows the CERCLA process instead of these permitting processes when making CERCLA decisions, but in all cases the DON implements substantive provisions of the law.

Substantive provisions of USEPA's Stormwater NPDES regulations for construction activities as well as the CWA provisions that they implement are applicable federal ARARs for IR sites that involve construction after the effective date of the regulations.

CWA statutory effluent treatment requirements for stormwater discharges from small construction activity are potential federal ARARs. They are specified in Section 402(p)(3)(A) of the CWA (42 USC § 1342[p][3][A]) to include all standards set forth in Section 402 of the CWA. As for most other discharge categories, those standards are the long-standing best available technology (BAT) economically achievable requirement

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for toxic pollutants and best conventional pollutant control technology (BCPCT) requirement for conventional pollutants, as well as state water quality standards.

The substantive part of USEPA's CWA/NPDES stormwater program is the requirement to develop and implement best management practices (BMPs) to manage stormwater discharges. Although BMPs have been designated by USEPA as a form of "effluent limitation," they are prescribed management practices rather than more traditional "end-of-pipe" numeric effluent limitations. A stormwater plan is a required procedural mechanism for developing BMPs and obtaining regulatory approval of BMPs in the CWA context. The substantive provisions of the general requirements for stormwater plans and BMPs set forth in 40 CFR § 122.44(k)(2) and (4) are applicable federal ARARs for construction activities where 1 acre or more of soil will be disturbed.

The Navy has determined that Section 121 (e)(1) of CERCLA and the corresponding provision in the NCP (40 CFR Section 300.400[e][1]) apply to the discharge of storm water from OU 4 MCB Camp Pendleton. These sections are clear that no permits are required for on-site response actions under CERCLA. Therefore, an NPDES permit (either general or individual) is not required for a discharge of storm water during the on-site response action proposed for OU 4. However, the Navy will comply with the substantive provisions of the NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (SWRCB Order No. 99-08) identified by the State of California as "to be considered" (TBC) guidance for compliance with the federal CWA and state of California water quality requirements identified as potential water quality ARARs. Associated reporting and record keeping are considered procedural and are, therefore, not substantive. Although the Navy has determined that the permit does not qualify as an ARAR, the permit has been identified as TBC guidance. The guidance is clear that USEPA intends that implementation of remedial actions should comply with ARARs (and TBC guidance as appropriate) to protect public health and the environment. By identifying the substantive NPDES permit requirements as TBC guidance, the Navy has agreed to comply with them.

The Navy will comply with the following substantive provisions of the General Permit: substantive requirements for development and implementation of BMPs, substantive requirements for the content of a SWPPP, and substantive technical monitoring and analytical requirements (location and frequency of sample collection, parameters to be tested, and analytical methodologies). Compliance with these substantive requirements will be documented and implemented during the removal action. This plan will include descriptions of the BMPs to be implemented during the removal action and address substantive SWPPP and monitoring program requirements.

4.12.3 Cost-Effectiveness

The selected remedy has been determined to provide overall effectiveness proportional to its costs; it is therefore considered cost-effective. The estimated cost for this remedial action is approximately \$7,220,000. This cost includes the required equipment, materials, and labor to perform site preparation, including construction of the soil stockpile area; excavation, backfilling with clean soil, and stockpiling; on-Base pretreatment of all excavated soil to incorporate chemical stabilizer; confirmation sampling and laboratory analysis; waste characterization; transportation and disposal of contaminated soil at a California hazardous waste disposal facility; surveying; and site restoration. Although the cost of the selected remedy is higher than the cost of the other alternatives, the selected remedy provides a high degree of long-term effectiveness and permanence by removing contaminated soils from the site and disposing contaminated

DECISION SUMMARY

soils at an off-Base facility. For this reason, Alternative 30-4 is considered to represent a low-cost, effective, permanent solution for soil remediation.

4.12.4 Utilization of Permanent Solutions and Alternative Treatment Technologies (or Resource Recovery Technologies) to the Maximum Extent Practicable

Alternative 30-4 provides a high degree of long-term effectiveness and permanence by removing contaminated soils from the site and disposing contaminated soils at an off-Base facility. Alternative treatment technologies were evaluated for Site 30, but it was decided that none of them were as permanently effective or met the NCP criteria as well as Alternative 30-4.

4.12.5 Preference for Treatment as a Principal Element

Alternative 30-4 involves treatment of the excavated soil to incorporate a chemical stabilizer on Base prior to off-Base transport and disposal. Although an increase in volume of soil is realized, there is a moderate reduction in mobility observed with this alternative.

4.12.6 Five-Year Review Requirements

Because this remedy will not result in hazardous substances, pollutants, or contaminants remaining on-site above levels that allow for unlimited use and unrestricted exposure, a five-year review will not be required for this remedial action.

4.13 Documentation of Significant Changes

No comments were received on the Proposed Plan or the Public Meeting held 12 October 2005. Therefore, there are no significant changes.

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Table 4-1
Site 30
Summary of Comparative Analysis
MCB Camp Pendleton, California

Criterion	Alternative				
	30-1 ^a	30-2 ^b	30-3 ^c	30-4 ^d	30-5 ^e
Threshold Criteria					
Overall Protection of Human Health and the Environment	No	No ^f	Yes	Yes	Yes
Compliance with ARARs	No	No	Yes	Yes	Yes
Primary Balancing Criteria					
Long-Term Effectiveness and Permanence	Low	Low	High	High	High
Reduction of Toxicity, Mobility, or Volume by Treatment	Low	Low	High	Moderate	Moderate
Short-Term Effectiveness	Not Rated	High	Moderate	Moderate	Moderate
Implementability	Not Rated	Moderate	Moderate	High	Moderate
Cost (\$ million)	0	0.36	4.74	7.22	3.99-4.62 ^g

^aNo Action

^bInstitutional Controls

^cSoil Excavation, Backfill, Ex Situ Solidification/Stabilization, and On-Base Reuse of Treated Soil

^dSoil Excavation, Backfill, Pretreatment, and Off-Base Disposal

^eSoil Excavation, Backfill, Pretreatment, and On-Base Disposal

^fProtective of human health but not protective of ecological receptors

^gRange based on 25 percent pretreatment to 75 percent pretreatment

Table 4-2
Site 30
Cost Estimate Summary for Selected Remedy
MCB Camp Pendleton, California

Description	Cost
Direct Capital Costs	
Planning, Direction, Oversight, Scheduling, Meetings, and Scope Preparation	\$ 118,000
Mobilization	\$ 51,000
Excavation/Stockpiling of Impacted Soil	\$ 825,000
Soil Pretreatment, Loading, Transport and Disposal of Soil	\$ 4,542,000
In-Situ Confirmation Sampling	\$ 76,000
Backfill and Compaction	\$ 1,027,000
Reporting	\$ 238,000
Total Direct Capital Costs	\$ 6,877,000
Indirect Costs (overhead, profit)	\$ 343,000
TOTAL COST	\$ 7,220,000

**Table 4-3
Site 30
Chemical-Specific ^a ARARs for Selected Remedy**

Requirement	Prerequisite	Citation ^b	ARAR Determination	Comments
SOIL				
Federal - Resource Conservation and Recovery Act (42 USC, Chapter 82, §§ 6901–6991[i]) ^c				
Defines RCRA hazardous waste. A solid waste is characterized as toxic, based on the TCLP, if the waste exceeds the TCLP maximum concentrations.	Waste.	CCR Title 22, § 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100	Applicable	Substantive provisions are applicable for determining whether waste soil, if generated, is hazardous.
Groundwater Protection Standards: requirements to ensure that hazardous constituents entering the groundwater from a regulated unit do not exceed the concentration limits for contaminants of concern in the uppermost aquifer underlying the waste management area of concern at the POC.	A regulated unit that receives or has received hazardous waste before 26 July 1982 or regulated units that ceased receiving hazardous waste prior to 26 July 1982 where constituents in or derived from the waste may pose a threat to human health or the environment.	CCR Title 22, § 66264.94(a)(1) and (3), (c), (d), and (e)	Relevant and appropriate	Substantive provisions are relevant and appropriate for setting soil cleanup levels. Cleanup to background has been determined to be NOT technologically and economically feasible. The lowest economically achievable concentrations are risk-based. See Appendix A, Section A2.2.1.1 of the OU 4 FS (Parsons, 2003)
State - Cal/EPA Department of Toxic Substances Control ^c				
Definition of “non-RCRA hazardous waste.”	Waste.	CCR Title 22, § 66261.22(a)(3) and (4), § 66261.24(a)(2)–(a)(8), § 66261.101, § 66261.3(a)(2)(C) or § 66261.3(a)(2)(F)	Applicable	Substantive provisions are applicable for determining whether a waste is a non-RCRA hazardous waste.

(table continues)

Table 4-3
Site 30
Chemical-Specific ^a ARARs for Selected Remedy

Requirement	Prerequisite	Citation ^b	ARAR Determination	Comments
SOIL (CONTINUED)				
State - Cal/EPA Regional Water Quality Control Board ^c				
Describes the water basins in the San Diego County region, establishes beneficial uses of groundwater and surface water, establishes WQOs, including narrative and numerical standards, establishes implementation plans to meet WQOs and protect beneficial uses.		Water Quality Control Plan for the San Diego Basin (9) (Basin Plan) (Cal. Water Code § 13240)	Applicable	Substantive requirements pertaining to beneficial uses and WQOs are applicable state ARARs for determining soil cleanup levels that are protective of water quality.
AIR				
Federal - Clean Air Act (42 USC, Chapter 85, §§ 7401–7671) ^c				
Provisions of SIP approved by U.S. EPA under Section 110 of CAA.	Major sources of air pollutants.	42 USC § 7401; portions of 40 C.F.R. § 52.220 applicable to San Diego APCD	Applicable	See pertinent specific provisions of the SIP below.
No person shall discharge into the atmosphere from any single source of emissions, for more than 3 minutes in any 60-minute period, any air contaminant that is darker than number 1 on the Ringlemann chart.	Discharge of any air contaminant other than uncombined water vapor.	APCD Rule 50(d)(1)	Applicable	Substantive provisions are applicable to emissions that may be caused by soil movement and storage for Site 30.

(table continues)

Table 4-3
Site 30
Chemical-Specific ^a ARARs for Selected Remedy

Notes:

- ^a many potential action-specific ARARs contain chemical-specific limitations and are addressed in the action-specific ARAR tables
- ^b only the substantive provisions of the requirements cited in this table are potential ARARs
- ^c 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 DON accepts the entire statutes or policies as potential ARARs; specific potential ARARs are addressed in the table below each general heading; only pertinent substantive requirements of the specific citations are considered potential ARARs

Acronyms/Abbreviations:

ACL – alternative concentration limit
APCD – Air Pollution Control District
ARAR – applicable or relevant and appropriate requirement
BAT – best available technology
BCPCT – best conventional pollution control technology
CAA – Clean Air Act
CCR – *California Code of Regulations*
CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act
CFR – *Code of Federal Regulations*
ch. – chapter
COC – chemical of concern
CWA – Clean Water Act
DoD – Department of Defense
DON – Department of the Navy
Fed. Reg. – *Federal Register*
LDR – land disposal restriction
MCL – maximum contaminant level
MCLG – maximum contaminant level goal
NAAQS – National Ambient Air Quality Standards (primary and secondary)
NCP – National Oil and Hazardous Substances Pollution Contingency Plan

NPDES – National Pollutant Discharge Elimination System
OU – operable unit
PCB – polychlorinated biphenyl
POC – point of compliance
ppm – parts per million
ppm_w – parts per million by weight
pt. – part
R3M – Range Rule Risk Methodology
RAO – remedial action objective
RCRA – Resource Conservation and Recovery Act
RWQCB – (California) Regional Water Quality Control Board
San Diego Region
§ – section
SIP – State Implementation Plan
SMCL – secondary maximum contaminant level
subpt. – subpart
TBC – to be considered
TCLP – toxicity characteristic leaching procedure
USC – *United States Code*
USEPA – United States Environmental Protection Agency
UXO – unexploded ordnance
VOC – volatile organic compound

Table 4-4
Site 30
Location-Specific ^a ARARs for Selected Remedy

Location	Requirement	Prerequisite	Citation ^a	ARAR Determination	Comments
Federal - National Historic Preservation Act of 1966, as Amended (16 U.S.C. § 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 C.F.R. § 6.301(b)	Relevant and appropriate	Site 30 is located near a suspected resource site CA-SDI-13929. There are no other known or suspected cultural resources eligible for inclusion in the National Register of Historic Places.
Federal - Archaeological and Historic Preservation Act (16 U.S.C. § 469–469c-1) ^b					
Within area where action may cause irreparable harm, loss, or destruction of significant artifacts	Construction on previously undisturbed land would require an archaeological survey of the area. Data recovery and preservation would be required if significant archaeological or historical data were found on-site. The responsible official or Secretary of the Interior is authorized to undertake data recovery and preservation.	Regulated alteration of terrain caused as a result of a federal construction project or federally licensed activity or program where action may cause irreparable harm, loss, or destruction of significant artifacts.	16 USC § 469–469c-1 40 CFR § 6.301(c)	Relevant and appropriate	Substantive provisions are relevant and appropriate for excavation in areas where archaeological and historical resources may be found. Site 30 is located near a suspected resource site CA-SDI-13929. An archaeologist will monitor any excavation activities at the site for unidentified resources.

(table continues)

Table 4-4
Site 30
Location-Specific ^a ARARs for Selected Remedy

Location	Requirement	Prerequisite	Citation ^a	ARAR Determination	Comments
Federal - Archaeological Resources Protection Act of 1979, as Amended (16 U.S.C. § 470aa–470mm) ^b					
Archaeological resources on federal land	Prohibits unauthorized excavation, removal, damage, alteration, or defacement of archaeological resources located on public lands unless such action is conducted pursuant to a permit.	Archaeological resources on federal land.	Pub. L. No. 96-95 16 USC § 470aa–470mm 32 CFR § 229.4	Relevant and appropriate	Substantive provisions are relevant and appropriate for excavation at sites containing archaeological resources. Site 30 is located near a suspected resource site CA-SDI-13929. An archaeologist will monitor any excavation activities at the site for unidentified resources.
Federal - Exec. Order No. 11990, Protection of Wetlands ^b					
Wetland	Action to minimize the destruction, loss, or degradation of wetlands.	Wetland meeting definition of Section 7.	40 CFR § 6.302(a)	Relevant and appropriate	Substantive provisions are relevant and appropriate for excavation and storage that may affect wetlands. An area at the northwest edge of Site 30 has been identified as a wetland.
Federal - Exec. Order No. 11988, Floodplain Management ^b					
Within floodplain	Actions taken should avoid adverse effects.	Action that will occur in a floodplain (i.e., lowlands) and relatively flat areas adjoining inland and coastal waters and other flood-prone areas.	40 CFR § 6.302(b) 40 CFR pt. 6, app. A, excluding § 6(a)(2), 6(a)(4), and 6(a)(6)	Relevant and appropriate	Site 30 is located within a 100-year floodplain. Substantive provisions are relevant and appropriate for excavation within a 100-year floodplain.

(table continues)

Table 4-4
Site 30
Location-Specific ^a ARARs for Selected Remedy

Location	Requirement	Prerequisite	Citation ^a	ARAR Determination	Comments
Federal - Resource Conservation and Recovery Act (42 U.S.C. §§ 6901–6991[i]) ^b					
Within 100-year floodplain	Facility must be designed, constructed, operated, and maintained to avoid washout.	RCRA hazardous waste; treatment, storage, or disposal of hazardous waste.	CCR Title 22, § 66264.18(b)	Applicable	Site 30 is located within a 100-year floodplain. Substantive provisions are relevant and appropriate for excavation within a 100-year floodplain.
Federal - Endangered Species Act of 1973 (16 U.S.C. §§ 1531–1543) ^b					
Habitat upon which endangered species or threatened species depend	Federal agencies may not jeopardize the continued existence of any listed species or cause the destruction or adverse modification of critical habitat. The Endangered Species Committee may grant an exemption for agency action if reasonable mitigation and enhancement measures such as propagation, transplantation, and habitat acquisition and improvement are implemented.	Determination of effect upon endangered or threatened species or its habitat. Critical habitat upon which endangered species or threatened species depend.	16 USC. § 1536(a), (h)(1)(B)	Applicable	Listed endangered and threatened species have been observed at Site 30. Substantive provisions are applicable for excavation at or near threatened or endangered species habitats. If endangered species are present, the ecological assessment should evaluate potential effects of the contamination present and the planned response action.

(table continues)

Table 4-4
Site 30
Location-Specific ^a ARARs for Selected Remedy

Location	Requirement	Prerequisite	Citation ^a	ARAR Determination	Comments
Federal - Migratory Bird Treaty Act of 1972 (16 U.S.C. §§ 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 USC § 703	Relevant and appropriate	Substantive provisions are relevant and appropriate for migratory birds that may visit the site. Migratory birds have been observed in the vicinity of Site 30.
Federal - Coastal Zone Management Act (16 U.S.C. §§ 1451–1464) ^b					
Within coastal zone	Conduct activities in a manner consistent with approved state management programs.	Activities affecting the coastal zone including lands there under and adjacent shore land.	16 USC § 1456(c) 15 CFR § 930	Relevant and appropriate	Site 30 is located within the designated boundary of the coastal zone on California Coastal Commission maps (CCC 1993)

(table continues)

Table 4-4
Site 30
Location-Specific ^a ARARs for Selected Remedy

Location	Requirement	Prerequisite	Citation ^a	ARAR Determination	Comments
State - California Coastal Act of 1976 ^b					
Coast	Regulates activities associated with development to control direct significant impacts on coastal waters and to protect state and national interests in California coastal resources.	Any activity which could impact coastal waters and resources.	Cal. Pub. Res. Code §§ 30000–30900; CCR Title 14, §§ 13001–13666.4	Relevant and appropriate	Site 30 is are located within the designated boundary of the coastal zone on California Coastal Commission maps (CCC 1993)

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 DON 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

Acronyms/Abbreviations:

app. – appendix
ARAR – applicable or relevant and appropriate requirement
CCC – California Coastal Commission
CCR. – *California Code of Regulations*
CFR – *Code of Federal Regulations*
DON – Department of the Navy
Exec. Order No. – executive order number
FEMA – Federal Emergency Management Agency
pt. – part
Pub. L. No. – public law number
RCRA – Resource Conservation and Recovery Act
§ – section
US – United States
USC – *United States Code*

**Table 4-5
Site 30
Action-Specific ARARs for Selected Remedy**

Action	Requirement	Prerequisite	Citation ^a	ARAR Determination	Comments
FEDERAL					
Resource Conservation and Recovery Act (42 U.S.C. §§ 6901–6991[i])*					
On-site waste generation	Person who generates waste shall determine if that waste is a hazardous waste.	Generator of waste.	CCR Title 22, § 66262.10(a), 66262.11	Applicable	Substantive provisions are applicable for operations where waste soil is generated. The determination of whether wastes generated during remedial activities are hazardous will be made at the time the wastes are generated.
	Requirements for analyzing waste for determining whether waste is hazardous.	Generator of waste.	CCR Title 22, § 66264.13(a) and (b)	Applicable	Substantive provisions are applicable for characterizing generated waste soil or groundwater.
Clean Closure	Operator shall close the facility in a manner that minimizes the need for further maintenance controls, and minimizes or eliminates, to the extent necessary to protect human health and the environment, post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated rainfall or run-off, or waste decomposition products to the ground or surface waters or to the atmosphere.	Permitted hazardous waste facility.	22 CCR 66264.111 (a) and (b)	Applicable and Relevant and appropriate	Substantive provisions are applicable for the closure of the staging piles. The same provisions are relevant and appropriate for the site cleanup. All hazardous waste levels of contamination in soil will be removed.

(table continues)

**Table 4-5
Site 30
Action-Specific ARARs for Selected Remedy**

Action	Requirement	Prerequisite	Citation ^a	ARAR Determination	Comments
Staging Pile Closure	At closure, the owner or operator shall remove or decontaminate all waste residues, contaminated containment system components (liners, etc.), contaminated subsoils, and structures and equipment contaminated with waste and leachate, and manage them as hazardous waste	Hazardous waste staging pile	22 CCR 66264.258 (a)	Applicable	Substantive provisions are applicable for the closure of the staging piles.
Staging Pile	Allows generators to accumulate solid remediation waste in a U.S. EPA-designated pile for storage only, up to 2 years, during remedial operations without triggering LDRs.	Hazardous remediation waste temporarily stored in piles.	40 CFR § 264.554(d)(1)(i-ii) and (d)(2), (h), (i), (j), and (k)	Applicable	Substantive provisions are applicable for soil excavated and staged prior to characterization and off-site disposal.

(table continues)

**Table 4-5
Site 30
Action-Specific ARARs for Selected Remedy**

Action	Requirement	Prerequisite	Citation ^a	ARAR Determination	Comments
Discharge to Surface Water	Owners and operators of construction activities must be in compliance with discharge standards.	Construction disturbing 1 or more acres.	CWA Section 402 (33 U.S.C. ch. 26, § 1342); 40 CFR § 122.44(k)(2) and (4)	Applicable	Substantive provisions for BMPs and the storm water management plan to implement them are applicable.
	Implement BMPs to minimize discharges to surface water, develop and implement a stormwater pollution prevention plan, and monitor stormwater discharges.	Construction disturbing 1 or more acres.	SWRCB Order No. 99-08-DWQ (General Construction Activity Storm Water Permit)	TBC	Substantive provisions of BMPs, SWPPP and monitoring are TBC guidance for complying with federal and State water quality ARARs.

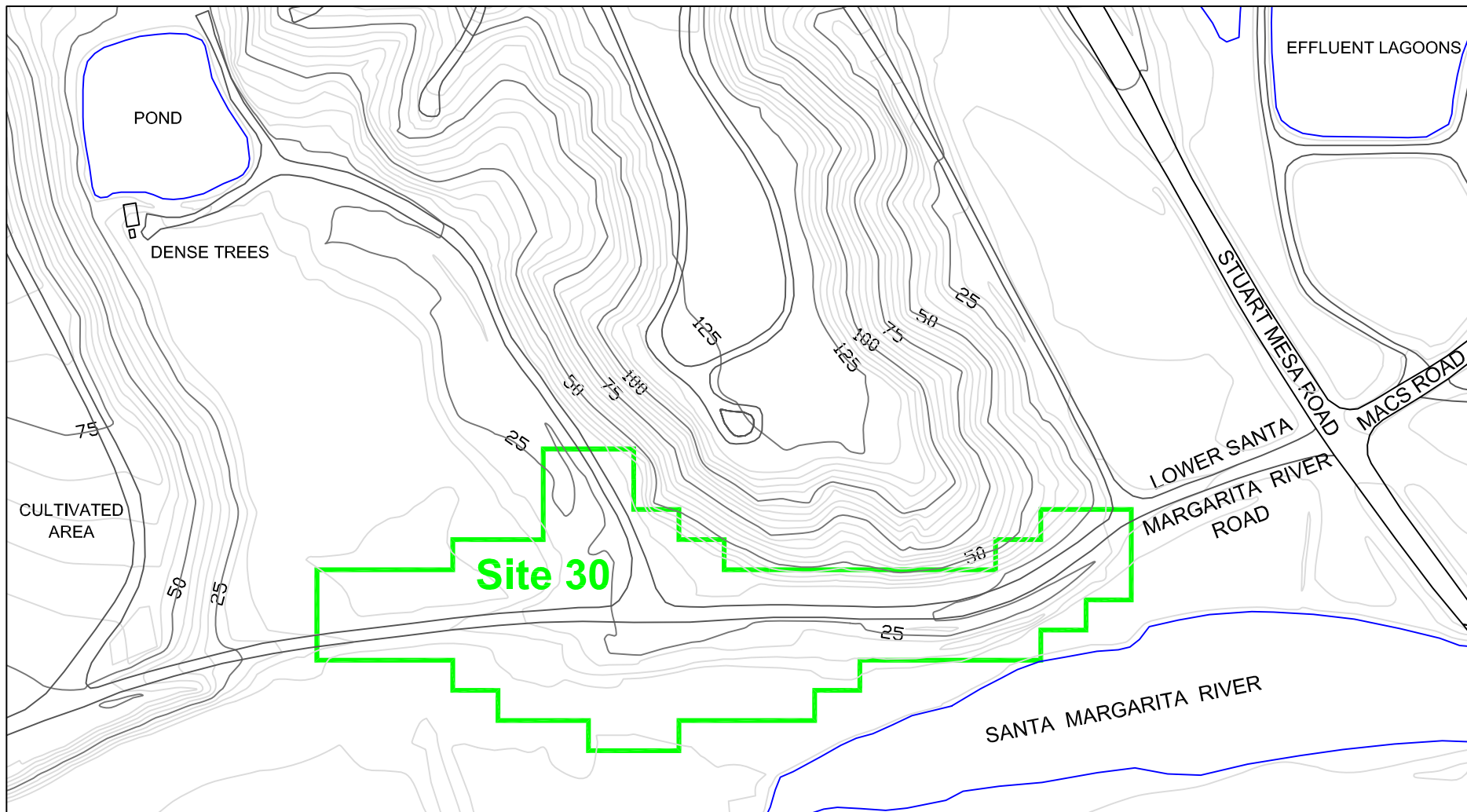
Note:

- * 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 DON 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 specific citations are considered potential ARARs

Acronyms/Abbreviations:

ARAR – applicable or relevant and appropriate requirement
CAA – Clean Air Act
CCR – *California Code of Regulations*
CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act
CFR – *Code of Federal Regulations*
ch. – chapter
CWA – Clean Water Act
DON – Department of the Navy
°F – degrees Fahrenheit
FS – feasibility study
LDR – land disposal restriction
MCAS – Marine Corps Air Station
MCL – maximum contaminant level
mg/dscm – milligrams per dry standard cubic meter

NPDES – National Pollutant Discharge Elimination System
OU – operable unit
PM₁₀ – particulate matter, less than 10 micrometers in diameter
POC – point of compliance
pt. – part
Pub. L. No. – public law number
RCRA – Resource Conservation and Recovery Act
RI – remedial investigation
§ – section
SCAQMD – South Coast Air Quality Management District
SDAPCD – San Diego Air Pollution Control District
SDWA – Safe Drinking Water Act
TSCA – Toxic Substances Control Act
USC – *United States Code*
USEPA – United States Environmental Protection Agency



Legend

 **Site 30 Investigation Area**

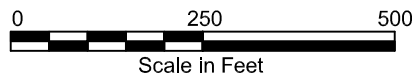


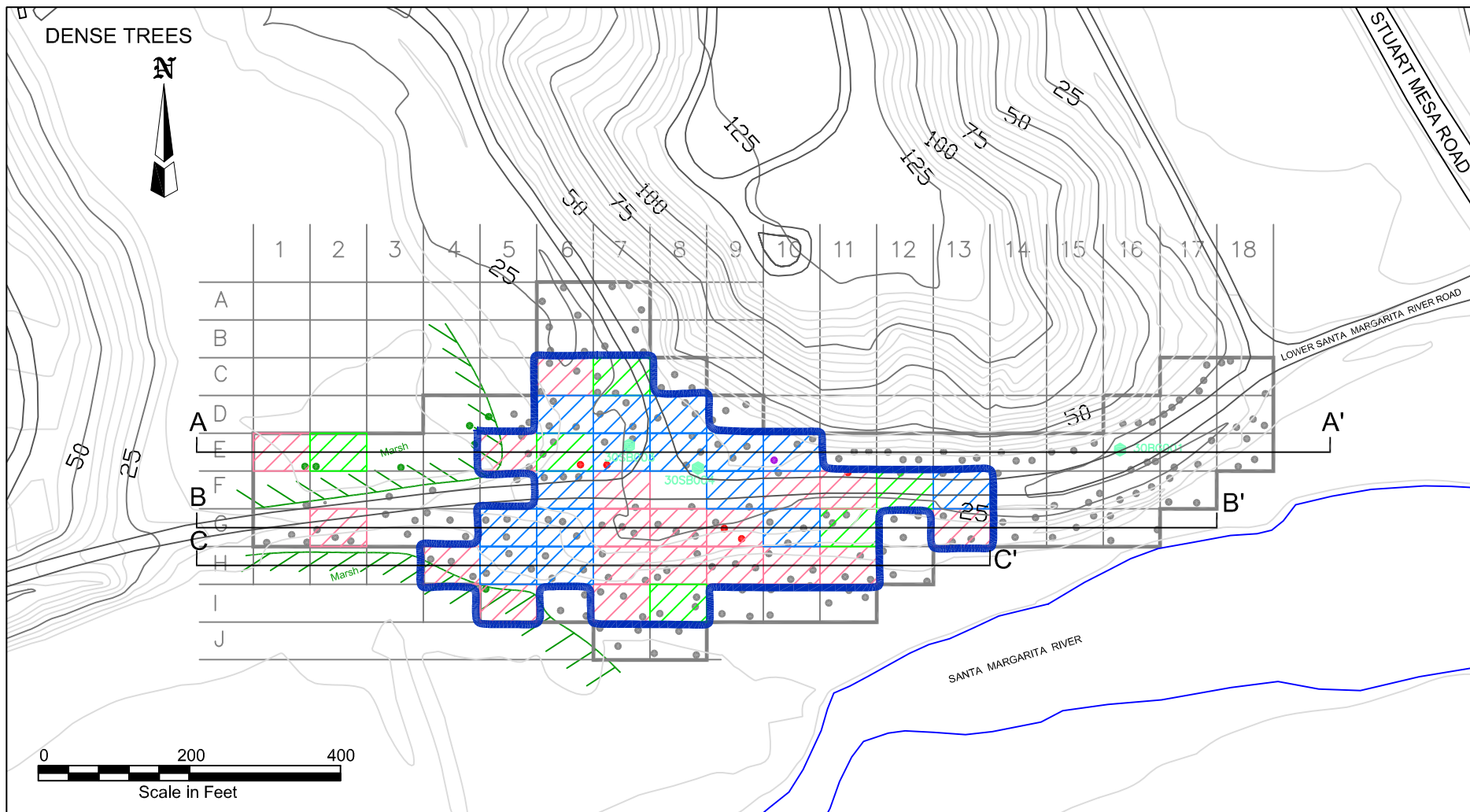
Figure 4-1

**Site 30
Location Map**

MCB Camp Pendleton, California

PARSONS

Pasadena, CA



Legend

- Boring, No Lead Fragments
- Boring In Marsh Area, No Lead Fragments
- Boring, Lead Fragments (surface)
- Boring, Lead Fragments (4 ft bgs or deeper)
- RI Boring (SWDIV, 1996b)
- Characterization Unit, 0-1 ft bgs > RG
- Characterization Unit, 0-3 ft bgs > RG
- Characterization Unit, 0-5 ft bgs > RG
- Marsh
- OU 4 FS Approximate Extent
- A A' Cross Section Line

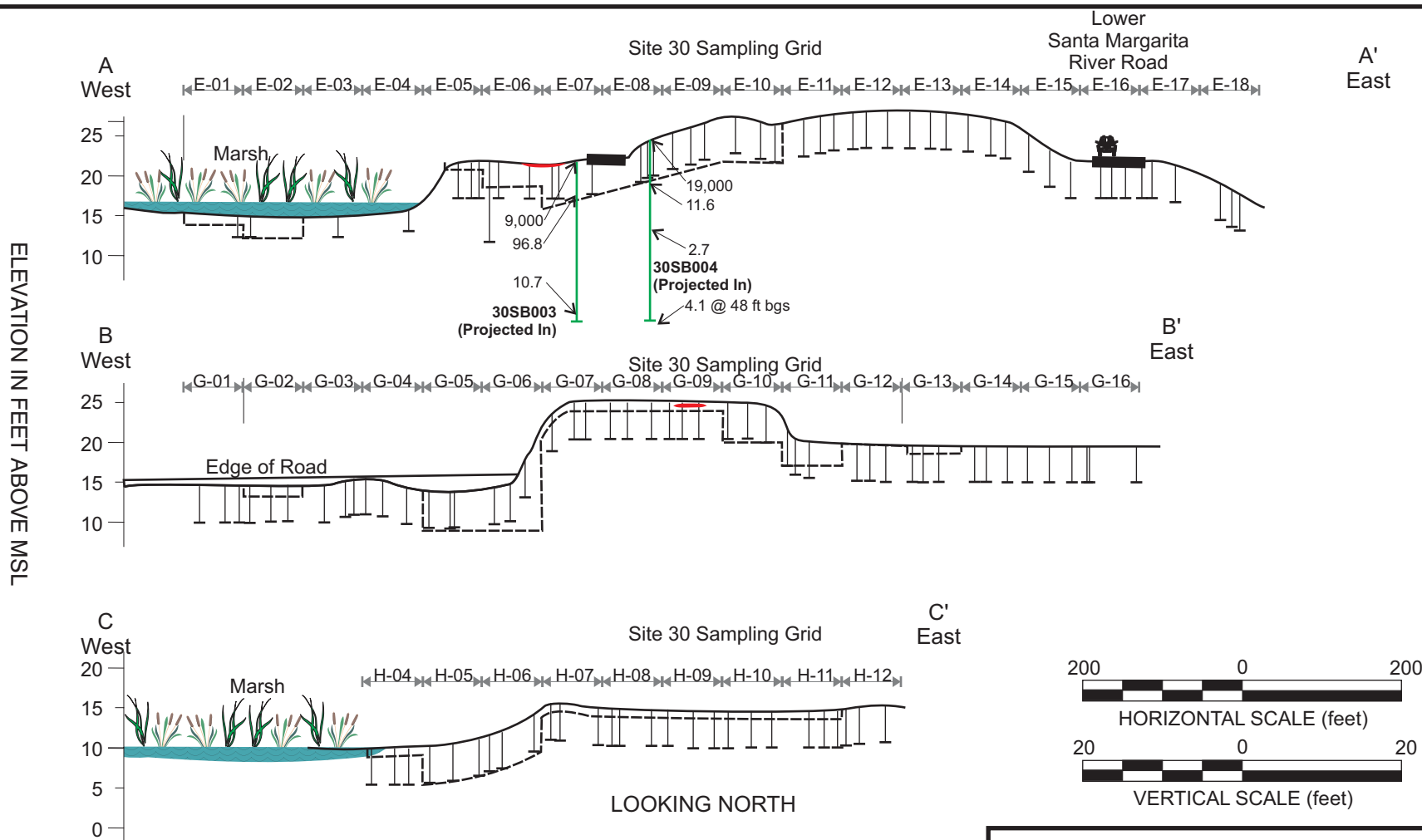
Figure 4-2

Site 30 Distribution of Metals Above RGs and Visible Lead Fragments

MCB Camp Pendleton, California

PARSONS

Pasadena, CA



LEGEND

- Approximate Bottom of Impacted Soil (Based on Supplemental FS 2002 Analytical Data)
- Lead Fragments Encountered in Boring
- RI Boring Location (SWDIV, 1996b) with Lead Concentrations Shown in mg/kg at Indicated Depth

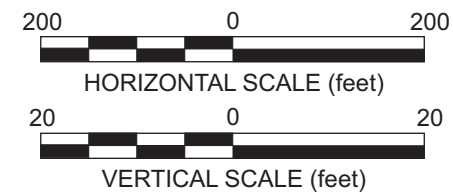


Figure 4-3

Site 30

Generalized Cross Sections

MCB Camp Pendleton, CA

PARSONS

Pasadena, CA

DECISION SUMMARY

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RESPONSIVENESS SUMMARY

6.0 RESPONSIVENESS SUMMARY

The DON solicited public comment to the remedial actions outlined in this ROD. The public review period for the Proposed Plan was from 26 September to 25 October 2005. The Public Meeting was held on 12 October 2005 at the Stuart Mesa Community Center at MCB Camp Pendleton. All interested parties were encouraged to attend the meeting to learn more about the alternatives developed for each site, and provide an additional opportunity for the public to submit comments on the Proposed Plan to the DON.

To notify the members of the public of the public meeting for the Proposed Plan, public notices were placed in the Base newspaper, the Camp Pendleton Scout, and in the North County Times on 22 September 2005. The public notices announced the availability of the OU 4 Proposed Plan and the Public Meeting. A fact sheet was also included in all copies of the Camp Pendleton Scout on 29 September 2005 (approximately 26,000 copies).

The Proposed Plan was available at the MCB Camp Pendleton information repositories housed at the following locations:

Administrative Record
Naval Facilities Engineering Command Southwest
1220 Pacific Highway
San Diego, CA 92132-5190
(619) 532-3676

MCB Camp Pendleton Environmental Security Office
Building 22165
MCB Camp Pendleton, CA 92055-5008
(760) 725-9744

Oceanside Public Library
330 N Coast Hwy, Oceanside, CA 92054
(760) 435-5600

No comments were received on the Proposed Plan during the public comment period or at the public meeting. The transcript from the public meeting is provided in Appendix B.

RESPONSIVENESS SUMMARY

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**ATTACHMENT 1
RESPONSES TO COMMENTS ON THE
DRAFT OPERABLE UNIT 4 RECORD OF DECISION
FOR SITES 1D, 1E-1, AND 30**

**DRAFT OPERABLE UNIT 4 RECORD OF DECISION
MARINE CORPS BASE CAMP PENDLETON, CALIFORNIA**

RESPONSE TO COMMENTS FROM

**THE DEPARTMENT OF TOXIC SUBSTANCES CONTROL
(RECEIVED 28 SEPTEMBER 2006)**

The Department of Toxic Substances Control (DTSC) has reviewed the subject document dated July 28, 2006. The Record of Decision (ROD) has been prepared to document the selected remedial actions for soil at Sites 1D (Refuse Burning Ground {20 Area}), 1E-1 (Former Burn Pits {32 Area}), and 30 (Small Arms Firing Range Soil {31 Area}) at MCB Camp Pendleton. The selected remedy for Sites 1D and 30 is soil excavation, backfill, pretreatment, and off-site disposal. The ROD also documents the selected remedy of no further action (NEA) for Site 1E-1. Site 1H is part of OU-4 and will be addressed in a future ROD. DTSC provides the following comments for your consideration:

Comment 1: Authorization Signature for DTSC: John E. Scandura, Chief Office of Military Facilities, Southern California Operations Branch.

Response: This information has been included on the signature page of the Draft Final ROD

Comment 2: Section 1.0 Introduction: Recommendation to change the text of the 1st paragraph to state that this ROD documents the selected remedial action instead of this ROD describes the selected remedial action. Also, insert the word "identification" between USEPA and number in the last sentence.

Response: The document has been modified as recommended.

Comment 3: DTSC concurs with the decision to remediate Sites 1D and 30 by excavating the contaminated soil followed by treatment and disposal off-site. The proposed remedial goals for the metals are the background levels established for Camp Pendleton and the dioxins will be remediated to levels that are protective of human and ecological receptors. DTSC also concurs with the NFA decision for Site 1E-1.

Response: No response needed.

If you have any questions, please contact me at (714) 484-5419.

Sincerely,
Tayseer Mahmoud
Senior Hazardous Substances Engineer
Office of Military Facilities
Southern California Operations Branch

**DRAFT OPERABLE UNIT 4 RECORD OF DECISION
MARINE CORPS BASE CAMP PENDLETON, CALIFORNIA**

RESPONSE TO COMMENTS FROM

**THE CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD,
SAN DIEGO REGION
(RECEIVED 27 SEPTEMBER 2006) (REFERENCE NUMBER SMC: 30-
0456.05:GRIFB)**

The California Regional Water Quality Control, San Diego Region (Regional Board) has reviewed the "Draft Operable Unit 4 Record of Decision for Sites 1D, 1E-1, and 30, Marine Corps Base, Camp Pendleton, California " prepared by Parsons, dated July 28 2006 (ROD). The assistance Regional Board staff assigned to the Northern Watershed and Core Regulatory Units (Anthony Felix and Charles Cheng, respectively) were acquired to review and provide comments on the Applicable and Relevant and Appropriate Requirements (ARARs) proposed in the ROD.

The ROD presents an overview of each Site, the findings and conclusions of historical environmental investigations (investigation and feasibility studies); remedial action objectives; proposed chemical-, action-, and location-specific ARARs; and the proposed selected remedial actions for each site. As the principal state agency with primary responsibility for the coordination and control of water quality (Porter-Cologne Water Quality Control Act, Section 13000), the objective of this letter is to provide comments on the ROD specifically and solely with regards to water quality issues. The Regional Board defers to the United States Environmental Protection Agency (US EPA) and the California Department of Toxic Substances Control (DTSC) to provide comments on human health and ecological issues addressed in the ROD. The Regional Board concurs with the proposed remedial actions (RA) presented in the ROD. Following is a brief overview of each site addressed and site-specific remedial actions proposed in the ROD, and Regional Board Comments on the ROD.

OVERVIEW OF SITES AND SELECTED REMEDIAL ACTIONS

SITE 1D

SITE DESCRIPTION: a 14.2 acre former refuse burning ground that was used by the Base from 1942 through the early 1970s; located in the 20 Area immediately south of the Santa Margarita River, and north of the intersection of Vandergrift Blvd and Stuart Mesa Road; approximately 31,300 cubic yards (yd³) of site waste poses a threat to human health and ecological receptors; approximately 1,900 yd³ of site waste is anticipated to be classified as Resource Conservation and Recovery Act (RCRA) hazardous waste.

REMEDIAL ACTIONS: waste excavation, waste pretreatment, off-Base disposal, excavation backfill with clean fill, and site restoration.

SITE 1E-1

SITE DESCRIPTION: 5 burn pits associated with the closed IR Site 1E (0.7 acre), located in the 32 Area immediately west of MACS Road, the Base used the Site as a

refuse burning ground from 1942 through the early 1970s, remaining Site related waste does not pose a threat to human health or ecological receptors.

REMEDIAL ACTIONS: further action at the Site is not warranted and no land use restrictions are recommended.

SITE 30

SITE DESCRIPTION: a 7.5 acres disposal site that consists of small arms waste that originated from an offsite 31 Area firing range, located in the 31 Area immediately north of the Santa Margarita River and Margarita River Road that is unpaved, approximately 15,600 yd³ of waste poses a threat to human health and/or ecological receptors, approximately 6,267 yd³ is anticipated to be classified as RCRA hazardous waste.

REMEDIAL ACTIONS: waste excavation, waste pretreatment, off-Base disposal, excavation backfill with clean fill, and site restoration.

REGIONAL BOARD COMMENTS ON THE ROD

Comment 1: Whereas the Regional Board finds the ROD to be a well formatted, organized, and written submittal, the Regional Board noted possible deficiencies in the ARARs identified for Sites 1D and 30. Table 1, attached to this letter, presents some ARARs that seem to be applicable to Sites 1D and 30. Please review the Table and either revise the ROD accordingly or provide in the response to comments a discussion as to why the ARARs are considered invalid. Additionally, the Regional Board requests the following three revisions to ROD Tables 2-3 and 4-3 regarding the noted Regional Board chemical-specific ARAR: the Basin Plan requirement description should be revised to indicate that the plan addresses the San Diego Basin, not San Diego County; the Regional Board Basin Plan citation should be revised to "Water Quality Control Plan for the San Diego Basin (9)"; and the reference to the vadose zone in the comment should be deleted.

Response: Sections of the table and responses to each specific table item are included below.

The entries in Tables 2-3 and 4-3 regarding the Basin Plan will be revised as suggested.

Table Entries 1 through 8:

ARAR #	Action	Citation	Requirement	ARAR Determination	Comments
1	Waste and Siting Classification Systems and Management Standards	CCR Title 27, §20080 et seq. Title 23, §2510 et seq.	Establishes waste and siting classification systems and minimum waste management standards for discharges of waste to land for disposal.	Applicable	Applies to classification and disposal of waste that may affect water quality.

ARAR #	Action	Citation	Requirement	ARAR Determination	Comments
2	Waste Disposal	CCR Title 27, §20090(d)	Waste removed from the immediate place of release and discharged to land must be managed in accordance with waste classification and disposal site.	Applicable	Applies to the waste and disposal site.
3	Waste Disposal	CCR Title 23, §2520, 2521	Requires that hazardous waste be discharged to Class I waste management units that meet certain design and monitoring standards.	Applicable	Applies to waste disposal site.
4	Waste Characterization and Disposal	CCR Title 27, §20200(a)(2), (c) CCR Title 23, §2520, 2521	Requires that waste be characterized and disposed of at an appropriate permitted waste management unit.	Applicable	Applies to waste and disposal site.
5	Waste Disposal	CCR Title 27, §20200(c), 20210	Requires that designated waste be discharged to a Class I or Class II waste management unit.	Applicable	Applies to the discharge of designated waste to land for disposal.
6	Waste Disposal	CCR Title 27, §20230	Requires that inert waste does not need to be discharged at classified waste management units.	Applicable	Applies to discharges of inert waste to land for disposal.
7	Waste Disposal	CCR Title 27, §20200(c), 20220	Requires that nonhazardous solid waste be discharged to a classified waste management unit.	Applicable	Applies to the discharge of non hazardous waste to land for disposal.
8	Waste Treatment	CCR Title 22 §66268	Compliance with LDR treatment standards is required if hazardous waste is placed on land.	Applicable	Applies to hazardous waste disposed of offsite.

Response: These suggested requirements are all for waste disposal. CERCLA ARARs address onsite actions only. The ROD proposes offsite disposal only. Although not addressed by ARARs, offsite actions must comply with all applicable regulations.

Table Entry 9:

ARAR #	Action	Citation	Requirement	ARAR Determination	Comments
9	Water Quality Based Waste Cleanup Goals	SWRCB Resolution #92-49 ¹	Establishes requirements for investigation and cleanup and abatement of discharges. Dischargers are required to cleanup and abate the effects of discharges to a level that attains either background water quality, or the best water quality that is reasonable if background water quality cannot be achieved.	Applicable	Applies to establishing waste cleanup goals that are in accordance with the California Water Code, Division 7.

Response: The DON and the State have agreed to disagree on the ARARs status of SWRCB 92-49 in previous ROD documents. Therefore, the agree-to-disagree language from the FS will be included into the ROD.

Table Entry 10:

ARAR #	Action	Citation	Requirement	ARAR Determination	Comments
10	Stormwater	40 CFR Parts 122, 123, 124 SWRCB Order #99-08-DWQ ²	Regulates pollutants in discharge of storm water associated with construction activities.	Applicable	Applies to areas involving construction activities that may affect surface water quality.

Response: The Navy has determined that Section 121 (e)(1) of CERCLA and the corresponding provision in the NCP (40 C.F.R Section 300.400[e][1]) apply to the discharge of storm water from OU 4 MCB Camp Pendleton. These sections are clear that no permits are required for on-site response actions under CERCLA. Therefore, an NPDES permit (either general or individual) is not required for a discharge of storm water during the on-site response action proposed for OU 4. However, the Navy will comply with the substantive provisions of the NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (SWRCB Order No. 99-08) identified by the state of California as "TBC" guidance for compliance with the federal CWA and state of California water quality requirements identified as potential water quality ARARs. Associated reporting and record keeping are considered procedural and are, therefore, not substantive. Although the Navy has determined that the Permit does not qualify as an ARAR, it will be identified as a TBC in the ROD. The guidance is clear that EPA intends that implementation of remedial actions should comply with "ARARs (and TBCs as appropriate) to protect public health and the environment. By identifying the substantive NPDES permit requirements as TBCs, the Navy has agreed to comply with them.

The Navy will comply with the following substantive provisions of the General Permit: substantive requirements for development and implementation of best management practices (BMPs), substantive requirements for the content of a Stormwater Pollution Prevention Plan (SWPPP), and substantive technical monitoring and analytical requirements (location and frequency of sample

collection, parameters to be tested, and analytical methodologies). Compliance with these substantive requirements will be documented in RD documents and will be implemented during the RA. This plan will include descriptions of the BMPs to be implemented during the removal action and address substantive SWPPP and monitoring program requirements.

Table Entries 11 and 12:

ARAR #	Action	Citation	Requirement	ARAR Determination	Comments
11	Waste Transportation	CCR Title 22 §66262.30 through 66262.33	Requires that containers used to transport waste offsite be packaged, labeled, marked, and placarded in accordance with RCRA and Department of Transportation requirements.	Applicable	Applies to containers used to transport waste from Site 1D and 30 to the disposal site.
12	Waste Transportation	CCR Title 22 §66263	Transportation of hazardous waste offsite must comply with transportation requirements.	Applicable	Applies to the transportation of hazardous waste to the disposal site.

Response: CERCLA ARARs address onsite actions only. The offsite transport of waste is not an action addressed by onsite ARARs. However, DON will comply with all applicable regulations including those for offsite transport.

Table Entry 13:

ARAR #	Action	Citation	Requirement	ARAR Determination	Comments
13	Waste Disposal	40 CFR Part 300.440	CERCLA remediation waste must be disposed of at an EPA approved facility.	Applicable	Applies to disposal site.

Response: The suggested requirement is for waste disposal. CERCLA ARARs address onsite actions only. The ROD proposes offsite disposal only. Although not addressed by ARARs, offsite actions must comply with all applicable regulations.

Table Entries 14 through 16:

ARAR #	Action	Citation	Requirement	ARAR Determination	Comments
14	Waste Transportation	CCR Title 22, Chapter 13	Requirements that apply to transporters of hazardous waste within or out of the State.	Applicable	Applies to the transport of waste to disposal site.
15	Waste Transportation	U.S. Code Title 42, Chapter 103, §9656	Requirements regarding the transportation of waste.	Applicable	Applies to the transport of waste to disposal site.

ARAR #	Action	Citation	Requirement	ARAR Determination	Comments
16	Waste Transportation	U.S. Code Title 49, Subtitle III, Chapter 51 49 CFR §§171.2(f), 171.2(g), 172.300, 172.301, 172.302, 172.303 172.304, 172.312, 172.400, 172.504	Requirements regarding the transportation of hazardous material.	Applicable	Applies to the transport of waste to disposal site.

Response: These suggested requirements are all for waste disposal. CERCLA ARARs address onsite actions only. The ROD proposes offsite disposal only. Although not addressed by ARARs, offsite actions must comply with all applicable regulations.

RWQCB appreciates submittals of this caliber and looks forward to future collaborative efforts to ensure contaminated sites are investigated and remediated to levels that are protective of water resources and designated beneficial uses. The heading portion of this letter includes a Regional Board code number noted after "In reply refer to:". In order to assist us in the processing of your correspondence please include this code number in the heading or subject line portion of all correspondence and reports to the Regional Board pertaining to this matter.

If you have any questions regarding this letter, I may be reached by phone at (858) 467-2728 or via e-mail at BGriffey@waterboards.ca.gov.

APPENDIX A
ADMINISTRATIVE RECORD FOR SITES 1D, 1E-1, AND 30

CAMP PENDLETON MCB

DRAFT ADMINISTRATIVE RECORD FILE INDEX - UPDATE (SORTED BY RECORD DATE/RECORD NUMBER)

FILTERED DATA BY KEYWORDS/SITES

UIC No. / Rec. No.							Location
Doc. Control No.	Prc. Date	Author Affil.					FRC Access. No.
Record Type	Record Date	Author					FRC/SWDIV Box No.
Contr./Guid. No.	CTO No.	Recipient Affil.					FRC Warehouse Loc.
Approx. # Pages	EPA Cat. #	Recipient	Subject	Classification	Keywords	Sites	CD No.
M00681 / 003274	08-22-1997	MCB CAMP	PERMIT APPLICATION FOR GROUND	ADMIN RECORD	GW	001	SOUTHWEST
NONE	12-01-1993	PENDLETON	WATER AND VADOSE MONITORING		MONITORING	001D	DIVISION - BLDG.
MISC	NONE	WALTER CRANE	WELLS - REFUSE BURNING GROUNDS		MW	AREA 11	12
NONE	02.2				PERMIT	AREA 13	
03274					WELLS	AREA 14	PALLET 09 - BX-05
						AREA 20	IMAGED
						AREA 43	CPEN_006
						AREA 52	
						AREA 62	
						AREA 64	
						TWIN LAKES	
M00681 / 002890	05-03-1995	JACOBS	MINUTES OF 14 APRIL 1994 MEETING ON	ADMIN RECORD	MTG MINS	001D	SOUTHWEST
NONE	04-19-1994	ENGINEERING	ECOLOGICAL CLEARANCE FOR REMAINING		REMOVAL(3)	004	DIVISION - BLDG.
XMTL	00166	E. MINUGH	RI SAMPLING		REMOVAL(6)	006	12
NONE	03.6	NAVFAC -				008	
00006		SOUTHWEST				009	PALLET 09 - BX-04
		DIVISION				010	IMAGED
						014	CPEN_003
						016	
						017	
						027	
						GROUP A	
						GROUP B	
						GROUP C	

UIC No. / Rec. No.								Location
Doc. Control No.	Prc. Date	Author Affil.						FRC Access. No.
Record Type	Record Date	Author						FRC/SWDIV Box No.
Contr./Guid. No.	CTO No.	Recipient Affil.						FRC Warehouse Loc.
Approx. # Pages	EPA Cat. #	Recipient	Subject	Classification	Keywords	Sites	CD No.	
M00681 / 003293	08-25-1997		MISCELLANEOUS DATA INCLUDING	ADMIN RECORD	DATA	001D		SOUTHWEST
NONE	03-08-1995		ATTENDANCE SHEET TO MAR. 8, 1995		HABITAT	001E		DIVISION - BLDG.
DATA	NONE		ECOLOGICAL RISK ASSESSMENT SCOPING		RA	002B		12
NONE	01.1		SESSION AND SOIL EXPOSURE FOR		SOIL	002C		
00021			VARIOUS SITES			010		PALLET 09 - BX-05
						016		IMAGED
						017		CPEN_006
						025N		
						026		
						027		
M00681 / 003362	08-27-1997	JACOBS	GROUP C SITES ECOLOGICAL RISK	ADMIN RECORD	ERA	001D		SOUTHWEST
NONE	05-12-1995	ENGINEERING	ASSESSMENT-INTERIM WORK PLAN AND		RISK	001E		DIVISION - BLDG.
PLAN	00301	J. GLEASON	SAMPLING AND ANALYSIS PLAN {SEE AR		SAP	002B		12
N68711-89-D-9296	02.1	VARIOUS	#18 - TRANSMITTAL}		WORK PLAN	002C		
00171		AGENCIES				010		PALLET 09 - BX-05
						016		IMAGED
						017		CPEN_007
						025		
						026		
						027		
						GROUP C		
M00681 / 002957	07-06-1995	JACOBS	RI/FS GROUP C SITES, ECOLOGICAL RISK	ADMIN RECORD	FS	001D		SOUTHWEST
NONE	06-23-1995	ENGINEERING	ASSESSMENT DRAFT WORK PLAN		RI	001E		DIVISION - BLDG.
PLAN	00301	E.M. MINUGH				002B		12
N68711-89-D-9296	03.3	NAVFAC -				002C		
00490		SOUTHWEST				006		PALLET 09 - BX-04
		DIVISION				010		IMAGED
		E. DIAS				016		CPEN_003
						017		
						025		
						026		
						027		

UIC No. / Rec. No.								Location	
Doc. Control No.	Prc. Date	Author Affil.					FRC Access. No.		
Record Type	Record Date	Author					FRC/SWDIV Box No.		
Contr./Guid. No.	CTO No.	Recipient Affil.					FRC Warehouse Loc.		
Approx. # Pages	EPA Cat. #	Recipient	Subject	Classification	Keywords	Sites	CD No.		
M00681 / 002965 NONE PLAN N68711-89-D-9296 00375	09-08-1995 08-14-1995 00301 03.3	JACOBS ENGINEERING E.M. MINUGH NAVFAC - SOUTHWEST DIVISION	DRAFT FINAL RI/FS GROUP C SITES HUMAN HEALTH RISK ASSESSMENT WORK PLAN ADDENDUM, REVISION 0	ADMIN RECORD BASE	HRA	001D 001E 002B 002C 006 010 016 017 027 031 GROUP C	SOUTHWEST DIVISION - BLDG. 12 PALLET 09 - BX-05! IMAGED		
M00681 / 002963 NONE PLAN N68711-89-D-9296 00516	09-08-1995 08-25-1995 00301 03.3	JACOBS ENGINEERING E.M. MINUGH NAVFAC - SOUTHWEST DIVISION	DRAFT FINAL WORK PLAN ECOLOGICAL RISK ASSESSMENT RI/FS GROUP C SITES REVISION 0	ADMIN RECORD		001D 001E 002B 002C 006 010 016 017 025 026 027 GROUP C	SOUTHWEST DIVISION - BLDG. 12 PALLET 09 - BX-04! IMAGED CPEN_003		
M00681 / 002966 NONE PLAN N68711-89-D-9296 00141	09-25-1995 09-05-1995 00301 02.1	JACOBS ENGINEERING E.B. LUECKER NAVFAC - SOUTHWEST DIVISION	RI/FS GROUP C SITES ECOLOGICAL RISK ASSESSMENT DRAFT SAMPLING AND ANALYSIS PLAN	ADMIN RECORD	FS RI SAP	001D 002C 006 025 027 GROUP C	SOUTHWEST DIVISION - BLDG. 12 PALLET 09 - BX-05! IMAGED CPEN_005		

UIC No. / Rec. No.								Location
Doc. Control No.	Prc. Date	Author Affil.						FRC Access. No.
Record Type	Record Date	Author						FRC/SWDIV Box No.
Contr./Guid. No.	CTO No.	Recipient Affil.						FRC Warehouse Loc.
Approx. # Pages	EPA Cat. #	Recipient	Subject	Classification	Keywords	Sites	CD No.	
M00681 / 001580	08-08-2001	JACOBS	28TH FEDERAL FACILITY AGREEMENT (FFA)	ADMIN RECORD	FFA	001A	SOUTHWEST	
CLE-IO1-01F301-I2-	02-28-1996	ENGINEERING	PROJECT MANAGER'S MEETING MINUTES		GW	001B	DIVISION - BLDG.	
0009	00301	GROUP			MTG MINS	001C	12	
MM					ROD	001D		
N68711-89-D-9296		NAVFAC -			SEDIMENTS	001E	PALLET 09 - BX-06	
00060		SOUTHWEST			SOIL	001F	IMAGED	
		DIVISION				001G	CPEN_008	
						001H		
						001I		
						002A		
						002B		
						002C		
						002D		
						002E		
						002F		
						002G		
						003		
						004		
						004A		
						005		
						006		
						007		
						008A		
						010		
						016		
						017		
						018		
						019		
						020		
						022		
						027		
						028		
						029		
						030		
						031		

UIC No. / Rec. No.								Location	
Doc. Control No.	Prc. Date	Author Affil.						FRC Access. No.	
Record Type	Record Date	Author						FRC/SWDIV Box No.	
Contr./Guid. No.	CTO No.	Recipient Affil.						FRC Warehouse Loc.	
Approx. # Pages	EPA Cat. #	Recipient		Subject		Classification	Keywords	Sites	CD No.
								032	
								033	
								034	
								035	
								036	
								037	
								038	
								039	
								040	
								041	
								042	
								OU 3	

UIC No. / Rec. No.							Location
Doc. Control No.	Prc. Date	Author Affil.					FRC Access. No.
Record Type	Record Date	Author					FRC/SWDIV Box No.
Contr./Guid. No.	CTO No.	Recipient Affil.					FRC Warehouse Loc.
Approx. # Pages	EPA Cat. #	Recipient	Subject	Classification	Keywords	Sites	CD No.
M00681 / 003078	04-01-1996	JACOBS	DRAFT FINAL MINUTES OF THE 27TH	ADMIN RECORD	MTG MINS	001D	SOUTHWEST
CLE-IO1-01F301-I2-	03-08-1996	ENGINEERING	FEDERAL FACILITY AGREEMENT (FFA)		REMOVAL	002B	DIVISION - BLDG. 1
0010	00301	E.M. MINUGH	PROJECT MANAGER'S MEETING			002C	
MM	03.6	NAVFAC -				003	
N68711-89-D-9296		SOUTHWEST				004	PROBLEM FILE
00059		DIVISION				004A	CABINET
						005	IMAGED
						006	CPEN_005
						010	
						014	
						016	
						017	
						019	
						020	
						022	
						027	
						031	
						E	
						GROUP A	
						GROUP B	
						GROUP C	
						GROUP D	
						OU 2	
						OU 3	
M00681 / 003093	08-06-1996	NAVFAC -	DRAFT: RI REPORT FOR GROUP C SITES	ADMIN RECORD	FS	001D	SOUTHWEST
CLE-IO1-01F301-B7-	04-12-1996	SOUTHWEST	RI/FS VOLUMES 1 THROUGH 5		RI	001E	DIVISION - BLDG.
0023	00301	DIVISION			SMP	002B	12
RPT	01.3				WORK PLAN	017	
N68711-89-D-9296		MCB CAMP				027	
03731		PENDLETON				031	PALLET 09 - BX-05:
						GROUP C	IMAGED
							CPEN_005

UIC No. / Rec. No.							Location
Doc. Control No.	Prc. Date	Author Affil.					FRC Access. No.
Record Type	Record Date	Author					FRC/SWDIV Box No.
Contr./Guid. No.	CTO No.	Recipient Affil.					FRC Warehouse Loc.
Approx. # Pages	EPA Cat. #	Recipient	Subject	Classification	Keywords	Sites	CD No.
M00681 / 003114 NONE LTR NONE 00003	08-07-1996 04-19-1996 NONE 03.6	NAVFAC - SOUTHWEST DIVISION D. MANGOLD EPA SAN FRANCISCO S. LAUTH	TO PROPOSE MILESTONES & DEADLINES FOR GROUP D SITES, DEFINITIONS & DEADLINES OF OU2 & 3, AND DISCUSS THE REMOVAL STATUS OF SITES, 1D, 1E, 29 & 30.	ADMIN RECORD	EE/CA(*) GW REMOVAL	001D 001E GROUP D OU 2 OU 3	SOUTHWEST DIVISION - BLDG. 1 PROBLEM FILE CABINET IMAGED CPEN_006
M00681 / 003140 CLE-IO1-01F301-I2- 0014 MM N68711-89-D-9296 00025	08-07-1996 06-26-1996 00301 03.6	JACOBS ENGINEERING E. MINUGH VARIOUS AGENCIES	DRAFT FINAL MINUTES OF THE 29TH FEDERAL FACILITY AGREEMENT (FFA) PROJECT MANAGER'S MEETING OF MAY 7/8, 1996	ADMIN RECORD	CERCLA FFA MTG MINS REMOVAL	001D 003 006 GROUP B GROUP D OU 2 OU 3	SOUTHWEST DIVISION - BLDG. 1 PROBLEM FILE CABINET IMAGED CPEN_006
M00681 / 003154 CLE-IO1-01F301-I2- 0017 MM N68711-89-D-9296 00016	09-16-1996 08-15-1996 00301 06.3	JACOBS ENGINEERING E. MINUGH NAVFAC - SOUTHWEST DIVISION K. KENNEDY	DRAFT MINUTES OF THE 31ST FEDERAL FACILITY AGREEMENT (FFA) PROJECT MANAGER'S MEETING OF 2 AUGUST 1996	ADMIN RECORD	MTG MINS	001D 001E 002 006 017 018 021 GROUP C OU 2 OU 3	SOUTHWEST DIVISION - BLDG. 12 PALLET 09 - BX-05 IMAGED CPEN_006
M00681 / 003260 NONE PLAN N68711-95-D-7571 00100	05-22-1997 09-06-1996 DO 5 03.3	KLEINFELDER, INC M. ROHR NAVFAC - SOUTHWEST DIVISION	DRAFT WORK PLAN SITE ASSESSMENT FOR ENGINEERING EVALUATION/COST ANALYSIS AND ACTION MEMORANDUM FOR FIVE SITES	ADMIN RECORD	ACTMEMO CONTAM* COST EE/CA EVALUATION HOT SPOTS NCP SA WORK PLAN	001D 001E AREA 20 AREA 22 AREA 25 AREA 31	SOUTHWEST DIVISION - BLDG. 12 PALLET 09 - BX-05 IMAGED CPEN_006

UIC No. / Rec. No.							Location
Doc. Control No.	Prc. Date	Author Affil.					FRC Access. No.
Record Type	Record Date	Author					FRC/SWDIV Box No.
Contr./Guid. No.	CTO No.	Recipient Affil.					FRC Warehouse Loc.
Approx. # Pages	EPA Cat. #	Recipient	Subject	Classification	Keywords	Sites	CD No.
M00681 / 003466 CLE-IO1-01F301-B5-0025 RPT N68711-89-D-9296 00022	06-10-1998 09-20-1996 00301 03.4	JACOBS ENGINEERING GROUP E. MINUGH VARIOUS AGENCIES	REMEDIAL INVESTIGATION/FEASIBILITY STUDY; DRAFT FINAL RI REPORT FOR GROUP C SITES, REVISION 0, DATED 23 SEPTEMBER 1996 (SEE AR #3192)	ADMIN RECORD	FS RI	001D 001E 002B 017 027 031 GROUP C OU 2	SOUTHWEST DIVISION - BLDG. 1 TO BE DELETED BOX 15 OF 15
M00681 / 000160 NONE PLAN N68711-95-D-7571 00111	10-04-2000 10-16-1996 DO 5	KLEINFELDER M. ROHR NAVFAC - SOUTHWEST DIVISION	SITE ASSESSMENT WORK PLAN FOR ENGINEERING EVALUATION/COST ANALYSIS AND ACTION MEMORANDUM FOR FIVE SITES	ADMIN RECORD BASE	ACTMEMO ARAR BTEX EE/CA FS PAH RI SITE SOIL TPH	001D/1003 001E/1004 029 030 035	SOUTHWEST DIVISION - BLDG. 1 BX-003 IMAGED CPEN_006
M00681 / 003380 CLE-IO1-01F301-I2-0019 MM N68711-89-D-9296 00127	09-03-1997 10-22-1996 00301 10.4	JACOBS ENGINEERING GROUP J. GLEASON NAVFAC - SOUTHWEST DIVISION M. SCHWEER	DRAFT FINAL MINUTES OF THE 32ND FEDERAL FACILITY AGREEMENT (FFA) PROJECT MANAGER'S MEETING. W/ENCLOSURE OF SCHEDULE, SIGN-IN SHEETS, AND MISCELLANEOUS HANDOUTS	ADMIN RECORD	BTEX DRUMS FFA GW MTG MINS PCB PESTICIDES SOIL	001D 001E 003 006 007 008 014 029 030 035 AREA 22 AREA 23 BLDG. 2243 OU 2	SOUTHWEST DIVISION - BLDG. 1 BX-010 IMAGED CPEN_008

UIC No. / Rec. No.								Location
Doc. Control No.	Prc. Date	Author Affil.						FRC Access. No.
Record Type	Record Date	Author						FRC/SWDIV Box No.
Contr./Guid. No.	CTO No.	Recipient Affil.						FRC Warehouse Loc.
Approx. # Pages	EPA Cat. #	Recipient	Subject	Classification	Keywords	Sites	CD No.	
M00681 / 003289 NONE LTR NONE 00026	08-22-1997 12-17-1996 NONE 01.6	MCB CAMP PENDLETON J. JOY VARIOUS AGENCIES	TRANSMITTAL OF EXECUTIVE SUMMARY OF DRAFT FINAL REMEDIAL INVESTIGATION REPORT FOR GROUP C SITES (PAGES XII AND XIV NOT INCLUDED IN EXECUTIVE SUMMARY)	ADMIN RECORD	IR RI SOIL	001D 001E 002B 016 017 027 031 GROUP C	SOUTHWEST DIVISION - BLDG. 12 PALLET 09 - BX-051 IMAGED CPEN_006	
M00681 / 003253 NONE MM N68711-89-D-9296 00100	05-21-1997 01-23-1997 00301 10.4	JACOBS ENGINEERING J. GLEASON VARIOUS AGENCIES	DRAFT FINAL MINUTES OF THE 33RD FEDERAL FACILITY AGREEMENT (FFA) PROJECT MANAGER'S MEETING - 22 AND 23 JANUARY 1997	MISSING @ SWDIV	FFA MTG MINS	001D 001E 003 006 008 014 AREA 22 AREA 23 GROUP C OU 2	SOUTHWEST DIVISION - BLDG. 1 PALLET 09 - BX-051 IMAGED CPEN_006	
M00681 / 003287 NONE LTR NONE 00003	08-22-1997 02-04-1997 NONE 01.6	EPA SAN FRANCISCO S. LAUTH VARIOUS AGENCIES	CONCERNS REGARDING REDESIGN OF LANDFILL CAP AND PROPOSED REMOVAL ACTIONS FOR GROUP C SITES 1D, 1C, 29,30, AND 35	ADMIN RECORD	EE/CA HABITAT LANDFILL REMOVAL	001D 001E GROUP C OU 2	SOUTHWEST DIVISION - BLDG. 12 PALLET 09 - BX-051 IMAGED CPEN_006	
M00681 / 000153 NONE MEMO N68711-95-D-7571 00248	10-03-2000 02-11-1997 DO 5	KLEINFELDER M. ROHR NAVFAC - SOUTHWEST DIVISION	TECHNICAL MEMORANDUM FOR SITES 1D/1003, 1E/1004, 29, 30 AND 35	ADMIN RECORD BASE	GW IAS IRP PAH RI/FS SITE SOIL SVOC TECH MEMO	001D/1003 001E/1004 029 030 035 GROUP C	SOUTHWEST DIVISION - BLDG. 1 BX-003 IMAGED CPEN_006	

UIC No. / Rec. No.							Location
Doc. Control No.	Prc. Date	Author Affil.					FRC Access. No.
Record Type	Record Date	Author					FRC/SWDIV Box No.
Contr./Guid. No.	CTO No.	Recipient Affil.					FRC Warehouse Loc.
Approx. # Pages	EPA Cat. #	Recipient	Subject	Classification	Keywords	Sites	CD No.
M00681 / 003286 SWDIV SER 532.OPM/451 LTR NONE 00003	08-22-1997 02-11-1997 NONE 01.6	NAVFAC - SOUTHWEST DIVISION D. MANGOLD VARIOUS AGENCIES	TRANSMITTAL OF TECHNICAL MEMORANDUM SUMMARIZING RESULTS OF FIELD INVESTIGATION, DETERMINATION OF POTENTIAL REMOVAL ACTIONS (W/O ENCL) [SEE AR #153 - DOCUMENT]	ADMIN RECORD BASE	HABITAT INVESTIGATION REMOVAL TECH MEMO	001D 001E GROUP C GROUP D	SOUTHWEST DIVISION - BLDG. 1 BX-010 IMAGED CPEN_008
M00681 / 003359 NONE MM N68711-89-D-9296 00013	08-27-1997 03-05-1997 00301 10.4	JACOBS ENGINEERING J. GLEASON VARIOUS INDIVIDUALS	DRAFT FINAL MINUTES OF THE 34TH FEDERAL FACILITY AGREEMENT (FFA) PROJECT MANAGER'S MEETING	ADMIN RECORD	FFA MTG MINS	001A 001D 001E 001F 002A 002D 010 016 GROUP C GROUP D OU 2 OU 4	SOUTHWEST DIVISION - BLDG. 12 PALLET 09 - BX-05' IMAGED CPEN_007
M00681 / 000154 NONE RPT N68711-95-D-7571 00400	10-03-2000 03-18-1997 DO 5	KLEINFELDER M. ROHR NAVFAC - SOUTHWEST DIVISION	DRAFT ENGINEERING EVALUATION/COST ANALYSIS FOR SITES 1D/1003, 1E/1004, 30, AND 35	ADMIN RECORD BASE	EE/CA GW IRP RI/FS SITE SOIL SVOC VOC	001D/1003 001E/1004 030 035 GROUP C	SOUTHWEST DIVISION - BLDG. 1 PROBLEM SHELVING
M00681 / 003290 MCB ENVSEC/421 LTR NONE 00004	08-22-1997 03-18-1997 NONE 01.6	MCB CAMP PENDLETON J. JOY VARIOUS AGENCIES	REQUEST FOR COMMENTS ON DRAFT ENGINEERING EVALUATION/ COST ANALYSIS FOR GROUP C SITES 1D, 1E, 30 AND 35 W/O ENCL (SEE AR #154 - DOCUMENT)	ADMIN RECORD BASE	COMMENTS EE/CA REQUEST	001D 001E GROUP C	SOUTHWEST DIVISION - BLDG. 1 BX-010 IMAGED CPEN_008

UIC No. / Rec. No.							Location
Doc. Control No.	Prc. Date	Author Affil.					FRC Access. No.
Record Type	Record Date	Author					FRC/SWDIV Box No.
Contr./Guid. No.	CTO No.	Recipient Affil.					FRC Warehouse Loc.
Approx. # Pages	EPA Cat. #	Recipient	Subject	Classification	Keywords	Sites	CD No.
M00681 / 003460	06-10-1998	JACOBS	DRAFT FINAL MINUTES OF THE 33RD	ADMIN RECORD	FFA	001D	SOUTHWEST
CLE-IO1-01F301-I2-	03-19-1997	ENGINEERING	FEDERAL FACILITY AGREEMENT (FFA)		MTG MINS	001E	DIVISION - BLDG. 1
0021	00301	J. GLEASON	PROJECT MANAGER'S MEETING HELD ON			003	
MM	10.4	VARIOUS	JANUARY 22-23 1997			006	
N68711-89-D-9296		AGENCIES				008	PROBLEM FILE
00131						014	CABINET
						AREA 22	IMAGED
						AREA 23	CPEN_008
						C	
						GROUP D	
						OU 2	
M00681 / 003347	08-27-1997	JACOBS ENG.	TRANSMITTAL OF PROJECT NOTE FOR	ADMIN RECORD	EE/CA	001D	SOUTHWEST
NONE	04-10-1997	SERVICES	PHASE III REMEDIALINVESTIGATION WORK		RI	001E	DIVISION - BLDG.
XMTL	00301	J. GLEASON	PLAN FOR GROUP C SITES		WORK PLAN	AREA 25	12
N68711-89-D-9296	03.3	NAVFAC -				AREA 31	
00007		SOUTHWEST				GROUP C	PALLET 09 - BX-05'
		DIVISION					IMAGED
		M. SCHWEER					CPEN_007

UIC No. / Rec. No.								Location
Doc. Control No.	Prc. Date	Author Affil.						FRC Access. No.
Record Type	Record Date	Author						FRC/SWDIV Box No.
Contr./Guid. No.	CTO No.	Recipient Affil.						FRC Warehouse Loc.
Approx. # Pages	EPA Cat. #	Recipient	Subject	Classification	Keywords	Sites	CD No.	
M00681 / 003384	09-16-1997	JACOBS	DRAFT FINAL MINUTES OF THE 35TH	ADMIN RECORD	BACKGROUND	001A	SOUTHWEST	
NONE	04-30-1997	ENGINEERING	FEDERAL FACILITY AGREEMENT (FFA)		BIOASSAY	001D	DIVISION - BLDG. 1	
MM	00301	R. SMITH	PROJECT MANAGER'S MEETING INCLUDES		CLOSURE	001E		
N68711-89-D-9296	10.4	NAVFAC -	SCHEDULE, SIGN-IN SHEETS AND		FFA	001F	BX-010	
00052		SOUTHWEST	MISCELLANEOUS HANDOUTS		GW	002A	IMAGED	
		DIVISION			MAP	002D	CPEN_008	
		M. SCHWEER			MONITORING	003		
					MTG MINS	006		
					REMOVAL	008		
					RI	010		
					ROD	014		
						016		
						017		
						021		
						022		
						023		
						BLDG. 2230		
						GROUP C		
						GROUP D		
						OU 2		
						OU 3		
						OU 4		

UIC No. / Rec. No.								Location
Doc. Control No.	Prc. Date	Author Affil.						FRC Access. No.
Record Type	Record Date	Author						FRC/SWDIV Box No.
Contr./Guid. No.	CTO No.	Recipient Affil.						FRC Warehouse Loc.
Approx. # Pages	EPA Cat. #	Recipient	Subject	Classification	Keywords	Sites	CD No.	
M00681 / 003388	09-16-1997	EPA, SAN	AMENDMENT DELETING SITES 8 AND 14	ADMIN RECORD	FFA	001A	SOUTHWEST	
NONE	07-29-1997	FRANCISCO	FROM FEDERAL FACILITY AGREEMENT		FS	001B	DIVISION - BLDG.	
LTR	NONE	S. LAUTH	(FFA) (SEE AR #3381)		GW	001C	12	
NONE	01.6	NAVFAC -			INVESTIGATION	001D		
00006		SOUTHWEST			LANDFILL	001E	PALLET 09 - BX-06	
		DIVISION			RI	001F	IMAGED	
		D. MANGOLD			SOIL	001G	CPEN_003	
						001H		
						001I		
						002A		
						002B		
						002C		
						002D		
						002E		
						002F		
						002G		
						003		
						004		
						004A		
						005		
						006		
						008		
						009		
						010		
						014		
						016		
						017		
						018		
						019		
						020		
						021		
						022		
						024		
						027		
						031		

UIC No. / Rec. No.								Location
Doc. Control No.	Prc. Date	Author Affil.						FRC Access. No.
Record Type	Record Date	Author						FRC/SWDIV Box No.
Contr./Guid. No.	CTO No.	Recipient Affil.						FRC Warehouse Loc.
Approx. # Pages	EPA Cat. #	Recipient	Subject	Classification	Keywords	Sites	CD No.	
						GROUP A		
						GROUP B		
						GROUP C		
						GROUP D		
						OU 1		
						OU 2		
						OU 4		
M00681 / 000140	06-07-2000	IT CORPORATION	DRAFT REMEDIAL INVESTIGATION AND	ADMIN RECORD	FS	001		SOUTHWEST
NONE	12-12-1997	R. SMITH	FEASIBILITY STUDY (RI/FS) VOLUMES I & II		LANDFILL	001A		DIVISION - BLDG.
RPT	DO 14	NAVFAC -	FOR OPERABLE UNIT 3		METALS	001D		12
N47408-92-D-3056		SOUTHWEST			OU	001E		
00955		DIVISION			PAH	001F		PALLET 09 - BX-06;
					PCB	002A		IMAGED
					RI	002D		CPEN_009
					SOIL	007		
					SVOC	010		
					TCE	030		
					TPH	035		
					VOC	OU 3		
M00681 / 000141	06-07-2000	IT CORPORATION	DRAFT FINAL REMEDIAL INVESTIGATION	ADMIN RECORD	FS	001		SOUTHWEST
NONE	05-01-1998	R. SMITH	AND FEASIBILITY STUDY (RI/FS) FOR	BASE	LANDFILL	001A		DIVISION - BLDG.
RPT	DO 14	NAVFAC -	OPERABLE UNIT 3 VOLUMES I & II OF II	INFO	METALS	001D		12
N47408-92-D-3056		SOUTHWEST		REPOSITORY	OU	001E		
00960		DIVISION			PAH	001F		PALLET 09 - BX-06;
					PCB	001H		IMAGED
					RI	002A		CPEN_009
					SOIL	002D		
					SVOC	002F		
					TCE	007		
					TPH	010		
					VOC	030		
						035		
						OU 3		

UIC No. / Rec. No.								Location
Doc. Control No.	Prc. Date	Author Affil.						FRC Access. No.
Record Type	Record Date	Author						FRC/SWDIV Box No.
Contr./Guid. No.	CTO No.	Recipient Affil.						FRC Warehouse Loc.
Approx. # Pages	EPA Cat. #	Recipient	Subject	Classification	Keywords	Sites	CD No.	
M00681 / 000142	06-07-2000	IT CORPORATION	DRAFT RECORD OF DECISION FOR OPERABLE UNIT (OU) 3 [SEE AR #181 - RESPONSE TO COMMENTS]	ADMIN RECORD	DCA	001A	SOUTHWEST DIVISION - BLDG. 1	
NONE	05-01-1998			BASE	DCE	001B		
RPT	NONE	NAVFAC - SOUTHWEST DIVISION			DDD	001C		
NONE					DDE	001D		
00272					DDT	001E	BX-002	
					FS	001F	IMAGED	
					GW	001H	CPEN_004	
					LANDFILL	001I		
					OU	002A		
					PAH	002C		
					PCB	002D		
					PCE	002E		
					PCP	002F		
					RI	002G		
					ROD	007		
					SOIL	010		
					SVOC	016		
					TCA	017		
					TCE	018		
					TPH	027		
					TVH	030		
					UST	032		
					VOC	034		
						035		
						036		
						037		
						038		
						039		
						040		
						041		
						042		
						OU 3		

UIC No. / Rec. No.								Location
Doc. Control No.	Prc. Date	Author Affil.						FRC Access. No.
Record Type	Record Date	Author						FRC/SWDIV Box No.
Contr./Guid. No.	CTO No.	Recipient Affil.						FRC Warehouse Loc.
Approx. # Pages	EPA Cat. #	Recipient	Subject	Classification	Keywords	Sites	CD No.	
M00681 / 000144	08-29-2000	NAVFAC -	PROPOSED PLAN FOR REMEDIAL ACTION	ADMIN RECORD	ARAR	001A	SOUTHWEST	
NONE	05-01-1998	SOUTHWEST	AT OPERABLE UNIT 3 SITES (ORIGINAL	BASE	ARSENIC	001B	DIVISION - BLDG. 1	
RPT	NONE	DIVISION	CLIPPINGS FROM SUN POST NEWS IS		CANCER	001C		
NONE			ATTACHED DATED MAY 1998)		COC	001D		
00027		GENERAL PUBLIC			CRP	001E	BX-002	
					DDD	001F	IMAGED	
					DDE	001H	CPEN_004	
					EE/CA	001I		
					FFA	002A		
					FS	002C		
					GW	002D		
					LF	002E		
					METALS	002F		
					MONITORING	002G		
					NCP	007		
					NPL	010		
					RA	016		
					RI	017		
					RISK	018		
					SOIL	027		
						030		
						032		
						034		
						035		
						036		
						037		
						038		
						039		
						040		
						041		
						042		
						OU 3		

UIC No. / Rec. No.								Location
Doc. Control No.	Prc. Date	Author Affil.						FRC Access. No.
Record Type	Record Date	Author						FRC/SWDIV Box No.
Contr./Guid. No.	CTO No.	Recipient Affil.						FRC Warehouse Loc.
Approx. # Pages	EPA Cat. #	Recipient	Subject	Classification	Keywords	Sites	CD No.	
M00681 / 000021	08-04-1999	NAVFAC -	REMEDIAL INVESTIGATION, FEASIBILITY	ADMIN RECORD	CAMU	001D	SOUTHWEST	
SWDIV SER	11-09-1998	SOUTHWEST	STUDY FOR REPORT DATED 4 JUNE 1998		DLM	001E	DIVISION - BLDG. 1	
5CEN/945	NONE	DIVISION	(WITH ENCLOSURES)		DON	001F		
LTR	03.6	D. MANGOLD			DTSC	002A	BX-001	
NONE		VARIOUS			FS	007	IMAGED	
00016					LANDFILL	OU 3	CPEN_007	
					RI			
					ROD			
					RWQCB			
					TCLP			

UIC No. / Rec. No.								Location
Doc. Control No.	Prc. Date	Author Affil.						FRC Access. No.
Record Type	Record Date	Author						FRC/SWDIV Box No.
Contr./Guid. No.	CTO No.	Recipient Affil.						FRC Warehouse Loc.
Approx. # Pages	EPA Cat. #	Recipient	Subject	Classification	Keywords	Sites	CD No.	
M00681 / 000042	08-05-1999	OHM	DRAFT REMEDIAL DESIGN AND REMEDIAL	ADMIN RECORD	ARAR	001A		SOUTHWEST
SW5740	12-04-1998	REMEDATION	ACTION WORK PLAN		CAMU	001D		DIVISION - BLDG.
PLAN	DO 105	T. CHADWELL			CCR	001E		12
N68711-93-D-1459	03.3	NAVFAC -			CERCLA	001F		
00489		SOUTHWEST			CFR	002A		PALLET 09 - BX-06i
		DIVISION			COC	OU 3		IMAGED
					COEC			CPEN_009
					COPC			
					COPEC			
					CQC			
					CRDL			
					DCI			
					DDE			
					DDT			
					DEH			
					DLM			
					DON			
					DONT			
					DQOP			
					DRMO			
					DTSC			
					ECP			
					EDD			
					EDXRF			
					FFA			
					FS			
					FSP			
					GIS			
					HDPE			
					HHRA			
					HISTORIC			
					HQ			
					IRP			
					LDR			
					MIS			

UIC No. / Rec. No.								Location	
Doc. Control No.	Prc. Date	Author Affil.							FRC Access. No.
Record Type	Record Date	Author							FRC/SWDIV Box No.
Contr./Guid. No.	CTO No.	Recipient Affil.							FRC Warehouse Loc.
Approx. # Pages	EPA Cat. #	Recipient		Subject		Classification	Keywords	Sites	CD No.
							MLLW		
							MTC		
							NOI		
							NPDES		
							NTR		
							OHSA		
							PA		
							PLE		
							POL		
							PPE		
							PRG		
							QA		
							QAPP		
							QC		
							RA		
							RACER		
							RD		
							RI		
							ROD		
							ROICC		
							RWQCB		
							SAP		
							SARA		
							SHSP		
							SI		
							SVOC		
							SWPPP		
							TCP		
							TPH		
							UCL		
							VOC		

UIC No. / Rec. No.								Location
Doc. Control No.	Prc. Date	Author Affil.						FRC Access. No.
Record Type	Record Date	Author						FRC/SWDIV Box No.
Contr./Guid. No.	CTO No.	Recipient Affil.						FRC Warehouse Loc.
Approx. # Pages	EPA Cat. #	Recipient	Subject	Classification	Keywords	Sites	CD No.	
M00681 / 000145	08-29-2000	IT CORPORATION	FINAL - RECORD OF DECISION OPERABLE	ADMIN RECORD	ARAR	001A		SOUTHWEST
NONE	01-11-1999		UNIT (OU) 3	BASE	ARSENIC	001B		DIVISION - BLDG. 1
RPT	NONE	NAVFAC -		INFO	CFR	001C		
N47408-92-D-3056		SOUTHWEST		REPOSITORY	COC	001D		
00421		DIVISION			COEC	001E		BX-002
					COPC	001F		IMAGED
					COPEC	001I		CPEN_004
					DCA	002A		
					DCE	002C		
					DDD	002D		
					DDE	002F		
					DDT	002G		
					EE/CA	007		
					ERA	010		
					FFA	016		
					FID	017		
					FS	018		
					GW	027		
					HPCDD	032		
					HPCDF	034		
					HXCDD	035		
					IAS	036		
					LUFT	037		
					METALS	038		
					NCP	039		
					NPL	040		
					PAH	041		
					PCB	042		
					PCE	OU 3		
					PCP			
					POL			
					PR			
					PRG			
					RCRA			
					RFA			

UIC No. / Rec. No.								Location	
Doc. Control No.	Prc. Date	Author Affil.						FRC Access. No.	
Record Type	Record Date	Author						FRC/SWDIV Box No.	
Contr./Guid. No.	CTO No.	Recipient Affil.						FRC Warehouse Loc.	
Approx. # Pages	EPA Cat. #	Recipient		Subject		Classification	Keywords	Sites	CD No.

RI
 ROD
 SARA
 SOIL
 SVOC
 TCA
 TCE
 TPH
 TVH
 UST
 VOC

UIC No. / Rec. No.								Location
Doc. Control No.	Prc. Date	Author Affil.						FRC Access. No.
Record Type	Record Date	Author						FRC/SWDIV Box No.
Contr./Guid. No.	CTO No.	Recipient Affil.						FRC Warehouse Loc.
Approx. # Pages	EPA Cat. #	Recipient	Subject	Classification	Keywords	Sites	CD No.	
M00681 / 000055	08-05-1999	OHM	DRAFT ENGINEERING EVALUATION AND COST ANALYSIS (EE/CA) - FIRING RANGE SOIL	ADMIN RECORD BASE	APCD	030	SOUTHWEST DIVISION - BLDG. 1	
SW6667	05-06-1999	R. SMITH			ARAR			
RPT	DO 105	NAVFAC -			ARTTIC			
N68711-93-D-1459	02.4	SOUTHWEST			CAL EPA			
00169		DIVISION			CAMU		BX-001	
					CCR		IMAGED	
					CERCLA		CPEN_007	
					CFR			
					CLP			
					COC			
					COEC			
					COPEC			
					DI			
					DLM			
					DOT			
					DTSC			
					EDXRF			
					EE/CA			
					EPA			
					FFA			
					HHRA			
					HI			
					HQ			
					ILCR			
					IR			
					NCP			
					OSHA			
					PLE			
					PPE			
					PRG			
					RACER			
					RCOC			
					RCRA			
					RFA			
					RI			

UIC No. / Rec. No.								Location	
Doc. Control No.	Prc. Date	Author Affil.							FRC Access. No.
Record Type	Record Date	Author							FRC/SWDIV Box No.
Contr./Guid. No.	CTO No.	Recipient Affil.							FRC Warehouse Loc.
Approx. # Pages	EPA Cat. #	Recipient		Subject		Classification	Keywords	Sites	CD No.

SARA
SPLP
TAL
VISITT
WET

UIC No. / Rec. No.								Location
Doc. Control No.	Prc. Date	Author Affil.					FRC Access. No.	
Record Type	Record Date	Author					FRC/SWDIV Box No.	
Contr./Guid. No.	CTO No.	Recipient Affil.					FRC Warehouse Loc.	
Approx. # Pages	EPA Cat. #	Recipient	Subject	Classification	Keywords	Sites	CD No.	
M00681 / 003518	08-03-1999	OHM	DRAFT FINAL REMEDIAL DESIGN AND	ADMIN RECORD	ARAR	001A	SOUTHWEST	
SW6669	05-17-1999	REMEDICATION	REMEDIAL ACTION WORK PLAN		CCR	001D	DIVISION - BLDG. 1	
RPT	DO 105	T. CHADWELL	(INCLUDES - SITE HEALTH & SAFETY PLAN;		CD	001E		
N68711-93-D-1459	03.4	NAVFAC -	CONFIRMATION SAMPLING DESIGN		CERCLA	001F		
00507		SOUTHWEST	PROCESS; FIELD SAMPLING PLAN; QUALITY		CFR	002A	BX-011	
		DIVISION	ASSURANCE PROJECT PLAN;		COC	OU 3	IMAGED	
			CONTRACTOR QC PLAN ADDNDM; STORM		COEC		CPEN_008	
			WATER POLLUTION PREVENTION PLAN)		COPC			
					COPEC			
					CQC			
					DDE			
					DDT			
					DEH			
					EPA			
					FFA			
					FS			
					FSP			
					GIS			
					HDPE			
					HHRA			
					HI			
					HQ			
					IRP			
					LDR			
					MLLW			
					OSHA			
					OU			
					PPE			
					PRG			
					PSI			
					QA			
					QAPP			
					QC			
					RA			
					RACER			

UIC No. / Rec. No.								Location	
Doc. Control No.	Prc. Date	Author Affil.							FRC Access. No.
Record Type	Record Date	Author							FRC/SWDIV Box No.
Contr./Guid. No.	CTO No.	Recipient Affil.							FRC Warehouse Loc.
Approx. # Pages	EPA Cat. #	Recipient	Subject	Classification	Keywords	Sites	CD No.		
M00681 / 000092 NONE MM NONE 00005	10-10-2002 06-03-1999 NONE	NAVFAC - SOUTHWEST DIVISION NAVFAC - SOUTHWEST DIVISION	50TH FEDERAL FACILITY AGREEMENT (FFA) PROJECT MANAGER'S MEETING MINUTES (DOCUMENT IS UNDATED - USED MEETING DATE FOR RECORD DATE)	ADMIN RECORD	RD	001A 001D 001E 001F 002A 003 006 007 030 OU 3 OU 4 OU 5	SOUTHWEST DIVISION - BLDG. 12 PALLET 09 - BX-06' IMAGED CPEN_008		
					RI				
					SAP				
					SARA				
					SHSP				
					SVOC				
					TCP				
					FFA				
					MTG MINS				
M00681 / 001847 SW7166 MISC N68711-93-D-1459 00030	05-14-2003 08-20-1999 DO 138	OHM REMEDIATION SERVICES, CORP NAVFAC - SOUTHWEST DIVISION	51ST FEDERAL FACILITY AGREEMENT (FFA) REMEDIAL PROJECT MANAGERS' MEETING MINUTES FOR MEETING HELD ON 20 AUGUST 1999	ADMIN RECORD BASE INFO REPOSITORY	MTG MINS	001A 001D 001E 001F 002A 030 OU 3	SOUTHWEST DIVISION - BLDG. 1 PROBLEM SHELVING		
M00681 / 000184 NONE LTR NONE 00004	11-20-2000 10-05-1999 NONE	CRWQCB, SD REGION J. ODERMATT NAVFAC - SOUTHWEST DIVISION M. RADECKI	REVIEW AND COMMENTS ON DRAFT LABORATORY TREATABILITY STUDY PLAN, FIRING RANGE SOIL IN 31 AREA	ADMIN RECORD BASE	ARAR EE/CA IRP METALS RI	030	SOUTHWEST DIVISION - BLDG. 1 BX-003 IMAGED CPEN_006		

UIC No. / Rec. No.								Location
Doc. Control No.	Prc. Date	Author Affil.						FRC Access. No.
Record Type	Record Date	Author						FRC/SWDIV Box No.
Contr./Guid. No.	CTO No.	Recipient Affil.						FRC Warehouse Loc.
Approx. # Pages	EPA Cat. #	Recipient	Subject	Classification	Keywords	Sites	CD No.	
M00681 / 000185 NONE LTR NONE 00005	11-20-2000 10-19-1999 NONE	DTSC - CYPRESS M. ALONZO NAVFAC - SOUTHWEST DIVISION M. RADECKI	REVIEW AND COMMENTS ON DRAFT LABORATORY TREATABILITY STUDY PLAN, FIRING RANGE FILL SOIL IN 31 AREA	ADMIN RECORD BASE	ARAR COMMENTS EE/CA	030		SOUTHWEST DIVISION - BLDG. 1 BX-003 IMAGED CPEN_006
M00681 / 000187 NONE MISC NONE 00026	11-20-2000 10-20-1999 NONE	DTSC - CYPRESS M. ALONZO NAVFAC - SOUTHWEST DIVISION M. RADECKI	CHEMICAL STABILIZATION AS A BASIS OF TREATMENT STANDARD REGULATIONS FOR NON-RCRA SOLID HAZARDOUS WASTE WITH METALS (ATTACHMENT TO SITE 30 TREATABILITY STUDY PLAN COMMENTS)	ADMIN RECORD BASE	HAZ WASTE METALS RCRA	030		SOUTHWEST DIVISION - BLDG. 1 CHECKED OUT BY M. BILODEAU X. 2- 3829 ON 08/25/04
M00681 / 000100 SW7607 & PROJECT NO. 780516 MM NONE 00020	10-10-2002 11-30-1999 NONE	JACOBS ENGINEERING GROUP, INC. NAVFAC - SOUTHWEST DIVISION	MINUTES OF THE 52ND FEDERAL FACILITY AGREEMENT (FFA) PROJECT MANAGER'S MEETING HELD 8 NOVEMBER 1999	ADMIN RECORD	DDT EE/CA FFA MTG MINS	001A 001D 001E 001F 002A 006 030 GROUP D OU 1 OU 3 OU 4 OU 5		SOUTHWEST DIVISION - BLDG. 12 PALLET 09 - BX-06' IMAGED CPEN_008
M00681 / 000197 NONE FAX NONE 00004	11-21-2000 11-30-1999 NONE	DTSC - CYPRESS M. ALONZO NAVFAC - SOUTHWEST DIVISION M. RADECKI	MS PROJECT FEDERAL FACILITY AGREEMENT (FFA) SCHEDULES - REGULATOR MADE SOME CHANGES TO THE MS PROJECT GANTT CHART (SENT BY FAX)	ADMIN RECORD BASE	FFA OU REMEDIAL ACTIO REMOVAL	007 030 OU 1 OU 3 OU 4 OU 5		SOUTHWEST DIVISION - BLDG. 1 BX-003 IMAGED CPEN_006

UIC No. / Rec. No.								Location
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Record Type	Record Date	Author						FRC/SWDIV Box No.
Contr./Guid. No.	CTO No.	Recipient Affil.						FRC Warehouse Loc.
Approx. # Pages	EPA Cat. #	Recipient	Subject	Classification	Keywords	Sites	CD No.	
M00681 / 000202 NONE LTR NONE 00001	11-21-2000 11-30-1999 NONE	USEPA, REGION IX S. LAUTH MCB CAMP PENDLETON J. JOY	REVIEW OF PROPOSED SCHEDULE FOR OU 4, SITE 30 AND THE PETROLEUM/CERCLA SITES	ADMIN RECORD BASE	FFA FS OU	030 OU 4	SOUTHWEST DIVISION - BLDG. 1 BX-003 IMAGED CPEN_006	
M00681 / 000211 NONE LTR NONE 00005	11-21-2000 12-06-1999 NONE	DTSC - CYPRESS J. SCANDURA MCB, CAMP PENDLETON J. JOY	RESPONSE TO RESUBMISSION OF EXTENSION REQUEST OF FEDERAL FACILITY AGREEMENT (FFA) DEADLINE FOR OPERABLE UNIT (OU) 4 DATED 22 NOVEMBER 1999 (SEE AR #196 - LETTER)	ADMIN RECORD BASE	EE/CA FFA OU RD REMEDIAL ACTIO RI/FS	007 030 OU 1 OU 3 OU 4 OU 5	SOUTHWEST DIVISION - BLDG. 1 BX-003 IMAGED CPEN_006	
M00681 / 000127 SW8015 RPT N68711-93-D-1459 00150	05-03-2000 02-21-2000 DO 105	OHM REMEDIATION SERVICES CORP. J. RICHARDS NAVFAC - SOUTHWEST DIVISION B. DEMAREE	REVISED TREATABILITY STUDY WORK PLAN	ADMIN RECORD BASE	ARSENIC COC COEC DI DQO EE/CA FFA FS OU QAPP RCRA RFA RI ROD SOIL	007 030 OU 3 OU 4	SOUTHWEST DIVISION - BLDG. 1 BNI 01/08/03 - CHECKED OUT BY M. BILODEAU X. 2- 3829 ON 08/25/04	

UIC No. / Rec. No.								Location
Doc. Control No.	Prc. Date	Author Affil.						FRC Access. No.
Record Type	Record Date	Author						FRC/SWDIV Box No.
Contr./Guid. No.	CTO No.	Recipient Affil.						FRC Warehouse Loc.
Approx. # Pages	EPA Cat. #	Recipient	Subject	Classification	Keywords	Sites	CD No.	
M00681 / 000215 NONE LTR NONE 00011	11-21-2000 03-21-2000 NONE	CRWQCB, SD REGION J. ODERMATT NAVFAC - SOUTHWEST DIVISION M. RADECKI	COMMENTS ON REVISED TREATABILITY STUDY WORK PLAN DATED FEBRUARY 21, 2000 (SEE AR #127 - DOCUMENT)	ADMIN RECORD BASE	EE/CA FFA IR OU	030		SOUTHWEST DIVISION - BLDG. 1 BX-003 IMAGED CPEN_006
M00681 / 000124 SW7923 PLAN N68711-93-D-1459 00303	05-02-2000 04-12-2000 DO 105	OHM REMEDIATION SERVICES CORP. J. RICHARDS NAVFAC - SOUTHWEST DIVISION B. DEMAREE	DRAFT STORM-WATER POLLUTION PREVENTION PLAN, CORRECTIVE ACTION MANAGEMENT UNIT, REVISION 0	ADMIN RECORD BASE	COC METALS POL SOIL STORMWATER	001A 001D 001E 001F 002A 007 OU 3		SOUTHWEST DIVISION - BLDG. 12 PALLET 09 - BX-06i IMAGED CPEN_009
M00681 / 000221 NONE LTR NONE 00005	11-21-2000 04-13-2000 NONE	DTSC - CYPRESS M. ALONZO NAVFAC - SOUTHWEST DIVISION M. RADECKI	REVIEW AND COMMENTS ON REVISED TREATABILITY STUDY WORK PLAN (SEE AR #127 - DOCUMENT)	ADMIN RECORD BASE	ARAR COMMENTS FFA RCRA	030		SOUTHWEST DIVISION - BLDG. 1 BX-003 IMAGED CPEN_006

UIC No. / Rec. No.								Location	
Doc. Control No.	Prc. Date	Author Affil.							FRC Access. No.
Record Type	Record Date	Author							FRC/SWDIV Box No.
Contr./Guid. No.	CTO No.	Recipient Affil.							FRC Warehouse Loc.
Approx. # Pages	EPA Cat. #	Recipient	Subject	Classification	Keywords	Sites	CD No.		
M00681 / 000101	10-10-2002	IT CORPORATION	MINUTES OF THE 54TH FEDERAL FACILITY	ADMIN RECORD	FFA	001		SOUTHWEST	
SW8423 &	05-08-2000		AGREEMENT (FFA) PROJECT MANAGER'S		MTG MINS	001A		DIVISION - BLDG.	
PROJECT NO.	NONE	NAVFAC -	MEETING HELD ON 29 FEBRUARY 2000			001D		12	
780516		SOUTHWEST				001E			
MM		DIVISION				002A		PALLET 09 - BX-06	
NONE						005		IMAGED	
00013						008		CPEN_008	
						009			
						017			
						030			
						033			
						52651			
						OU 3			
						OU 4			

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Doc. Control No.	Prc. Date	Author Affil.							FRC Access. No.
Record Type	Record Date	Author							FRC/SWDIV Box No.
Contr./Guid. No.	CTO No.	Recipient Affil.							FRC Warehouse Loc.
Approx. # Pages	EPA Cat. #	Recipient	Subject	Classification	Keywords	Sites	CD No.		
M00681 / 000089	10-10-2002	US EPA - SAN FRANCISCO, CA	REVISED FEDERAL FACILITY AGREEMENT (FFA) SCHEDULE FOR OPERABLE UNITS (OU) 3 AND 4 (INCLUDES APPX. A - MILESTONES AND SCHEDULES FOR MULTIPLE OU'S, SITES AND GROUPS [SEE SITE FIELD BELOW])	ADMIN RECORD	FFA	001A		SOUTHWEST DIVISION - BLDG. 12	
NONE	09-28-2000	S. LAUTH				001A-1			
LTR	NONE	NAVFAC - SOUTHWEST DIVISION				001B			
NONE		M. RADECKI				001C			
00006						001D		PALLET 09 - BX-06;	
						001E		IMAGED	
						001E-1		CPEN_009	
						001F			
						001H			
						001I			
						002A			
						002B			
						002C			
						002D			
						002E			
						002F			
						002G			
						003			
						004			
						004A			
						005			
						006			
						006A			
						007			
						008A			
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UIC No. / Rec. No.								Location	
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Record Type	Record Date	Author							FRC/SWDIV Box No.
Contr./Guid. No.	CTO No.	Recipient Affil.							FRC Warehouse Loc.
Approx. # Pages	EPA Cat. #	Recipient		Subject		Classification	Keywords	Sites	CD No.
								021	
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								041	
								042	
								043	
								044	
								045	
								058	
								062	
								111	
								GROUP A	
								GROUP B	
								GROUP C	
								GROUP D	
								OU 1	
								OU 2	
								OU 3	
								OU 4	
								OU 5	

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Approx. # Pages	EPA Cat. #	Recipient	Subject	Classification	Keywords	Sites	CD No.
M00681 / 000234 NONE PLAN N68711-00-F-7907 00150	11-21-2000 10-01-2000 NONE	PARSONS ENGINEERING SCIENCE S. GRISWOLD MCB CAMP PENDLETON	DRAFT QUALITY ASSURANCE PROJECT PLAN SUPPLEMENTAL OU4, REMEDIAL INVESTIGATION/FEASIBILITY STUDY DATED OCTOBER 2000 (*SEE COMMENTS)	ADMIN RECORD BASE	IR QAPP RI/FS TPH VOC	001D 001E 001H 030 AREA 22 AREA 23 OU 4	SOUTHWEST DIVISION - BLDG. 1 PROBLEM SHELVING
M00681 / 000235 NONE PLAN N68711-00-F-7907 00060	11-21-2000 10-30-2000 NONE	PARSONS ENGINEERING SCIENCE MCB CAMP PENDLETON	DRAFT SUPPLEMENTAL OU 4 FEASIBILITY STUDY WORK PLAN (*SEE COMMENTS) {SEE AR #1585 - COMMENTS BY US EPA, & #1586 - COMMENTS BY CRWQCB}	ADMIN RECORD BASE	FS GW OU SOIL VOC	001D 001E 001H 030 AREA 22 AREA 23 OU 4	SOUTHWEST DIVISION - BLDG. 1 PROBLEM SHELVING
M00681 / 000181 NONE MISC NONE 00026	11-20-2000 11-20-2000 NONE	IT CORPORATION NAVFAC - SOUTHWEST DIVISION	RESPONSE TO REGULATORS' COMMENTS ON DRAFT RECORD OF DECISION, OPERABLE UNIT 3 (SEE AR #142 - DOCUMENT) * SEE COMMENTS	ADMIN RECORD BASE	ARAR COMMENTS OU RESPONSE ROD	001A 001D 001E 001F 002A 007 OU 3	SOUTHWEST DIVISION - BLDG. 1 BX-003 IMAGED CPEN_006

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Approx. # Pages	EPA Cat. #	Recipient	Subject	Classification	Keywords	Sites	CD No.	
M00681 / 001585	08-28-2001	US EPA - SAN	COMMENTS ON THE DRAFT	ADMIN RECORD	BACKGROUND	001D		SOUTHWEST
NONE	12-06-2000	FRANCISCO	SUPPLEMENTAL OU 4 FEASIBILITY STUDY	BASE	CANCER	001E-1		DIVISION - BLDG.
MISC	NONE	S. LAUTH	WORK PLAN (SEE AR #235 - WORK PLAN)		CHAR	001H		12
NONE		NAVFAC -			COC	030		
00006		SOUTHWEST			COMMENTS	AREA 22		PALLET 09 - BX-06.
		DIVISION			DATA	AREA 23		IMAGED
		M. RADECKI			DISPOSAL	OU 4		CPEN_009
					DQO			
					FS			
					HERBICIDE			
					METALS			
					ORDNANCE			
					PCB			
					PESTICIDES			
					PRG			
					QA			
					QAPP			
					SOIL			
					SVOC			
					TCLP			
					UXO			
					VOC			
					WORK PLAN			

[illegible]

UIC No. / Rec. No.								Location
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Record Type	Record Date	Author					FRC/SWDIV Box No.	
Contr./Guid. No.	CTO No.	Recipient Affil.					FRC Warehouse Loc.	
Approx. # Pages	EPA Cat. #	Recipient	Subject	Classification	Keywords	Sites	CD No.	
M00681 / 001752	09-13-2001	PARSONS	DRAFT FINAL QUALITY ASSURANCE	ADMIN RECORD	ARSENIC	001D	SOUTHWEST	
GS-10F-0179J	03-22-2001	ENGINEERING	PROJECT PLAN SUPPLEMENTAL	BASE	COC	001E-1	DIVISION - BLDG. 1	
RPT	NONE	SCIENCE	OPERABLE UNIT (OU) 4, REMEDIAL		DCE	001H		
N68711-00-F-7907		S. GRISWOLD	INVESTIGATION/FEASIBILITY STUDY [SEE		DISPOSAL	004	PROBLEM	
00250		NAVFAC -	AR #3590 - DRAFT SAP]		DQO	004A	SHELVING	
		SOUTHWEST			FS	006		
		DIVISION			GC/MS	016		
					GW	017		
					HAZ WASTE	027		
					METALS	030		
					MW	AREA 22		
					PCE	AREA 23		
					PID	OU 4		
					QA			
					QAPP			
					QC			
					RI			
					SOIL			
					SOIL BORING			
					SOLVENTS			
					TCE			
					TIC			
					TPH			
					VOC			
					WELLS			

UIC No. / Rec. No.							Location
Doc. Control No.	Prc. Date	Author Affil.					FRC Access. No.
Record Type	Record Date	Author					FRC/SWDIV Box No.
Contr./Guid. No.	CTO No.	Recipient Affil.					FRC Warehouse Loc.
Approx. # Pages	EPA Cat. #	Recipient	Subject	Classification	Keywords	Sites	CD No.
M00681 / 001753 GS-10F-0179J RPT N68711-00-F-7907 00250	09-13-2001 03-22-2001 NONE	PARSONS ENGINEERING SCIENCE S. GRISWOLD NAVFAC - SOUTHWEST DIVISION	DRAFT FINAL SUPPLEMENTAL OU 4 FEASIBILITY STUDY FIELD SAMPLING PLAN [SEE AR #3590 - DRAFT SAP]	ADMIN RECORD BASE	COPC DCE DQO FS FSP GW HAZ WASTE METALS MW PCB PCE PRG SOIL SOIL BORING SOLVENTS SVOC TCE VOC WATER WELLS	001D 001E-1 001H 004 004A 006 016 017 027 030 AREA 22 AREA 23 AREA 32 OU 4	SOUTHWEST DIVISION - BLDG. 1
M00681 / 001589 NONE LTR NONE 00002	08-28-2001 04-25-2001 NONE	DTSC - CYPRESS E. YEMUT NAVFAC - SOUTHWEST DIVISION K. BEVERLY	DTSC CONCURS WITH DRAFT FINAL SUPPLEMENTAL OU 4 FEASIBILITY STUDY FIELD SAMPLING PLAN	ADMIN RECORD BASE INFO REPOSITORY	COMMENTS FS FSP	001D 001E-1 001H 030 AREA 22 AREA 23 OU 4	SOUTHWEST DIVISION - BLDG. 12 PALLET 09 - BX-06- IMAGED CPEN_009
M00681 / 001590 NONE CORRESP NONE 00002	08-28-2001 06-05-2001 NONE	CRWQCB - SAN DIEGO J. ANDERSON NAVFAC - SOUTHWEST DIVISION K. BEVERLY	RESPONSE TO RESPONSE TO COMMENTS ON THE DRAFT SUPPLEMENTAL OPERABLE UNIT (OU) 4 FEASIBILITY STUDY WORK PLAN	ADMIN RECORD BASE	COMMENTS FS GW ROD SOIL SOIL BORING WORK PLAN	001D 001E-1 001H 030 AREA 22 AREA 23 OU 4	SOUTHWEST DIVISION - BLDG. 12 PALLET 09 - BX-06- IMAGED CPEN_009

UIC No. / Rec. No.							Location
Doc. Control No.	Prc. Date	Author Affil.					FRC Access. No.
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Approx. # Pages	EPA Cat. #	Recipient	Subject	Classification	Keywords	Sites	CD No.
M00681 / 001582 SWDIV SER 5CEN.KS/435 XMTL NONE 00005	08-08-2001 07-12-2001 NONE	NAVFAC - SOUTHWEST DIVISION K. BEVERLY CRWQCB - SAN DIEGO B. GRIFFEY	TRANSMITTAL OF THE RESPONSE TO RWQCB RESPONSE TO RESPONSE TO COMMENTS ON THE DRAFT SUPPLEMENTAL OU 4 WORK PLAN (SEE AR #235 - WORK PLAN)	ADMIN RECORD	CHAR COMMENTS FFA GW RESPONSE ROD SOIL SOIL BORING	001D 001E-1 001H 030 22 AREA 23 AREA OU 4	SOUTHWEST DIVISION - BLDG. 12 PALLET 09 - BX-06- IMAGED CPEN_009
M00681 / 001596 SWDIV SER 5CEN/521 & PROJECT NO. 737572 MM N68711-00-F-7907 00008	09-05-2001 08-23-2001 NONE	NAVFAC - SOUTHWEST DIVISION K. BEVERLY CRWQCB, DTSC, US EPA GRIFFEY, ALONZO, HAUSLADEN	TRANSMITTAL LETTER AND 65TH FEDERAL FACILITY AGREEMENT (FFA) MEETING MINUTES HELD ON 25 JULY 2001	ADMIN RECORD BASE INFO REPOSITORY	FFA GW MONITORING MTG MINS ROD SEDIMENTS SOIL SOIL BORING SVOC	001A-1 001D 001E-1 006A 007 009 030 033 1111 AREA 12 AREA 13 AREA 22 AREA 23 OU 1 OU 3 OU 4 OU 5	SOUTHWEST DIVISION - BLDG. 1 PROBLEM SHELVING

UIC No. / Rec. No.								Location
Doc. Control No.	Prc. Date	Author Affil.					FRC Access. No.	
Record Type	Record Date	Author					FRC/SWDIV Box No.	
Contr./Guid. No.	CTO No.	Recipient Affil.					FRC Warehouse Loc.	
Approx. # Pages	EPA Cat. #	Recipient	Subject	Classification	Keywords	Sites	CD No.	
M00681 / 001779	01-02-2002	NAVFAC -	TRANSMITTAL LETTER AND 66TH FEDERAL	ADMIN RECORD	BTEX	001A	SOUTHWEST	
NONE	12-18-2001	SOUTHWEST	FACILITY AGREEMENT (FFA) MEETING	BASE	DCA	001D	DIVISION - BLDG.	
MM	NONE	DIVISION	MINUTES HELD ON 14 NOVEMBER 2001	INFO	FFA	007	12	
NONE		K. BEVERLY	(SEE AR #1790 - REVISED MINUTES)	REPOSITORY	FUEL	009		
00103		CRWQCB, DTSC,			GW	062	PALLET 09 - BX-06;	
		& US EPA			MONITORING	1111	IMAGED	
		GRIFFEY,			MTG MINS	AREA 12	CPEN_008	
		ALONZO, &			PCB	AREA 13		
		HAUSLADEN			PCE	OU 3		
					ROD	OU 4		
					SOIL	OU 5		
					SOIL BORING			
					UST			
					VOC			
					WELLS			
					WORK PLAN			

UIC No. / Rec. No.								Location
Doc. Control No.	Prc. Date	Author Affil.					FRC Access. No.	
Record Type	Record Date	Author					FRC/SWDIV Box No.	
Contr./Guid. No.	CTO No.	Recipient Affil.					FRC Warehouse Loc.	
Approx. # Pages	EPA Cat. #	Recipient	Subject	Classification	Keywords	Sites	CD No.	
M00681 / 001783	01-17-2002	BECHTEL	FINAL COMMUNITY RELATIONS PLAN FOR	ADMIN RECORD	ACTMEMO	001A	SOUTHWEST	
CTO-0211/0040	01-01-2002	NATIONAL, INC.	THE INSTALLATION RESTORATION	BASE	CERCLA	001A-1	DIVISION - BLDG.	
PLAN	00211		PROGRAM {CONTAINS SWDIV	INFO	CRP	001B	12	
N68711-92-D-4670		NAVFAC -	TRANSMITTAL LETTER AND RESPONSE TO	REPOSITORY	EE/CA	001C		
00054		SOUTHWEST	COMMENTS ON THE DRAFT CRP}		GW	001D	PALLET 09 - BX-06;	
		DIVISION			IRP	001E	IMAGED	
					LF	001E-1	CPEN_008	
					NCP	001F		
					PIM	001H		
					RCRA	001I		
					REMEDIAL ACTIO	002A		
					REMOVAL	002B		
					RSE	002C		
					SARA	002D		
					SOIL	002E		
					UST	002F		
						002G		
						003		
						004		
						004A		
						005		
						006		
						006A		
						007		
						008A		
						009		
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						016		
						017		
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						020		
						021		
						022		
						024		

UIC No. / Rec. No.								Location	
Doc. Control No.	Prc. Date	Author Affil.							FRC Access. No.
Record Type	Record Date	Author							FRC/SWDIV Box No.
Contr./Guid. No.	CTO No.	Recipient Affil.							FRC Warehouse Loc.
Approx. # Pages	EPA Cat. #	Recipient		Subject		Classification	Keywords	Sites	CD No.
								027	
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								042	
								043	
								044	
								045	
								062	
								1111	
								OU 1	
								OU 2	
								OU 3	
								OU 4	
								OU 5	

UIC No. / Rec. No.							Location
Doc. Control No.	Prc. Date	Author Affil.					FRC Access. No.
Record Type	Record Date	Author					FRC/SWDIV Box No.
Contr./Guid. No.	CTO No.	Recipient Affil.					FRC Warehouse Loc.
Approx. # Pages	EPA Cat. #	Recipient	Subject	Classification	Keywords	Sites	CD No.
M00681 / 001782	01-17-2002	BECHTEL	COMPILED RESPONSES TO COMMENTS ON	ADMIN RECORD	COMMENTS	001A	SOUTHWEST
CTO-0211/0040	01-16-2002	NATIONAL, INC.	THE DRAFT COMMUNITY RELATIONS PLAN	BASE	CRP	001D	DIVISION - BLDG.
CORRESP	00211				FACT SHEET	001E	12
N68711-92-D-4670		NAVFAC -			IRP	001F	
00011		SOUTHWEST			PIM	002A	PALLET 09 - BX-06;
		DIVISION			RESPONSE	007	IMAGED
					ROD	016	CPEN_008
					SEDIMENTS	017	
					SOIL	021	
					UST	027	
						033	
						062	
						1111	
						OU 1	
						OU 2	
						OU 3	
						OU 4	
						OU 5	
M00681 / 001788	03-05-2002	NAVFAC -	ACTION ITEMS, AGENDA, SIGN-IN SHEET &	ADMIN RECORD	DATA	001D	SOUTHWEST
NONE	02-21-2002	SOUTHWEST	HANDOUTS FROM OPERABLE UNIT (OU) 4	BASE	GW	001E-1	DIVISION - BLDG.
MISC	NONE	K. STEWART	DATA REVIEW TECHNICAL MEETING AND	INFO	METALS	001H	12
NONE		NAVFAC -	SITE 62 VISIT	REPOSITORY		030	
00118		SOUTHWEST				062	PALLET 09 - BX-06;
		DIVISION				AREA 22	IMAGED
						AREA 23	CPEN_009
						OU 4	
M00681 / 001789	03-27-2002	MCB CAMP	NOTIFICATION OF THE STATUS OF THE	ADMIN RECORD	CAMU	001D	SOUTHWEST
PENDLETON	02-27-2002	PENDLETON	REFUSE BURNING GROUND IN THE 20	BASE	FFA	AREA 20	DIVISION - BLDG.
ENVSEC/421	NONE	B. KALK	AREA - THE SITE IS BEING MOVED FROM	INFO	FS	OU 3	12
LTR		US EPA - SAN	OPERABLE UNIT 3 TO OPERABLE UNIT 4	REPOSITORY	IRP	OU 4	
NONE		FRANCISCO			OU		PALLET 09 - BX-06;
00002		D. JORDAN			REMEDIAL ACTIO		IMAGED
					ROD		CPEN_008
					SOIL		

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Record Type	Record Date	Author				FRC/SWDIV Box No.	
Contr./Guid. No.	CTO No.	Recipient Affil.				FRC Warehouse Loc.	
Approx. # Pages	EPA Cat. #	Recipient	Subject	Classification	Keywords	Sites	CD No.
M00681 / 001790	03-27-2002	NAVFAC -	TRANSMITTAL LETTER AND REVISED 66TH	ADMIN RECORD	BTEX	001A	SOUTHWEST
SWDIV SER	03-05-2002	SOUTHWEST	FEDERAL FACILITY AGREEMENT (FFA)	BASE	CERCLA	001D	DIVISION - BLDG.
5CEN.KS/148	NONE	DIVISION	MEETING MINUTES HELD ON 14 NOVEMBER	INFO	COC	001E	12
MM		K. BEVERLY	2001 (SEE AR #1779 - ORIGINAL MINUTES)	REPOSITORY	DCA	001F	
NONE		CRWQCB, DTSC,			FFA	002A	PALLET 09 - BX-06;
00013		US EPA			GW	007	IMAGED
		GRIFFEY,			LF	009	CPEN_008
		ALONZO,			MONITORING	062	
		HAUSLADEN			MTG MINS	AREA 22	
					MW	OU 1	
					NEPA	OU 3	
					PCB	OU 4	
					PCE	OU 5	
					QAPP		
					ROD		
					SOIL		
					SOIL BORING		
					UST		
					VOC		
					WATER		
					WELLS		
M00681 / 001793	04-17-2002	NAVFAC -	TRANSMITTAL OF INFORMATION	ADMIN RECORD	DISPOSAL	030	SOUTHWEST
SWDIV SER	03-27-2002	SOUTHWEST	REGARDING THE POSSIBLE USE OF	BASE	HAZ WASTE	062	DIVISION - BLDG.
5CEN.HD/213	NONE	DIVISION	TECHNOLOGY, AT THE FORMER ASPHALT		METALS		12
CORRESP		K. BEVERLY	BATCH PLANT, OF AN ORGANIC EMULSION		SOIL		
NONE		VARIOUS	TO PERMANENTLY STABILIZE		WATER		PALLET 09 - BX-06;
00021		AGENCIES	CONTAMINANTS WITHIN SOILS - THIS				IMAGED
			TECHNOLOGY ALSO BEING CONSIDERED				CPEN_009
			FOR THE FIRING RANGE				

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Approx. # Pages	EPA Cat. #	Recipient	Subject	Classification	Keywords	Sites	CD No.
M00681 / 000110	01-16-2003	PARSONS	DRAFT OPERABLE UNIT 4 SUPPLEMENTAL	ADMIN RECORD	ARSENIC	001D	SOUTHWEST
GS-10F-0179J	04-17-2002	ENGINEERING	FEASIBILITY STUDY FOR SITES 1D, 1E-1, 1H, BASE		BTEX	001E-1	DIVISION - BLDG. 1
MISC	NONE	S. GRISWOLD	30, AND 22/23 AREA GROUNDWATER,		CAH	001H	
N68711-00-F-7907		NAVFAC -	VOLUMES I THROUGH III		COC	AREA 22	
01000		SOUTHWEST			COPC	AREA 23	PROBLEM
		DIVISION			COPEC	OU 4	SHELVING
					DCA		
					DCE		
					DIPE		
					DQO		
					DRINKING WATE		
					ESA		
					ETBE		
					FFA		
					FS		
					GC/MS		
					GW		
					HPCDD		
					HPCDF		
					HSWA		
					HXCDD		
					HXCDF		
					MEK		
					METALS		
					MIBK		
					MOA		
					MTBE		
					NCP		
					NHPA		
					NPL		
					OCDD		
					OCDF		
					PAH		
					PCA		
					PCB		

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Record Type	Record Date	Author							FRC/SWDIV Box No.
Contr./Guid. No.	CTO No.	Recipient Affil.							FRC Warehouse Loc.
Approx. # Pages	EPA Cat. #	Recipient		Subject		Classification	Keywords	Sites	CD No.
							PCDD		
							PCDF		
							PCE		
							PECDD		
							PECDF		
							PESTICIDES		
							PID		
							POTW		
							PRG		
							QA		
							QC		
							RCRA		
							ROD		
							SARA		
							SDWA		
							SOIL		
							SVE		
							SVOC		
							TAME		
							TBA		
							TCA		
							TCDD		
							TCDF		
							TCE		
							TOC		
							TP		
							TPH		
							TSCA		
							UST		
							VOC		
							WQO		

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Record Type	Record Date	Author					FRC/SWDIV Box No.
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Approx. # Pages	EPA Cat. #	Recipient	Subject	Classification	Keywords	Sites	CD No.
M00681 / 000020 SER ENVSEC/421 CORRESP NONE 00015	07-03-2002 04-29-2002 NONE	MCB CAMP PENDLETON B. KALK VARIOUS AGENCIES	TRANSMITTAL OF THE EXECUTIVE SUMMARY OF THE DRAFT SUPPLEMENTAL FEASIBILITY STUDY FOR OPERABLE UNIT (OU) 4 GROUNDWATER FOR REVIEW AND COMMENT (SEE AR #235 - SUPPLEMENTAL FS)	ADMIN RECORD BASE	DATA FS GW SOIL	001D 001E-1 001H 030 AREA 22 AREA 23 OU 4	SOUTHWEST DIVISION - BLDG. 12 PALLET 09 - BX-06: IMAGED CPEN_009
M00681 / 001808 NONE CORRESP NONE 00002	04-07-2003 06-04-2002 NONE	CRWQCB B. GRIFFEY MCB CAMP PENDLETON L. LANDERS	REQUESTING AN EXTENSION OF THE REVIEW AND COMMENT PERIOD FOR THE DRAFT OPERABLE UNIT (OU) 4 SUPPLEMENTAL FEASIBILITY STUDY	ADMIN RECORD BASE	COMMENTS	001D 001E-1 001H 022 023 030	SOUTHWEST DIVISION - BLDG. 12 PALLET 09 - BX-06: IMAGED CPEN_009
M00681 / 001801 NONE CORRESP NONE 00003	04-07-2003 06-20-2002 NONE	DEPT OF FISH AND GAME C. HUANG MCB CAMP PENDLETON L. LANDERS	APPROVAL OF THE DRAFT OPERABLE UNIT 4 SUPPLEMENTAL FEASIBILITY STUDY	ADMIN RECORD BASE	COMMENTS	001D 001E-1 001H 022 023 030	SOUTHWEST DIVISION - BLDG. 12 PALLET 09 - BX-06: IMAGED CPEN_009

UIC No. / Rec. No.								Location
Doc. Control No.	Prc. Date	Author Affil.						FRC Access. No.
Record Type	Record Date	Author						FRC/SWDIV Box No.
Contr./Guid. No.	CTO No.	Recipient Affil.						FRC Warehouse Loc.
Approx. # Pages	EPA Cat. #	Recipient	Subject	Classification	Keywords	Sites	CD No.	
M00681 / 001854 NONE CORRESP NONE 00007	05-14-2003 07-30-2002 NONE	DTSC - CYPRESS T. MAHMOUD NAVFAC - SOUTHWEST DIVISION M. BILODEAU	COMMENTS ON THE DRAFT OPERABLE UNIT 4 SUPPLEMENTAL FEASIBILITY STUDY FOR SITES 1D, 1E-1, 1H, 30, AND 22/23 AREA GROUNDWATER	ADMIN RECORD BASE	COMMENTS	001D 001E-1 001H 022 023 030 OU 4	SOUTHWEST DIVISION - BLDG. 12 PALLET 09 - BX-06; IMAGED CPEN_009	
M00681 / 001809 NONE CORRESP NONE 00002	04-07-2003 07-31-2002 NONE	CRWQCB B. GRIFFEY NAVFAC - SOUTHWEST DIVISION M. BILODEAU	REQUESTING AN EXTENSION OF THE REVIEW AND COMMENT PERIOD FOR THE TECHNICAL MEMORANDUM, SUMMARY OF ANNUAL GROUNDWATER SAMPLING RESULTS	ADMIN RECORD BASE	COMMENTS	001A 001D 001E-1 001H 022 023 030	SOUTHWEST DIVISION - BLDG. 12 PALLET 09 - BX-06; IMAGED CPEN_009	
M00681 / 001810 FILE NO. 30-0456.05 CORRESP NONE 00003	04-07-2003 07-31-2002 NONE	CRWQCB B. GRIFFEY NAVFAC - SOUTHWEST DIVISION M. BILODEAU	COMMENTS ON MCB CAMP PENDLETON SITE 30 DISCUSSION POINTS	ADMIN RECORD BASE	COMMENTS	001D 001E-1 001H 022 023 030 OU 4	SOUTHWEST DIVISION - BLDG. 1 PROBLEM SHELVING	
M00681 / 001736 NONE CORRESP NONE 00035	04-03-2003 08-08-2002 NONE	CRWQCB - SAN DIEGO B. GRIFFEY NAVFAC - SOUTHWEST DIVISION M. BILODEAU	COMMENTS ON DRAFT OPERABLE UNIT 4, SUPPLEMENTAL FEASIBILITY STUDY	ADMIN RECORD BASE	COMMENTS	001D 001E-1 001H 022 023 030	SOUTHWEST DIVISION - BLDG. 12 PALLET 09 - BX-06; IMAGED CPEN_009	

UIC No. / Rec. No.								Location
Doc. Control No.	Prc. Date	Author Affil.						FRC Access. No.
Record Type	Record Date	Author						FRC/SWDIV Box No.
Contr./Guid. No.	CTO No.	Recipient Affil.						FRC Warehouse Loc.
Approx. # Pages	EPA Cat. #	Recipient	Subject	Classification	Keywords	Sites	CD No.	
M00681 / 001853 NONE CORRESP NONE 00001	05-14-2003 08-13-2002 NONE	U.S. FISH AND WILDLIFE SERVICE J. GIBSON NAVFAC - SOUTHWEST DIVISION M. BILODEAU	COMMENTS ON THE DRAFT OPERABLE UNIT (OU) 4 SUPPLEMENTAL FEASIBILITY STUDY FOR SITES 1D, 1E-1, 1H, 30, AND 22/23 AREA GROUNDWATER	ADMIN RECORD BASE	COMMENTS	001D 001E-1 001H 022 023 030		SOUTHWEST DIVISION - BLDG. 12 PALLET 09 - BX-06: IMAGED CPEN_009
M00681 / 001852 NONE CORRESP NONE 00008	05-14-2003 08-14-2002 NONE	OMF - CYPRESS T. MAHMOUD NAVFAC - SOUTHWEST DIVISION M. BILODEAU	COMMENTS ON THE DRAFT OPERABLE UNIT 4 SUPPLEMENTAL FEASIBILITY STUDY FOR SITES 1D, 1E-1, 1H, 30, AND 22/23 AREA GROUNDWATER, ECOLOGICAL RISK ASSESSMENT	ADMIN RECORD BASE	COMMENTS	001D 001E-1 001H 022 023 030 OU 4		SOUTHWEST DIVISION - BLDG. 12 PALLET 09 - BX-06: IMAGED CPEN_009
M00681 / 000078 SER ENVSEC/415 CORRESP NONE 00006	09-19-2002 08-23-2002 NONE	MCB CAMP PENDLETON T. SAHAGUN PARSONS ENGINEERING SCIENCE S. GRISWOLD	TRANSMITTAL OF COMMENTS ON THE DRAFT OPERABLE UNIT (OU) 4 SUPPLEMENTAL FEASIBILITY STUDY	ADMIN RECORD BASE	COC COMMENTS DDE DDT GW PESTICIDES SOIL VOC	001D 001E-1 001H 030 AREA 22 AREA 23 OU 4		SOUTHWEST DIVISION - BLDG. 1 PROBLEM SHELVING

[illegible]

UIC No. / Rec. No.								Location
Doc. Control No.	Prc. Date	Author Affil.					FRC Access. No.	
Record Type	Record Date	Author					FRC/SWDIV Box No.	
Contr./Guid. No.	CTO No.	Recipient Affil.					FRC Warehouse Loc.	
Approx. # Pages	EPA Cat. #	Recipient	Subject	Classification	Keywords	Sites	CD No.	
M00681 / 001819 FILE NO. 30-0456.05 CORRESP NONE 00006	04-07-2003 12-12-2002 NONE	CRWQCB - SAN DIEGO B. GRIFFEY NAVFAC - SOUTHWEST DIVISION M. BILODEAU	COMMENTS ON THE DRAFT OPERABLE UNIT 4, SUPPLEMENTAL FEASIBILITY STUDY	ADMIN RECORD BASE	COMMENTS	001D 001E-1 001H 022 023 030	SOUTHWEST DIVISION - BLDG. 12 PALLET 09 - BX-06: IMAGED CPEN_009	
M00681 / 000122 SWDIV SER 5CEN.MB/006 CORRESP NONE 00002	01-21-2003 01-06-2003 NONE	NAVFAC - SOUTHWEST DIVISION K. BEVERLY VARIOUS AGENCIES	REQUEST FOR EXTENSION TO RESPOND TO COMMENTS ON THE DRAFT OPERABLE UNIT (OU) 4 SUPPLEMENTAL FEASIBILITY STUDY FOR SITES 1D, 1E-1, 1H, 30, AND 22/23 AREA GROUNDWATER - THE DRAFT FINAL WILL BE SUBMITTED ON 18 MARCH 2003	ADMIN RECORD BASE	COMMENTS FFA FS RESPONSE	001D 001E-1 001H 030 AREA 22 AREA 23	SOUTHWEST DIVISION - BLDG. 12 PALLET 09 - BX-06: IMAGED CPEN_009	
M00681 / 003525 NONE MISC NONE 00171	07-28-2003 03-13-2003 NONE	NAVFAC - SOUTHWEST DIVISION K. STEWART VARIOUS AGENCIES	RESPONSE TO COMMENTS ON THE DRAFT FINAL OPERABLE UNIT (OU) 4 SUPPLEMENTAL FEASIBILITY STUDY [INCLUDES SWDIV TRANSMITTAL LETTER BY K. STEWART]	ADMIN RECORD BASE INFO REPOSITORY	COMMENTS	001D 001E-1 001H 022 023 030 OU 4	SOUTHWEST DIVISION - BLDG. 12 PALLET 09 - BX-06: IMAGED CPEN_009	
M00681 / 001857 SWDIV SER 5SEN.MS/0252 LTR NONE 00100	05-15-2003 05-06-2003 NONE	NAVFAC - SOUTHWEST DIVISION K. STEWART VARIOUS AGENCIES	FOLLOW-UP LETTER REGARDING THE FEDERAL FACILITY AGREEMENT (FFA) TELEPHONE CONFERENCE OF 30 APRIL 2003 REGARDING A 90 DAY EXTENSION (WITH ENCLOSURES)	ADMIN RECORD BASE INFO REPOSITORY		001D 001H 030	SOUTHWEST DIVISION - BLDG. 1 PROBLEM SHELVING	

UIC No. / Rec. No.								Location	
Doc. Control No.	Prc. Date	Author Affil.							FRC Access. No.
Record Type	Record Date	Author							FRC/SWDIV Box No.
Contr./Guid. No.	CTO No.	Recipient Affil.							FRC Warehouse Loc.
Approx. # Pages	EPA Cat. #	Recipient	Subject	Classification	Keywords	Sites	CD No.		
M00681 / 001869	12-12-2003	NAVFAC -	LETTER DOCUMENTING PLACEMENT OF	ADMIN RECORD		001D	SOUTHWEST		
SWDIV SER	12-03-2003	SOUTHWEST	SITE 1D, A REFUSE BURNING GROUND IN	BASE		OU 3	DIVISION - BLDG.		
5CEN.KS/691	NONE	DIVISION	THE 20 AREA OF MARINE CORPS BASE	INFO		OU 4	12		
LTR		K. BEVERLY	INTO OPERABLE UNIT (OU) 4 OF CAMP	REPOSITORY					
NONE		VARIOUS	PENDLETON'S INSTALLATION						
00003		AGENCIES	RESTORATION PROGRAM						
							PALLET 08 - PACK-		
							001		
							IMAGED		
							CPEN_010		

UIC No. / Rec. No.							Location
Doc. Control No.	Prc. Date	Author Affil.					FRC Access. No.
Record Type	Record Date	Author					FRC/SWDIV Box No.
Contr./Guid. No.	CTO No.	Recipient Affil.					FRC Warehouse Loc.
Approx. # Pages	EPA Cat. #	Recipient	Subject	Classification	Keywords	Sites	CD No.
M00681 / 000083	01-07-2004	PARSONS	DRAFT FINAL OPERABLE UNIT (OU) 4	ADMIN RECORD	BTEX	001D	SOUTHWEST
GS-10F-0179K &	12-19-2003	J. GOEPEL	FEASIBILITY STUDY FOR SITES 1D, 1E-1, 1H,	BASE	CDD	001E-1	DIVISION - BLDG.
SWDIV SER	NONE	NAVFAC -	AND 30, VOLUME I-II OF II [INCLUDES SWDIV	INFO	CDF	001H	12
5CEN.MB/721&		SOUTHWEST	TRANSMITTAL LETTER BY K. BEVERLY]	REPOSITORY	DCA	030	
5CEN.MB/112		DIVISION			DCE		PALLET 08 - BX-2
RPT					DDD		
N68711-00-F-7907					DDT		
03000					DIPE		
					HDPE		
					HPCDD		
					HPCDF		
					HXCDD		
					HXCDF		
					MEK		
					MIBK		
					MTBE		
					PAH		
					PCA		
					PCB		
					PCDD		
					PCDF		
					PECDD		
					PECDF		
					SVOC		
					TAME		
					TBA		
					TCA		
					TCDD		
					TCDF		
					TCE		
					TCP		
					TOC		
					TPH		
					VOC		

UIC No. / Rec. No.								Location
Doc. Control No.	Prc. Date	Author Affil.						FRC Access. No.
Record Type	Record Date	Author						FRC/SWDIV Box No.
Contr./Guid. No.	CTO No.	Recipient Affil.						FRC Warehouse Loc.
Approx. # Pages	EPA Cat. #	Recipient	Subject	Classification	Keywords	Sites	CD No.	
M00681 / 003530 NONE LTR NONE 00003	04-19-2004 02-19-2004 NONE	DTSC - CYPRESS E. YEMUT NAVFAC - SOUTHWEST DIVISION M. BILODEAU	LETTER ON APPROVAL OF FEASIBILITY STUDY (FS)	ADMIN RECORD BASE INFO REPOSITORY	FS	001D 001E-1 001H 030 OU 4		SOUTHWEST DIVISION - BLDG. 1
M00681 / 003531 NONE LTR NONE 00004	04-19-2004 03-02-2004 NONE	CRWQCB - SAN DIEGO B. GRIFFEY NAVFAC - SOUTHWEST DIVISION K. BEVERLY	COMMENTS ON THE DRAFT FINAL FEASIBILITY STUDY (FS)	ADMIN RECORD BASE INFO REPOSITORY	FS GW SOIL	001D 001E-1 001H 030		SOUTHWEST DIVISION - BLDG. 1
M00681 / 001886 NONE LTR NONE 00003	04-30-2004 03-25-2004 NONE	CRWQCB - SAN DIEGO J. ANDERSON NAVFAC - SOUTHWEST DIVISION W. SANDZA	LETTER REGARDING MISUNDERSTANDING ON THE REVIEW AND COMMENT AND FINALIZATION OF THE OPERABLE UNIT 4 FEASIBILITY STUDY FOR SITE 1D, 1E-1, 1H AND 30	ADMIN RECORD BASE INFO REPOSITORY		001D 001E-1 001H 030		SOUTHWEST DIVISION - BLDG. 1
M00681 / 003565 NONE RPT NONE 00016	05-23-2005 05-01-2005 NONE	NAVFAC - SOUTHWEST DIVISION MCB - CAMP PENDLETON	DRAFT PROPOSED PLAN	ADMIN RECORD BASE INFO REPOSITORY	OU PROPOSAL	001D 001E-1 030 OU 4		SOUTHWEST DIVISION - BLDG. 1

UIC No. / Rec. No.							Location
Doc. Control No.	Prc. Date	Author Affil.					FRC Access. No.
Record Type	Record Date	Author					FRC/SWDIV Box No.
Contr./Guid. No.	CTO No.	Recipient Affil.					FRC Warehouse Loc.
Approx. # Pages	EPA Cat. #	Recipient	Subject	Classification	Keywords	Sites	CD No.
M00681 / 003560 NONE CORRESP NONE 00002	05-10-2005 05-05-2005 NONE	CRWQCB - SAN DIEGO B. GRIFFEY BRAC - SAN DIEGO D. ANDREW	CRWQCB - REVIEW OF AND APPROVAL OF THE DRAFT PROPOSED PLAN	ADMIN RECORD BASE INFO REPOSITORY		001D 001H 030 OU 4	SOUTHWEST DIVISION - BLDG. 1
M00681 / 003575 NONE RPT NONE 00010	08-18-2005 07-01-2005 NONE	NAVFAC - SOUTHWEST DIVISION MCB - CAMP PENDLETON	PROPOSED PLAN FOR OPERABLE UNIT AT THREE INSTALLATION RESTORATION PROGRAM (IRP) SITES	ADMIN RECORD BASE INFO REPOSITORY	IRP OU	001D 001E-1 030 OU 004	SOUTHWEST DIVISION - BLDG. 1
M00681 / 003576 SWDIVSER OPCE.TM/424 RESPONSE NONE 00005	08-18-2005 07-28-2005 NONE	NAVFAC - SOUTHWEST DIVISION T. MORLEY VARIOUS AGENCIES	RESPONSE TO COMMENTS ON DRAFT PROPOSED PLAN (PP) FOR OPERABLE UNIT	ADMIN RECORD BASE INFO REPOSITORY	COMMENTS OU PP RESPONSE	001D 001E-1 030 OU 004	SOUTHWEST DIVISION - BLDG. 1
M00681 / 003582 NONE PUB NOTICE NONE 00018	10-26-2005 09-01-2005 NONE	PARSONS NAVFAC - SOUTHWEST DIVISION	FACT SHEET: PROPOSED PLAN FOR ADDRESSING CONTAMINATED SOILS AT 3 INSTALLATION RESTORATION (IR) PROGRAM SITES	ADMIN RECORD BASE INFO REPOSITORY	CONTAMINATED GW HHRA REMEDIAL ACTIO	001D 001E-1 030 OU 4	SOUTHWEST DIVISION - BLDG. 1

UIC No. / Rec. No.								Location	
Doc. Control No.	Prc. Date	Author Affil.						FRC Access. No.	
Record Type	Record Date	Author						FRC/SWDIV Box No.	
Contr./Guid. No.	CTO No.	Recipient Affil.						FRC Warehouse Loc.	
Approx. # Pages	EPA Cat. #	Recipient		Subject		Classification	Keywords	Sites	CD No.

Total Estimated Record Page Count: 20,617

Total - Administrative Records: 105

[UIC NUMBER]='M00681'
No Keywords
Sites=001D;001D/1003;030
No Classification

APPENDIX B
TRANSCRIPT FROM PUBLIC MEETING



Monday, January 30, 2006

Parsons
ATTN: Steve Griswold
100 W. Walnut Street
Pasadena, CA 91124

Re: Public Meeting on Wednesday, October 12, 2005

Dear Mr. Griswold:

I, David Dutcher, General Manager for Esquire Deposition Services, San Diego, do hereby declare as follows:

On Wednesday, October 12, 2005, at the Public Meeting scheduled for 6:00 p.m. in the Stuart Mesa Community Center of Marine Corps Base Camp Pendleton, Certified Shorthand Reporter Barbera Surrey appeared for the purpose of reporting any comments from the public. She was present at the meeting until 8:35 p.m. and no public comments were received. Therefore, no transcript was produced.

Sincerely,

David Dutcher
General Manager

APPENDIX C
REMEDIAL GOALS AND HUMAN HEALTH SCREENING-LEVEL
EVALUATIONS

TABLE P-3
Surface Soil^a and Subsurface Soil
Background Concentrations for Metals

Metal	Soil - 0 to 5 Feet (mg/kg)				Soil - 0 to 10 Feet (mg/kg)	
	Las Flores Basin 95th Percentile ^b	Marine Terrace Deposits 95th Percentile ^b	Santa Margarita Basin 95th Percentile ^c	San Luis Rey Basin 95th Percentile	Santa Margarita Basin 95th Percentile ^c	San Luis Rey Basin 95th Percentile ^c
Aluminum	40,000	20,200	20,999	16,398	21,733	15,156
Antimony	8.76 ^e	8.76 ^e	8.76	8.76 ^e	8.38	8.38 ^e
Arsenic	4.26 ^f	2.67	4.61	17.2	4.25	16.0
Barium	435	217	262	133 ^d	261.2	385
Beryllium	1.2	1.52 ^e	1.52	1.52 ^e	1.42	1.42 ^e
Cadmium	1.58 ^e	1.6	1.58	1.58 ^e	1.52	1.52 ^e
Chromium	34.6	77.9	33.0	15.5	32.6	13.2
Cobalt	9.85	20.3	13.3	13.3 ^e	12.8	12.8 ^e
Copper	27.9	78.4	26.8	6.5	26.0	4.8
Cyanide	0.24 ^e	0.24 ^e	0.24	0.24 ^e	0.37	0.37 ^e
Iron	37,000	31,400	26,459	20,200 ^d	28,553	19,883
Lead	15.1	23.7	29.1	11.7	21.7	10.2
Magnesium	11,300	7,200	10,601	6,103	10,672	6,150
Manganese	549	1,170	688	199 ^d	655	199 ^d
Mercury	0.08 ^e	0.05	0.08	0.05 ^d	0.10	0.05 ^d
Molybdenum	7.36 ^e	7.36 ^e	7.36	7.36 ^e	5.98	7.36 ^e
Nickel	15.9	41.4	22.5	4.8	20.2	4.1
Selenium	0.78 ^e	0.78 ^e	0.78	0.78 ^e	0.80	0.80 ^e
Silver	1.36 ^e	2.34	1.36	1.36 ^e	1.36	1.36 ^e
Thallium	1.35 ^e	1.71	1.35	1.35 ^e	1.33	1.33 ^e
Vanadium	102	85.1	69.4	39.7	73.8	36.0
Zinc	91.0	67.4	111	56.0	104	59.7 ^d

^aSurface soils 0 to 5 feet.

^bFrom the Group B RI report (SWDIV, 1995); soil background is limited to 0- to 5-foot interval.

^cFrom the Group C RI report (SWDIV, 1996).

^d95th percentile is higher than the maximum detected value, the concentration used for background is defaulted to the maximum value.

^eThe background data set was nondetect for this chemical, so the background concentration calculated for the Santa Margarita basin was used as a substitute.

^fThe highest detected value is used because the detection limits for nondetects were more than four times the highest detected value.

mg/kg - Milligrams per kilogram; equivalent to parts per million.

RI - Remedial investigation.

SWDIV - Southwest Division Naval Facilities Engineering Command.

APPENDIX C1
SITE 1D

TABLE 3-1
Site 1D Contaminants of Concern in Soil
and Associated Proposed Remediation Goals
MCB Camp Pendleton
 (Sheet 1 of 2)

	Human Health Concern				Ecological Concern					
Contaminant of Concern ^a	Maximum Concentration ^b (mg/kg)	Sampling Depths of Concern ^c (feet)	PRG (mg/kg)	Background ^d Concentration (mg/kg)	Maximum Concentration ^b (mg/kg)	Sampling Depths of Concern ^c (feet)	PLE ^e (mg/kg)	Background ^d Concentration (mg/kg)	Proposed Remediation Goal (mg/kg) 0-5 feet	Proposed Remediation Goal (mg/kg) 5-10 feet
Metals										
Antimony	35.3	0.5	31	8.38	35.3	0.5, 1.0, 1.5, 6.0	1.3 (CM)	8,76	8.8	31
Arsenic	7.3	0.5, 1, 1.5	0.38	4.25	--	--	--	--	4.3	4.3
Chromium	40.8	0.5, 1, 2	210 ^f	32.6	--	--	--	--	210 ^f	210 ^f
Copper	--	--	--	--	739	0.5, 1, 1.5	13 (CM)	26	26	--
Iron	--	--	--	--	30,100	0.5	186 (CG)	26,459	26,459	--
Lead	1,100	0.5	130	21.7	1,100	0.5, 1.0, 2.0	13 (CM)	29.1	29	130
Zinc	--	--	--	--	2,880	0.5, 1.0, 1.5	80 (CG)	111	111	--

^a The list of contaminants of concern is based on the chemical list included in Table 2-2 of the EE/CA report (Kleinfelder, 1997).

^b The listed values are the maximum concentrations reported in the depth intervals of human health or ecological concern.

^c The listed sampling depths are where concentrations of contaminants of concern were reported exceeding the PRGs and background values for chemicals of human health concern and the PLEs and background values for chemicals of ecological concern.

TABLE 3-1
Site 1D Contaminants of Concern in Soil
and Associated Proposed Remediation Goals
MCB Camp Pendleton
(Sheet 2 of 2)

- ^d The background concentrations were calculated differently for human health and ecological risk evaluations (SWDIV, 1996a).
- ^e The listed PLEs are the lowest among those PLEs listed for the site-specific representative species in the Group C RI report (SWDIV, 1996a), with the exception of mammals and/or birds for which PLEs were derived using a single toxicity value. For these species, the highest PLE was selected. Species designations are as follows:
- Invertebrate - I
 - California mouse - CM
 - Plant - P
 - California quail - CQ
 - California gnatcatcher - CG
- ^f Since the original publication of this table, the PRG for unrestricted land use for chromium has changed to 210 mg/kg; therefore, the remediation goal for this contaminant of concern is 210 mg/kg. The original table indicated a PRG of 0.2 mg/kg and a proposed remediation goal of 33 mg/kg.
- - Indicates that the chemical is not a contaminant of concern for the category (i.e., human health concern or ecological concern).
- mg/kg - Milligrams per kilogram.
- N/A - Not available.
- PLE - Preliminary limits of exposure
- PRG - Preliminary remediation goal using a residential land use scenario.

TABLE 3-2
Remedial Action Objectives and Goals for Site 1D Soil
MCB Camp Pendleton

Objective: Minimize exposure to chemicals in soil at concentrations exceeding background concentrations, preliminary remediation goals for humans, levels protective of groundwater, and preliminary limits of exposure for plants, invertebrates, birds, and mammals.

Goals:

Contaminant of Concern	Maximum Concentration (mg/kg)	Proposed Remediation Goal (mg/kg) (0-3 feet)
Antimony	35	8.8 ^a
Arsenic	6.4	4.3 ^a
Chromium	37	210 ^b
Copper	739	26 ^a
Iron	30,100	26,459 ^a
Lead	1,100	29 ^a
Zinc	2,880	111 ^a

^a Proposed remediation goal was set at background.

^b Since the original publication of this table, the PRG for unrestricted land use for chromium has changed to 210 mg/kg; therefore, the remediation goal for this contaminant of concern is 210 mg/kg. The original table indicated a PRG of 0.2 mg/kg and a proposed remediation goal of 33 mg/kg. Refer to Table 3-1.

mg/kg - Milligrams per kilogram.

Table 2-7
Site 1D Summary of Human Health Screening-Level Evaluation
OU 4 Supplemental FS, MCB Camp Pendleton, California

Exposure Scenario	Total Cancer Risk	Total Hazard Index
Hypothetical Residential Receptor (0 - 10 ft bgs)		
Antimony ^a	-	1.2
Arsenic ^a	2×10^{-5}	0.3
Chromium ^{a,b}	2×10^{-4}	0.1
Lead ^a	-	8.5 ^c
Other Detected Chemicals ^a	9×10^{-6}	1.6
Subtotal (metals)^a	2×10^{-4} (2×10^{-5})^c	11.6^a (3.1)^d
2,3,7,8-TCDD ^e	6×10^{-5}	-
Total (All COPCs)	3×10^{-4} (8×10^{-5})^c	11.6^a (3.1)^d

^a Source: SWDIV, 1997 (Draft Final RI Report for Group D Sites)

^b The cancer risk estimate for chromium assumed that all detected chromium is hexavalent and is based on toxicity data that has been withdrawn by California. The actual cancer risk from chromium is likely less than 1×10^{-6} .

^c The risk values shown in parentheses excludes beryllium and chromium (see text).

^d A non-cancer hazard was calculated for lead and was incorrectly assumed to be additive to the hazard quotients for the other COPCs. The value shown in parentheses is the hazard index without lead.

^e Source: Appendix I1 (see Tables I1-1 and I1-2).

APPENDIX C2
SITE 1E-1

TABLE 4-1
Site 1E Contaminants of Concern in Soil
and Associated Proposed Remediation Goals
MCB Camp Pendleton
 (Sheet 1 of 2)

Contaminant of Concern ^a	Human Health Concern				Ecological Concern				Proposed Remediation Goal	
	Maximum Concentration ^b (mg/kg)	Sampling Depths of Concern ^c (feet)	PRG (mg/kg)	Background Concentration ^d (mg/kg)	Maximum Concentration ^b (mg/kg)	Sampling Depths of Concern ^c (feet)	PLE ^e (mg/kg)	Background Concentration ^d (mg/kg)	0-5 feet (mg/kg)	5-10 feet (mg/kg)
Metals										
Aluminum	--	--	--	--	47,200	1	891(PM)	20,999	20,999	--
Antimony	140	0.5, 15	31	8.38	140	0.5, 1.5, 2, 15	1.2(PM)	8.76	8.8	31
Arsenic	10.7	0.5, 2	0.38	4.25	--	--	--	--	4.3	4.3
Cadmium	9.3	2, 23	9	1.52	--	--	--	--	9	9
Chromium	104	0.5, 2, 7, 18, 23	0.2	32.6	--	--	--	--	33	33
Cobalt	--	--	--	--	24.5	1, 1.5, 2, 7,	3(PM)	13.3	13	--
Copper	--	--	--	--	1,660	0.5	11(PM)	26	26	--
Iron	--	--	--	--	61,500	0.5	437(PM)	26,459	26,459	--
Lead	1,610	0.5	130	21.7	1,610	0.5, 1, 1.5	16(PM)	29.1	29	130
Zinc	--	--	--	--	5,930	0.5, 1.5, 2, 7, 10, 15	960(PM)	111	960	--

TABLE 4-1
Site 1E Contaminants of Concern In Soil
and Associated Proposed Remediation Goals
MCB Camp Pendleton
(Sheet 2 of 2)

^aThe list of contaminants of concern is based on the chemical list included in Table 2-3 of the EE/CA report (Kleinfelder, 1997).
^bThe listed values are the maximum concentrations reported in the depth intervals of human health or ecological concern.
^cThe listed sampling depths are where concentrations of contaminants of concern were reported exceeding the PRGs and background values for chemicals of human health concern and exceeding the PLEs and background values for chemicals of ecological concern.
^dThe background concentrations were calculated differently for human health and ecological risk evaluations (SWDIV, 1996a).
^eThe listed PLEs are the lowest among those PLEs listed for the site-specific representative species in the Group C RI report (SWDIV, 1996a), with the exception of mammals and/or birds for which the PLEs were derived from a single toxicity value. For these species, the highest PLE were selected.
Species designations are as follows:

- Invertebrate - I
- Pacific pocket mouse - PM
- Plant - P
- California gnatcatcher - CG
- California quail - CQ

-- Indicates that the chemical is not a contaminant of concern for the category (i.e., human health concern or ecological concern).
EE/CA - Engineering evaluation/cost analysis.
mg/kg - Milligrams per kilogram.
N/A - Not available.
PLE - Preliminary limits of exposure.
PRG - Preliminary remediation goal using a residential land use scenario.

TABLE 4-2
Remedial Action Objectives and Goals for Site 1E Soil
MCB Camp Pendleton

Objective: Minimize exposure to chemicals in soil at concentrations exceeding background concentrations, preliminary remediation goals for humans, levels protective of groundwater, and preliminary limits of exposure for plants, invertebrates, birds, and mammals.

Goals:

Contaminant of Concern	Maximum Concentration (mg/kg)	Proposed Remediation Goal (mg/kg) (0-5 feet)	Proposed Remediation Goal (mg/kg) (5-10 feet)
Aluminum	47,200	20,999 ^a	--
Antimony	140	8.8 ^a	31 ^a
Arsenic	10.7	4.3 ^a	4.3 ^a
Cadmium	9.3	9 ^b	9 ^b
Chromium	104	33 ^a	33 ^a
Cobalt	25	13 ^a	--
Copper	1,660	26 ^a	--
Iron	61,500	26,459 ^a	--
Lead	1,610	29 ^a	130 ^b
Zinc	5,930	960 ^c	--

^aProposed remediation goal was set at background.

^bProposed remediation goal was set at the risk-based PRG.

^cProposed remediation goal was set at the most stringent PLE for the species of concern.

mg/kg - Milligrams per kilogram.

-- Denotes that the contaminant is not of concern at that depth range.

Table 3-8
Site 1E-1 Summary of Human Health Screening-Level Evaluation
OU 4 Supplemental FS, MCB Camp Pendleton, California

Exposure Scenario	Total Cancer Risk ^a	Total Hazard Index ^a
Hypothetical Residential Receptor (0 - 10 ft bgs)^b		
Arsenic	7×10^{-6}	< 0.1
2,3,7,8-TCDD	4×10^{-7}	-
All other detected analytes	$< 1 \times 10^{-7}$	< 0.1
Total (All COPCs)	8×10^{-6}	< 0.1

^a As discussed in the text, soil samples collected at the surface (0 to 1 ft bgs) were assumed to be representative of the 0 to 10 ft bgs soil interval.

^b Source: Appendix I2.

APPENDIX C3
SITE 30

TABLE 7-1
Site 30 Contaminants of Concern in Soil
and Associated Proposed Remediation Goals
MCB Camp Pendleton
 (Sheet 1 of 2)

Contaminant of Concern ^a	Human Health Concern				Ecological Concern				Proposed Remediation Goal (mg/kg) 0 - 5 Feet	Proposed Remediation Goal (mg/kg) 5 - 10 feet
	Maximum Concentration ^b (mg/kg)	Sampling Depths of Concern ^c (feet)	PRG (mg/kg)	Background Concentration ^d (mg/kg)	Maximum Concentration ^b (mg/kg)	Sampling Depths of Concern ^c (feet)	PLE ^e (mg/kg)	Background Concentration ^d (mg/kg)		
Metals										
Antimony	1,080	0.5, 0.6	31	8.38	1,080	0.5, 0.6, 2, 3.5, 5, 5.5	0.8(SS)	8.76	8.8	31
Arsenic	16	0.6, 5.0, 5.5, 20.5, 40	0.38	4.25	16	0.5, 0.6, 1, 5, 5.5, 48	1.1(SS)	4.61	4.3	4.3
Chromium	59.3	0.5, 0.6	0.2	32.6	52.1	0.5, 5	3.2(SS)	32.6	33	33
Cobalt	--	--	--	--	18.1	0.5, 0.6, 2, 5	0.3(SS)	13.3	13	--
Copper	--	--	--	--	3,530	0.5, 0.6, 2, 3.5	13(CM)	26	26	--
Lead	109,000	0.5, 0.6, 5.0	130	21.7	109,000	0.5, 0.6, 1.5, 2, 3.5, 5, 5.5	13(CM)	29.1	29	130
Manganese	5,140	0.5, 5	3,200	655	--	--	--	--	3,200	3,200

TABLE 7-1
Site 30 Contaminants of Concern in Soil
and Associated Proposed Remediation Goals
MCB Camp Pendleton
(Sheet 2 of 2)

^aThe list of contaminants of concern is based on the chemical list included in Table 2-4 of the EE/CA report (Kleinfelder, 1997).
^bThe listed values are the maximum concentrations reported in the depth intervals of human health or ecological concern.
^cThe listed sampling depths are where concentrations of contaminants of concern were reported exceeding the PRGs and background values for chemicals of human health concern and exceeding the PLEs and background values for chemicals of ecological concern.
^dThe background concentrations were calculated differently for human health and ecological risk evaluations (SWDIV, 1996a).
^eThe listed PLEs are the lowest among those PLEs listed for the site-specific representative species in the Group C RI report (SWDIV, 1996a), with the exception of mammals and/or birds for which PLEs were derived using a single toxicity value. For these species, the highest PLE was selected. Species designations are as follows:

- Invertebrate - I
- California mouse - CM
- Plant - P
- California quail - CQ
- California gnatcatcher - CG
- Savannah sparrow - SS.

-- Indicates the chemical is not a contaminant of concern for the category (i.e., human health concern or ecological concern).
EE/CA - Engineering evaluation/cost analysis.
mg/kg - Milligrams per kilogram.
N/A - Not available.
PLE - Preliminary limits of exposure.
PRG - Preliminary remediation goal using a residential land use scenario.

TABLE 7-2
Remedial Action Objectives and Goals for Site 30 Soil
MCB Camp Pendleton

Objective: Minimize exposure to chemicals in soil at concentrations exceeding background concentrations, preliminary remediation goals for humans, levels protective of groundwater, and preliminary limits of exposure for plants, invertebrates, birds, and mammals.

Goals:

Contaminant of Concern	Maximum Concentration (mg/kg)	Proposed Remediation Goal (mg/kg) (0-5 feet)	Proposed Remediation Goal (mg/kg) (5-10 feet)
Antimony	1,080	8.8 ^a	31 ^b
Arsenic	16	4.3 ^a	4.3 ^a
Chromium	59	33 ^a	33 ^a
Cobalt	18	13 ^a	--
Copper	543	26 ^a	--
Lead	109,000	29 ^a	130 ^b
Manganese	5,140	3,200 ^b	3,200 ^b

^aProposed remediation goal was set at background.

^bProposed remediation goal was set at the risk-based PRG.

mg/kg - Milligrams per kilogram.

PRG - Preliminary remediation goal.

-- Denotes that the contaminant is not of concern at that depth range.

Table 5-5
Site 30 Summary of Human Health Screening-Level Evaluation
OU 4 Supplemental FS, MCB Camp Pendleton, California

Exposure Scenario	Total Cancer Risk ^a	Total Hazard Index ^a
Hypothetical Residential Receptor (0 - 10 ft bgs)		
Antimony	-	5.2
Arsenic	4×10^{-5}	0.7
Beryllium	1×10^{-5}	< 0.1
Chromium ^{a,b}	3×10^{-4}	0.1
Lead	-	146 ^d
Manganese	-	1.4
Other Detected Chemicals	4×10^{-7}	
Total (All COPCs)	$(4 \times 10^{-5})^c$	155 (8.3)^d

^a Source: SWDIV, 1996b (Draft Final RI Report for Group C Sites)

^b The cancer risk estimate for chromium assumed that all detected chromium is hexavalent and is based on toxicity data that has been withdrawn by California. The actual cancer risk from chromium is likely less than 1×10^{-6} .

^c The risk value shown in parentheses excludes beryllium and chromium (see text).

^d A non-cancer hazard was calculated for lead and was incorrectly assumed to be additive to the hazard quotients for the other COPCs. The value shown in parentheses is the hazard index without lead.